PAMPHLET BOX

PAMPHLET BOX

Physics Abstracts

Science Abstracts Series A
July–December 1974

Subject Index part A

U. I. C. C.
JUN 30 1975
LIBRARY

inspec
The Institution of Electrical Engineers

CONTENTS

Title page i
Subject index S 1307

SIX-MONTHLY INDEXES TO SCIENCE ABSTRACTS

Cumulative indexes to Science Abstracts are published twice a year covering the period January-June and July-December. They comprise author and subject indexes and some specialised or 'small' indexes. For Physics Abstracts and Electrical & Electronics Abstracts the Author Index and Subject Index are published as separate volumes. In this case the Small Indexes are included in the Author Index volume.

Author index

This lists in alphabetical order all authors of papers abstracted in the abstracts journal during the six months covered by the index, together with the title of the paper. Where there are co-authors of a paper the title of the paper is given only under the name of the first author. The serial number of the paper in the abstracts journal is in the form 4–12345, ie 1974—abstract no. 12345.

'Small' indexes

These are specialised indexes which allow the user to find quickly particular types of information which might be difficult to find using the subject or author indexes.

Bibliography index

In this index reference is made to articles which contain a significant list of references or biliography on the subjects listed.

Book index

This gives details of books received and abstracted by the abstracts journal.

Patent and Report indexes

These give details of those reports or patents which have been abstracted in the abstracts journal during the past six months.

Conference index

This index lists conferences for which published proceedings have been received and abstracted. Reference is given to the individual papers and their serial numbers in the abstracts journal.

Subject index

The Subject index provides an alphabetical subject key to the articles included in the abstracts journal. Some general guidance on its use is given below:

1. Look in the index for the name of the specific subject in which you are interested. In most cases this name will be a heading in the index and you will find relevant articles listed under it.

2. Occasionally you will be directed from the subject heading chosen to a different heading under which the relevant or additional articles are listed.

3. If you do not find the subject heading you first choose, try a more general heading.

4. Each entry under the heading relates to an article appearing in the abstracts journal and gives the serial number of that article in the journal preceded by the last digit of the current year, eg 4—12345: ie Abstract number 12345 in the abstracts journal for 1974.

Physics Abstracts

Volume 77, Part 2 July–December 1974

Subject Index part A

inspec
The Institution of Electrical Engineers

Physics Abstracts is published twice monthly by the Institution of Electrical Engineers. Twice-yearly subject and author indexes covering the period January-June and July-December are included in the subscription. Printed by Unwin Brothers Limited, Old Woking, Surrey, England. Second class postage paid in Piscataway, NJ 08854, USA.

© 1975: THE INSTITUTION OF ELECTRICAL ENGINEERS

Subject Index

4π counters *see counters*
A centres *see colour centres*
A/D conversion *see analogue-digital conversion*
abacs *see nomograms*
aberrations
  see also lenses; optical instrument testing; particle optics
  acoustic holography, aperture synthesis for reduction of aberration *(Russian)* 4−54950
  afocal parabolic reflector, spherical aberration, coma and astigmatism corrections 4−46619
  aperture of composite objective, holographic synthesis 4−71212
  astigmatic circular aperture, optical transfer function 4−81288
  astigmatism, aspherical surface deform. effect 4−80879
  astronomical two-lens objectives, aberrations and c.a.d. *(Russian)* 4−68465
  automatic focusing system, sensitivity and stability, objective chromatic aberration effect 4−68718
  camera shutter, 50% efficiency, between-the-lens effect on balanced aberrations 4−62478
  camera testing using speckle patterns, monochromatic aberration meas. 4−74087
  Cassegrain-type systems, off-axis, with spherical optics *(Russian)* 4−68466
  cat's eyes in Fourier spectrometers, coma and spherical aberrations 4−62458
  chromatic, effect on heterochromatic brightness matching 4−65257
  chromatic aberration theory, systems without symmetries 4−59371
  cylindrical-mirror electrostatic analyzer, fabrication errors effect 4−58948
  deflector system, polychromatic light, polarization discrimination 4−68668
  double electrostatic quadrupole doublet as exit lens of ion implantation machine 4−51663
  electron microscopy high-voltage, correction of third order aperture and axial chromatic aberrations 4−62563
  electron mirrors, axisymmetric, electro-optic props. 4−59470
  electron mirrors, axisymmetric, trajectory eqns. 4−59469
  electron optical system, astigmatism free, aperture aberration correction *(German)* 4−43376
  electron optics, mixing theory 4−43370
  electron trajectory in r.f. field, third water theory 4−47403
  electron trajectory in r.f. fields, second order aberration, theory 4−43377
  electrostatic lenses, third order aberration coefficients 4−43374
  electrostatic wedge prism, geometric aberrations *(Russian)* 4−62879
  focused laser beam, rel. to interaction with matter 4−74516
  Fresnel lenses, primary aberrations 4−47322
  gratings, cylindrical and spherical, aberration theory 4−62797
  hologram media, deformation tolerance, wave-front aberration analysis 4−62811
  hologram medium, deform. tolerance, evaluation 4−77625
  IC fabrication by scanning electron beam method, post-lens deflection system 4−51660
  image in isotope e.m. separators, fringing field effects 4−43381
  ion-optical accelerator, straight 4−77148
  Jos. Schneider company developments review *(German)* 4−51019
  laser beam, nondiffraction limited, characts. 4−51619
  laser beam, quasi-gaussian, expansion in orthogonal functions 4−77692
  laser windows, ultrashort pulse effect 4−51079
  lens, cylindrical surface generatrices, nonparallelism effect on anamorphic attachment aberrations 4−54873
  lens holographic technique for analysing symmetrical aberrations of camera system 4−68708
  lens system spherochromatic aberration, testing with ball bearing sources 4−42773
  lenses, objective, decentring tolerances 4−51025
  light patterns of off-axis spots, investigation for different optical systems *(Spanish)* 4−62815
  luminophor, inorganic liq., thermo-optical distortion *(Russian)* 4−49393
  macular pigment rel. to chromatic aberration 4−46391
  Marechal intensity criteria for Gaussian beams, scalar diffr. theory 4−77626
  MBBA, nematic liquid crystal layer, c.w. thermal lens effect 4−81354
  mirror, Mangin, eqns. for primary aberrations 4−69022
  mirror, parabolic, Foucault shadow method determ. of wave aberration *(German)* 4−46635
  objective, effect on meas. uncertainty in auto-collimation telescope *(German)* 4−74034
  objective lenses of astrograph, photographic and photovisual, aberrations compared *(Russian)* 4−80670
  paraboloidal mirror, laser interferometric test 4−54609
  photographic lens, gradient index singlet design 4−74088
  prism taper effects, lateral colour rel. to image quality 4−54874
  scanning electron microscopes, deflection aberrations of three types compared 4−46902

aberrations continued
  Schmidt-Cassegrain telescope, astigmatic blur circle size 4−68664
  spherical, electron lens, correction by foil lens 4−43367
  spherical, of photoobjectives, optimal correction *(Russian)* 4−46717
  telescope, four mirror Cassegrain design, correction eqns. 4−71178
  transmission electron microscopy, current trends 4−62559
  vignetting in cineradiography 4−42830
  wavefront aberration elimination in phase difference amplification, holographic interferometry appl. 4−74473
abrasion
  see also hardness; wear
  metal, ductile, abrasion resistance criteria 4−76510
  molybdenite, surface deformation caused by abrasion, electron techniques *(Japanese)* 4−52970
  real contact area between surfaces with contact press. and material hardness 4−48700
  steel, abrasive wear resistance rel. to hardness and microstruct. 4−49845
  steel, structural chromium type, abrasive wear resist. increase by martensite deform. 4−80026
  steel, wear resistance of specimens in friction against grinding stone 4−61560
  structural materials, wear rate determ. at various angles of attack 4−61559
  wear, theory and mechanism 4−69856
  wear mechanisms and principles 4−49846
  β-B, rhombohedral, abrasive power and grain strength 4−49909
  Eu_2O_3, polymorphic transform. by abrasion 4−53815
  Fe-Cr cast irons, abrasive wear resist. 4−76481
  GaAs, crystal degradation by abrasion and subsequent heat treatment 4−49605
  Na_2O-CaO glass, polymeric coatings effect on strength 4−73359
  Ni/Al_2O_3, abrasive grinding, chemical bonding of Al_2O_3 to Ni 4−67889
  Ti-C alloys, abrasive capacity meas. 4−80152
abrasive wear *see abrasion*
absolute gravity *see gravity*
absolute pressure measurement *see pressure measurement*
absolute temperature *see temperature*
absorbers (surge) *see surge protection*
absorption
  see also individual particle absorption, e.g. electron absorption
  see also acoustic wave absorption; electromagnetic wave absorption
  energy fluence per roentgen, apparent paradox and its resolution 4−58545
  seismic waves, coeff. detn. *(Russian)* 4−57946
  seismic waves, in Azerbaijan vaulted fold formations *(Russian)* 4−61706
abundance ratio *see element relative abundance; isotope relative abundance*
a.c. generators
  automobile, e.m. parameters selection *(Russian)* 4−47264
a.c. motors
  end-type, e.m. torque in gap *(Russian)* 4−47263
  faceplate motors, e.m. field in gap determ. 4−47265
acceleration
  see also acceleration measurement; accelerometers
  central motion, distrib. of inverse vector *(German)* 4−62674
  linear, gyroscope integrating, probability treatment of nonlinear vibrations *(Russian)* 4−74353
  neutral planetary boundary layer, accelerating, frequency dependence 4−64896
acceleration measurement
  gravitational, falling body in He-Ne laser-photodetector system *(Russian)* 4−62409
  laser instrument utilizing mirror on moving object, time-resolved measurements 4−54826
  microwaves application *(German)* 4−51115
  variable parameters of motion, meas. concepts and definitions 4−54823
accelerators (particle) *see particle accelerators*
accelerometers
  see also acceleration measurement
  atmospheric density and radiation pressure meas. *(French)* 4−54338
  calibration procedure improvement, data acquisition system 4−50959
  piezoelectric, 0.14 g, development and application 4−54828
  pressure transducer conversion, use of oil-filled load-to-pressure convertor *(German)* 4−62418
accidents
  see also electric shocks; explosions; safety
  aircraft, clear air turbulence electronic detection *(Japanese)* 4−73579
  fast test reactor primary containment model experiments analysis 4−81596
  fuel pin failure, EBR-II subassembly hexcan deformation 4−81593

accidents continued
hexcan response to transient internal pressures, SADCAT code 3D solution 4−81594
LMFBR, thermal stress mech. for fragmentation of molten UO$_2$ on contact with Na coolant 4−81565
molten fuel recriticality, energy release, systems with initial void fractions 4−81595
nuclear accident dosimetry system 4−78314
nuclear excursions in fissile solutions, simplified methods of estimation 4−78174
nuclear power plants, earthquake damage, estimated modes of failure 4−81559
nuclear reaction with dissociating coolants *(Russian)* 4−63267
nuclear reactor, destructive excursions in Al-water system, simulation by Pajarito dynamics code 4−78185
nuclear reactor blowdown accident, heat conductivity and thermal emissivity effects on core heatup and meltdown 4−81597
nuclear reactor hypothetical core disruptive accidents modelling, energy source characterization 4−47767
nuclear reactors, particularly light water reactors 4−71976
power reactor, water-cooled, blowdown phenomena associated with loss-of-coolant *(Japanese)* 4−74782
reactor primary containment, dynamic of HCDA bubble 4−78184
water cooled reactors, primary system components, probability of catastrophic failure 4−81558
Windscale accident 1957, analysis with WEERIE program 4−63243

accommodation coefficient *see gases; kinetic theory of gases; surface phenomena*

accumulators *see secondary cells*

acidity *see pH*

acids, organic *see organic compounds*

acoustic analysis
codfish, detection of acoustic stimuli 4−77015
community noise units, comparison 4−68583
high-speed impact line printer, noise source analysis 4−50933
impedance concept, principles of sources, fields, power 4−65315
industrial noise shields, experiments 4−68575
machine tool acoustical enclosure 4−65316
noise prevention, theory review 4−68582
rectangular rooms, wave anal. of sound decay 4−76999
silencers, aero acoustic rating for forward and reverse sound-air flow 4−65313

acoustic applications
see also ultrasonic applications
aerosol coagulation, efficiency 4−75184
bone structure assessment, by measurement of speed of sound and bone mineral content 4−46447
boreholes, side acoustic logging by refracted waves *(Russian)* 4−54302
defect detection by acoustic emission using multicollector detection systems *(French)* 4−73396
fish density estimation from scattered acoustic signal 4−80784
microscopy, review 4−54830
NDT of aeronautic materials *(French)* 4−73397
nuclear reactor pressure vessel failure detection using acoustic emission 4−71977
rheology of linear viscoelastic materials *(French)* 4−43036
shock pulse use in elastic properties determ. 4−50955
sperm whale source level and target strength meas. from aircraft 4−62356
underwater telemetry system, design and operation, offshore oil wellhead applic. 4−65309

acoustic delay lines
see also ultrasonic delay lines
surface wave mode, variable, distance meas. and positioning device 4−42706

acoustic detectors *see acoustic transducers*

acoustic devices
see also acoustic delay lines; acoustic generators; acoustic microwave devices; acoustic radiators; acoustic receivers; acoustic resonators; acoustic surface wave devices; acoustic transducers; bells; ultrasonic devices
acoustic horns, two dimens. extension of Webster wave eqn. 4−80778

acoustic dispersion
see also ultrasonic dispersion
acetone hypersound speed rel. to pressure, 1 to 1000 atm., determination by stimulated Brillouin scattering 4−52818
aniline-cyclohexane crit. mixture 4−63858
bars, rectangular cross section anisotropic 4−51398
benzene hypersound speed rel. to pressure, 1 to 1000 atm., determination by stimulated Brillouin scattering 4−52818
curves for harmonic waves in elastic rings and helical coils, generalized plane stress 4−71337
emulsion, spatial dispersion of sound velocity 4−57790
fluid column, phase and group vel. 4−83359
gas mixture containing heat radiating particles 4−62350
liquid, with bubbles, nonlinear interaction 4−80788
propag. characts. of low freq. acoustic surface waves, ridge guides 4−80777
sea water and sediments 4−50919
shock waves rel. to vibrational specific heats of constituent gases 4−72301
surface channel, inhomogeneous, effect of phase variations due to velocity gradient 4−58660
CS$_2$ hypersound speed rel. to pressure, 1 to 1000 atm., determination by stimulated Brillouin scattering 4−52818
He-Ar, He-Ne and He-Xe mixture, kinetic theory 4−52328
LiNbO$_3$, control of nonlinear effects in acoustic surface waves 4−80785
NaCl, aqueous, hypersonic velocities, comment 4−63856
NaCl, aqueous, hypersonic velocities, reply 4−63857

acoustic echoes *see echo*

acoustic emission
see also acoustic waves
aerodynamic sound generation in presence of solid boundaries, unified approach 4−81908

acoustic emission continued
alloy, b.c.c., microyielding strain bursts correl. with acoustic emission pulses 4−67871
brittle materials, failure prediction using fracture mechanics and acoustic emission 4−73394
cavitation line vortices streaming from supporting surfaces *(Russian)* 4−52512
ceramic, acoustic emission generation, microstruct. aspects 4−64695
ceramic, crack propagation rel. to acoustic emission monitoring 4−64697
ceramic, failure prediction using acoustic emission 4−45882
ceramic, slow crack growth rel. to microstruct. 4−73355
detector, polymeric foil broadband transducer 4−65387
detector of emission from solids under stress 4−54833
elastic plate, radiation conditions 4−62351
electrodeposit, inspection of embrittlement by acoustic emission 4−67972
fatigue crack growth, loading variables effect on acoustic emissions 4−70592
function of strain, various materials, Baushinger effect, Kaiser effect 4−64679
glass fibre reinforced plastic composites, rel. to tensile failure mechanism *(Japanese)* 4−45766
metal, f.c.c. and h.c.p., Neumann strain burst phenomenon rel. to acoustic emission during deform. 4−67870
monitoring system, simultaneous multiple event data anal. 4−46582
NDT, strength of composite materials 4−57802
NDT of aeronautic materials *(French)* 4−73397
nuclear pressure vessels, acoustic emission monitoring 4−81611
nuclear reactor pressure vessel failure detection 4−71977
particle detection at relativistic energies by acoustic response in solid body *(Russian)* 4−55040
prismatic dislocation loops and kinks in line dislocations, annihilation, acoustic emission *(Russian)* 4−72476
soil, dry, axially stressed, acoustic emission monitoring 4−76563
steel, pressure vessel type, acoustic emission spectrum analysis 4−50071
steel, stainless, acoustic emission-damping fatigue 4−76567
steel, structural, sound emission correl. with heat treatment 4−82930
steel 4140, fatigue crack growth, continuous monitoring by acoustic emission 4−45879
subharmonic-$^1/_2$, gas bubbles in water, damping, from desinent threshold 4−78691
water, sonoluminescence due to Nd laser pulse induced cavitation 4−53489
water, sonoluminescence with high-voltage discharge 4−75173
Al alloy 7075-T6, fatigue growth, continuous monitoring by acoustic emission 4−45879
Al$_2$O$_3$, alumina, acoustic emission meas. during crack propag. 4−67912
Cu, during strain hardening transitions 4−49816
Cu-Al-Ni, (14.5% Al, 1.6% Ni), emission of sound during thermoelastic martensitic reaction 4−57729
Si$_3$N$_4$, laser thermal shocking, surface eval. using acoustic emission 4−64696
VO$_2$ film, acoustic emission during semicond.-metal transition 4−49093

acoustic equipment
see also acoustic wave interferometers; ultrasonic equipment
impulse measurement device, outer ear transfer functions *(German)* 4−65553
logging apparatus, increased precision, for transverse and longitudinal waves meas. *(Russian)* 4−54327
logging instrument, for depths of 4 to 5 km and temperatures up to 120C *(Russian)* 4−54326
oceanographic, marine sediment acoustical properties meas., multichannel towed array for 4−70820
radar system for lower atmospheric probing, turbulence detect. 4−73577

acoustic field
AGR, fuel pin response to acoustic excitation in presence of flow 4−47775
array optimisation by penalty function techniques with nonlinear constraint 4−62349
flexurally vibrating plates *(Russian)* 4−54748
helicopter noise, urban environment, reverberant sound field explanation 4−80811
impedance concept, principles of sources, fields, power 4−65315
net-point method for calculation of acoustic fields of radiators *(Russian)* 4−76997
noise, far sparse line array 4−62348
noise, nonlinear propag., farfield lossless and dissipative media 4−80780
nonuniform in liquids, cavitation dynamics and strength 4−78699
nuclear reactor coolant circuits, sound absorbing material design 4−47773
point source in ocean, influence of h.f. internal waves 4−77001
point source lying on a hemispace, Wentzel Kramers Brillouin soln. *(Russian)* 4−65299
quantisation and transition to phonon representation 4−54751
radiation from rigid baffled rectangular plates with general boundary conditions 4−65297
radiator, spherical axisymmetrical 4−54745
sound radiation, cylinder, immersed in acoustic fluid, bounded by elastic half-space 4−80783
sound source, with ring function, nearfield calc. *(Japanese)* 4−46510
stochastic model, random plane and spherical wave elements *(Japanese)* 4−46509
ultrasonic, aerating gassy liquids 4−78697
underwater propagation, directional multipole sources, normal-mode theory, Green's function representation 4−80799
u.s. plane sources with focusing lenses *(German)* 4−65304
vortices by interaction on variable entropy fluid layer *(French)* 4−48234

acoustic generators
see also earphones; loudspeakers
circular piston source, diffraction correction 4−68555
circular plate, frequency spectra 4−46527
magnetostrictive generation of sound and ultrasound 4−58748

acoustic generators continued
  oceanographic, marine sediment acoustical properties meas., multichannel towed array for 4−70820
  optical excitation of sound *(Russian)* 4−53392
  tone generator for classroom use 4−68601
  underwater, seismic source, STAGARAY, improved primary pulse/bubble ratio 4−70822
  underwater seismic source, implosion type, Simplon water gun 4−68272
  u.s., field structure of plane sources with focusing lenses *(German)* 4−65304
acoustic holography
  analog techniques in nonoptical holography 4−58841
  aperture synthesis for reduction of aberration *(Russian)* 4−54950
  condenser microphone arrays, use, review 4−58752
  digital and optical image reconstruction from suboptical diffr. patterns 4−43264
  information theory and concert hall problem 4−68552
  microscopy, review 4−54830
  optimum sampling of functions specified on hemispherical surface 4−59369
  scanned ultrasonic, ophthalmic diagnosis 4−68531
  scanner, visualization of vibr. and sound 4−58753
  sound radiation, from circular steel plate, driven on edge, farfield sound sources 4−76992
  three dimensional information processing by u.s. holography *(Japanese)* 4−71162
  ultrasonic transducers, two power, holographic interferometry applied 4−65389
  underwater viewing system 4−71144
  u.s., crit. angle, mapping of phase changes, stress conc., subsurface defects, work hardening 4−80154
  u.s., free from phase turbulence, signal processing 4−71209
  void detection in solids, sensitivity limits 4−67963
acoustic imaging
  localisation, phase difference *(Japanese)* 4−42736
  methoxybenzylidenebutylaniline liquid crystal, u.s. surface wave visualisation *(Russian)* 4−42737
  u.s. defect visualisation method 4−50052
  u.s. patient diagnosis, techniques, status of 4−83326
acoustic impedance
  see also acoustic wave velocity
  baffled piston, inverse Laplace transform in terms of finite pulse dependent on piston shape 4−54739
  conditions for avoiding acoustic oscills. generated by gas flames 4−68553
  duct, variable cross section with flowing gas, impedance rel. to tube geometry and flow parameters 4−58649
  electromechanical filter, audio-frequency, modes of vibration 4−58665
  fibre sample, closed front, props. 4−68556
  flow duct walls, meas. technique 4−65385
  layered solids, impedance mismatch effect on strength of waves 4−60549
  principles of sources, fields, power 4−65315
  sound decay in rectangular rooms, depend. of impedance of material 4−76999
  transducer array radiation impedance determination, correlation technique 4−50967
  volume-velocity sources in waveguide with supersonic flow 4−58650
acoustic insulating materials *see noise abatement*
acoustic intensity
  see also acoustic noise; loudness
  concert hall transparency and spatial comparison based on reverberation time *(German)* 4−71143
  freshwater reservoir; 1.15 to 11 kHz; pressure distribution with depth 4−80804
  inter-channel phase difference, subjective effects *(Japanese)* 4−68499
  interaural differences, distinct sound sources 4−46380
  lined duct, transmission of high intensity sound 4−65300
  loudness, computer program 4−73935
  mistuned consonances, sound intensity variations 4−62355
  physical principles of noise-reducing elements and absorbent materials 4−83363
  sound localisation on horizontal plane *(Japanese)* 4−68498
  spherical sound source, sound wave distortions *(Japanese)* 4−65301
  subsonic turbulent jet, noise intensity calc. 4−44057
  synthetic speech, dichotic listening method 4−50784
acoustic intensity measurement
  acoustical conditions in some school buildings in Asia 4−71142
  atmospheric acoustical signals, naturally occurring, acoustic gravity waves, infrasound 4−80336
  automatic level classification, for complex sound structure meas., *(German)* 4−62421
  noise exposure measurements, international standard organisation, Belgian worker protection regulations *(French)* 4−71145
  piezoelectric microphones for, sensitivity calcs. 4−74012
  sound level meter, inspection *(Japanese)* 4−46586
  sound power measurement 4−65383
  sound value rating methods 4−65384
acoustic magnetic resonance
  see also acoustic paramagnetic resonance; ferroacoustic resonance; nuclear acoustic resonance
  liquid, Maxwell effect, energy requirement 4−49212
  saturation effects as spin bottleneck process *(Russian)* 4−82602
  u.s. spin echoes theory, Bloch eqns. 4−45165
  $RbMnF_3$, temp. and mag. field depend. of u.s. antiferromag. reson. near T_n 4−67456
acoustic measurements *see acoustic variables measurement*
acoustic microwave devices
  see also acoustic surface wave devices; acoustic transducers
  No entries
acoustic mode of crystals *see lattice dynamics*
acoustic noise
  see also noise measurement
  aerodynamic impulsive sound sources 4−44030

acoustic noise continued
  aerodynamic source diagnostics using causality correlations 4−42740
  aeromedical aspects 4−46387
  aircraft, near Arlanda airport, wind direction and vel., temp., humidity depend. 4−80810
  aircraft noise, leading edge serrations on airfoils, acoustic effects, expt. 4−75128
  aircraft noise levels, not hazardous inside modern jet passenger cabins 4−77002
  aircraft noise levels inside passenger cabins of modern jets 4−77003
  airfoil flow characts. rel. to acoustic far field pressure 4−44031
  band spectrum shaper, one-third octave 4−68581
  barrier, noise reduction, review 4−50929
  binarural masking level differences, pulse train signals of differing interaural correl., PEST program controlled 4−73902
  broadcast studios, insulation and isolation 4−50916
  CAGR fuel pins, Mk 2, dynamic behaviour in flow and noise environment 4−47776
  combined continuous and impulse, audiometric and histological effects 4−46378
  Concorde, reduction 4−46532
  consonants, affected by monaural, binaural listening, noise, reverberation, hearing aids 4−77012
  correlated and uncorrelated, signal onset and offset time disparities, interaural difference thresholds expts. 4−73901
  damage risk criterion, external ear subject to impulsive noise 4−80708
  discrete tones of isolated airfoils, generated by aerodynamic self-excited feedback loop 4−72291
  exposure during television viewing, judged acceptability 4−77010
  factory layout, noise control *(German)* 4−46519
  field for sparse line array 4−62348
  generation, conference, Brussels (1973) 4−46530
  generation in jets, excess noise 4−44076
  half-space response to randomly moving surface pressure pulse 4−80820
  hearing, threshold shifts, produced by exposure to noise, in chinchillas with noise-induced hearing losses 4−50787
  helicopter urban environment, reverberant sound field explanation 4−80811
  high freq. hearing loss following impulsive or industrial noise exposure 4−76957
  high-speed impact line printer, noise source analysis 4−50933
  highway noise fluctuations, theoretical prediction from Markov renewal process 4−77006
  impulsive source using shock tube 4−71271
  jet, heated subsonic, jet density exponent issue 4−63574
  jet, high temp., fluctuating density and radiated noise 4−44069
  jet, screen perturbed, turbulence and acoustic characts. 4−78636
  jet engine exhaust noise, rough combustion, nonsteady aerodynamic sources 4−78583
  jets, aerosonic games with control elements and externally generated pulses 4−44032
  jets, convective amplification 4−44071
  jets, cross correlation investigation of noise generating regions 4−44070
  jets, excess noise mechanism 4−44073
  jets, hot subsonic 4−43991
  jets, modification of Lighthill's moving source model 4−44072
  jets, secondary wave nonlinear generation 4−68584
  lateral suppression and loudness reduction of tone in noise 4−68576
  level meters 4−74013
  l.f., confirmation of maintenance of periodicity in auditory system 4−80715
  loudness discomfort levels, wide, narrow band noise, method of constant stimuli 4−80712
  masker duration and level effect on forward and backward masking 4−80808
  masking audiograms for young adults in band-rejected noise 4−76958
  masking with narrow band f.m. noise 4−80816
  measurement techniques and regulations 4−71160
  noise prediction, freely flowing traffic 4−68577
  nonlinear, finite amplitude noise propag., weak shock theory 4−68559
  nuclear reactor power response to fluctuations of inlet mass flow rate 4−55900
  nuclear reactors, nucleate coolant boiling, resonant acoustic noise spectra 4−55899
  nuisance index, L_{dI} 4−68579
  personal noise exposure meter 4−71164
  pollution, noise control, methods of meas., criteria 4−58663
  psychoacoustic meas., perception of periodic sound fluctuations, roughness 4−68494
  public transportation, noise environment 4−71146
  source intensity distributions in subsonic and supersonic jets 4−43989
  spatial coherence of short period infrasonic noise for noise-reducing array 4−77009
  spectrum of rotor noise, interference of rotor and atm. turbulence 4−77004
  spectrum of rotor noise caused by inlet guide vane wakes 4−73934
  staggered tube bank, elimination of aerodynamic noise 4−65310
  standards, report 4−50950
  subsonic jets, generation in 4−44074
  subsonic turbulent jet, noise intensity calc. 4−44057
  supersonic cascade, effects of inlet conditions 4−46526
  supersonic jet shock waves 4−44043
  tones and noise, aversion levels, sound press. levels in humans 4−76951
  track slabs, resiliently supported 4−50927
  turbulence generated, fluid dynamics panel specialists meeting report 4−60174
  turbulent hot jets 4−43990
  turbulent jet, press. sources for wave model 4−81916
  underwater ambient noise, infrasonic and l.f., Grand Banks obs. 4−54754
  underwater ambient noise at the Arctic ice-water boundary 4−54753
  unified index 4−68580

acoustic noise continued
urban noise propagation, multiple reflections, reverberation, review 4−50928
vehicle tyre tread noise, radiated energy anal. 4−65312
acoustic paramagnetic resonance
conduction electrons, acoustic spin reson. linewidth calc. 4−76163
ruby, spin-phonon interaction, one-phonon mechanism, a.p.r. meas. at low temp. 4−79576
stationary stimulated Mandelstam-Brillouin scatt. under a.p.r. conditions *(Russian)* 4−65944
Al_2O_3:Ni^{3+}, Jahn-Teller orbital doublet study 4−70204
GaAs:Fe, compensation mechanism obs. 4−48933
$RbMnF_3$, u.s. attenuation coeff. calc., rel. to Neel temp. 4−57270
acoustic radiators
see also acoustic generators; Doppler effect
annular piston, in infinite planar rigid baffle, impulse response, radiation impedance 4−80779
baffled finite panel, vibrational and radiative classifications of modes 4−80817
circular piston source, diffraction correction 4−68555
cylinder, immersed in acoustic fluid, bounded by elastic half-space 4−80783
elastic structures, finite element approach to 4−46508
evanescent waves from unbaffled plates 4−46505
flexurally vibrating plate *(Russian)* 4−54748
free free beams, in air and water 4−71139
impedance concept, principles of sources, fields, power 4−65315
plane and spherical waves in horns with nonuniform flare 4−73915
plane circular radiator, near field structure *(Russian)* 4−46512
pressure in air due to sound source in water and vice versa, dipole approx. 4−54744
rectangular plate, fluid-loaded, intermodal coupling coeffs. 4−80812
rigid baffled rectangular plates with general boundary conditions 4−65297
sound source, with ring function, nearfield calc. *(Japanese)* 4−46510
spherical array, synthesis with specified conditions on part of surface *(Russian)* 4−50972
spherical axisymmetrical, sound field 4−54745
thin plate and baffle, spatial correlation function in gap between *(Russian)* 4−54761
u.s. double blade end fire, producing narrow 40 kHz beam 4−71141
volume-velocity sources in waveguide with supersonic flow 4−58650
acoustic reactance *see acoustic impedance*
acoustic receivers
see also microphones
noise field for sparse line array 4−62348
acoustic resistance *see acoustic impedance*
acoustic resonators
atmospheric effects, gases, resonance tube method *(Japanese)* 4−65386
cavity resonator, frequency derived from impedance concept 4−65315
mouth correction, theoretical and experimental values resonance absorbers, mouth correction, theoretical and expt. values *(German)* 4−68554
plane and spherical waves in horns with nonuniform flare 4−73915
pulsating, sonically excited, harmonic freq. generation 4−46504
quartz-Pd, adsorpt. of H_2 and D_2, effect on freq. *(German)* 4−68809
rods, u.s. longitudinal modes and resonance detection *(Russian)* 4−54762
acoustic streaming
aerosol coagulation, efficiency 4−75184
boundary layer in Chaplygin profile, acoustic streaming and friction forces *(Russian)* 4−52415
elliptical cylinder, at large Reynolds number 4−58652
flame, role of streaming in sound interaction with laminar flow jet 4−56417
fluids, self-defocusing of acoustic beam 4−80772
nonlinear two dimensional damped wave in free space 4−76995
sound field, large scale in steady, unsteady conditions, expt. study 4−74199
velocity, estimation of boundary values for high sound pressures 4−78678
acoustic surface wave devices
see also acoustic microwave devices
defect detection by acoustic emission using multicollector detection systems *(French)* 4−73396
distance measurement and positioning using acoustic surface wave phase meas. 4−42706
u.h.f. interferometer at 330 MHz 4−74007
$Bi_{12}SiO_{20}$ higher electromechanical coupling coefficients 4−75683
$LiNbO_3$, wavefront visualisation by imaging technique 4−63968
$LiNbO_3$ nonlinear effects, control by vel. dispersion 4−80785
ZnO-Si, sapphire film effect, dispersion free propag. 4−82310
acoustic surface waves
heading is late addition
see also acoustic surface wave devices; acoustic waves; surface phenomena
attenuation by anharmonic interactions 4−79231
glass, ion-exchanged, probing of elastic modulus effects localized near surface 4−52978
impedance boundary propagation 4−58643
layered half space propagation, electric pot. anal. 4−73919
light diffraction by acoustic surface waves, angular and freq. depend. 4−47299
low frequency, propag. characts. of ridge waveguides 4−80777
nonlinear interactions, parametric mixing, harmonic generation 4−60678
piezoelectric semiconductor, amplification by transverse electric current 4−57142
piezoelectric semiconductor, elastic waves, review 4−53115
quartz, light diffracted by acoustic surface waves, incidence angle and polarization depend. 4−61131
quartz, Rayleigh wave attenuation, harmonic generation 4−82311
quartz/$LiNbO_3$, surface acoustic waves, optical detection 4−73918
Rayleigh waves, nonlinear interactions in guided propag. 4−63967
acoustic surface waves continued
reflection at layered substrate boundary, lateral displacement 4−48825
semiconductor/piezoelectric interface, elastic wave amplification by refl. 4−57145
sing-around method for acoustic surface-wave vel. meas. using optical probe 4−68626
surface topography, spectroscopic determ. 4−68258
u.s., quartz, visualisation by liquid crystal *(Russian)* 4−42737
u.s. NDT, generation, wedge type transducer optimisation 4−58655
u.s. surface wave detection techniques in fracture mechanics 4−45878
vibrational surface props. of isotropic solid beyond elastic limit *(French)* 4−44742
$Bi_{12}SiO_{20}$ higher electromechanical coupling coefficients 4−75683
CdS, acoustoelectric interaction, adsorbed gas influence 4−79397
CdS, photocond. cryst., acoustoelectric domain excitation 4−75926
CdS, single crystal, continuous amplification in range 30-240 MHz 4−48827
GaAs, reflection from right angle corners 4−44743
InSb-$LiNbO_3$, acoustoelectric amplification using pseudosurface waves 4−57143
$LiNbO_3$, light diffracted by acoustic surface waves, incidence angle and polarization depend. 4−61131
$LiNbO_3$, reflection and transmission at conducting-nonconducting boundary, light scatt. obs. 4−44745
$LiNbO_3$, visualization of inverse phase velocity surfaces, using light diffraction by u.s. in Raman-Nath limit 4−44746
$LiNbO_3$, wavefront visualisation by imaging technique 4−63968
$LiNbO_3$, yz cut, surface quality effects on attenuation 4−56957
$LiNbO_3$ nonlinear effects, control by vel. dispersion 4−80785
$LiNbO_3$ with Ag or Pd layer, temperature characteristics *(Korean)* 4−48826
$LiNbO_3$/CdSe film monolithic layered struct., acoustoelec. e.m.f. and electronic gain 4−57146
Pb(Zr,Ti)O_3, multimode struct., noncollinear three phonon interactions 4−64332
Si layered configuration, dispersion free propagation 4−82310
Ta_2O_5/quartz, surface acoustic waves, optical detection 4−73918
acoustic transducers
see also electroacoustic transducers; ultrasonic transducers
aircraft wake vortices detection 4−44068
array, radiation impedance, correl. meas. 4−50967
emission, acoustic, by solids under stress, energy meas. 4−54833
filtering function, deviations and fluctuations 4−46522
low-frequency acoustic wave detection, pump transducer 4−46583
magnetostrictive generators of high intensity mechanical vibration, sound and ultrasound 4−58748
micropositioning device employing acoustic speakers as transducers 4−54829
reflector-transducer systems described, planar, converging and diverging reflectors, beam formation characteristics 4−71161
spherical array, synthesis with specified conditions on part of surface *(Russian)* 4−50972
spherical inside fluid filled spherical shell, farfield radiation 4−46507
two-digit interdigital transducers, surface topography spectroscopic determ. using acoustic surface waves 4−68258
acoustic variables control
see also noise abatement
building codes for dwellings, prediction 4−68574
hydraulic systems, development trends in construction, pump noise control *(Norwegian)* 4−54763
industrial noise shields, experiments 4−68575
noise prevention, theory review 4−68582
acoustic variables measurement
see also acoustic intensity measurement; acoustic wave velocity measurement; ultrasonic measurement
absorption coeff. determ., correl. and spectral density techniques 4−73929
absorption coefficient percentage error using impedance tube method, linear regression analysis 4−77033
air jet turbulent regions, crossed beam correlation meas. of sound source 4−43988
aircraft noise levels inside passenger cabins of modern jets 4−77003
building codes for dwellings, prediction 4−68574
community noise units, comparison 4−68583
constant volume velocity sources applic. 4−46585
electroacoustic transducer testing, digital processing applic. 4−42734
emission, acoustic, by solids under stress, energy meas. 4−54833
impact noise in factories 4−65314
impedance, using a source of constant volume velocity, influence of coupling volume *(Czech)* 4−58754
impedance of flow duct walls 4−65385
low-frequency acoustic wave detection, pump transducer 4−46583
machine tool acoustical enclosure 4−65316
marine sediment wave velocity, multichannel towed array for 4−70820
noise, machine tool, methods *(French)* 4−54760
noise, methods for noise control and criteria 4−58663
noise prevention, theory review 4−68582
noise produced by air jet impingement on flat plates 4−78558
optical interferometry for Rayleigh and dilatational waves 4−42739
partition acoustic transmission class determ. 4−83362
periodic sound fluctuations, roughness psychoacoustic meas. 4−68494
reverberant sound meas., causes of random errors 4−74009
silencers, aero acoustic rating for forward and reverse sound-air flow 4−65313
sound level meter, reviewed, specification problems 4−74013
transmission loss, ocean, choice of explosive source, processing filter 4−77034
acoustic velocity *see acoustic wave velocity*
acoustic wave absorption
see also noise abatement; ultrasonic absorption
absorption coeff. determ., correl. and spectral density techniques 4−73929
anechoic rooms, wall absorption calc. *(German)* 4−65305

acoustic wave absorption continued
antiferromagnet, sound absorption in spin flop field region, domain wall motion effects *(Russian)* 4−70193
antiferromagnet, uniaxial, nonresonance absorption of sound in strong mag. fields, magnon-phonon interactions 4−76133
barrier, noise reduction, review 4−50929
n-butanol-t-butanol mixture, acoustic relaxation *(Russian)* 4−44603
cavity masonry walls, direct and flanking sound transmission, resilient filling effect 4−68573
coefficient, low values, using impedance tube method 4−77033
electrolytes, effect of ionic relaxation phenomena 4−56811
ferromagnetic magnetostrictive material, longitudinal wave attenuation 4−57340
fluids, chemically reacting, sound attenuation 4−73928
freq. independent attenuation, randomly inhomogeneous sound channels 4−80797
gas mixture containing heat radiating particles, asymptotic solutions 4−62350
gaseous binary mixtures, kinetic theory 4−52328
glycerol, viscoelastic cooperative modes, nonlinear effects on acoustic propag. and absorpt. 4−55294
insulators, arbitrary $\Omega\tau$, phonon transport eqn. 4−56817
lined duct, high intensity sound 4−65300
liquid, resonance reverberation method for u.s. meas. of acoustic props. below 10 kHz 4−74010
metal, Landau damping, nonlinear effects on magnetic field induced interband tunnelling 4−49045
nonlinear, rectangular duct propag., multiple scales anal. 4−68564
nonlinear, spherical wave time domain weak shock theory harmonic and soln. 4−68562
nonlinear effects of gas motion and lining material in two dimens. ducts 4−73923
nuclear reactor coolant circuits, sound absorbing material design 4−47773
physical principles of noise-reducing elements and absorbent materials 4−83363
quartz rod, fused, attenuation of longitudinal acoustic waves, rel. to gravitational wave detection *(Russian)* 4−77037
rectangular rooms, wave anal. of sound decay 4−76999
resonance absorbers, mouth correction, theoretical and expt. values *(German)* 4−68554
sea water and sediments, acoustic dispersion relationships 4−50919
semiconductor, acoustic forbidden band effect on absorption of sound and acoustoelectric current 4−72836
semimetal, acoustic forbidden band effect on absorption of sound and acoustoelectric current 4−72836
sound absorbers, transient response calc., transmission line method 4−58645
superlattice, sound absorpt. in presence of elec. field *(Russian)* 4−82225
in turbulent pipe flow 4−50912
two-dimensional duct, effect of mean-velocity profile shape on sound transmission 4−73927
Cr-Fe alloy, mag. ordering, press. effects obs. 4−70151
Fe:Si, single crystal, sound absorption, 300-1200K, magnetoelastic resonance *(Russian)* 4−82601
He thin films, attenuation of 9.4 GHz phonons, mechanical resonance obs. 4−52967
SF_6, near critical point 4−56872
Si:Ge, difference between absorption of longit. and transverse sound, calc. 4−72527
Te, influence of electric field on interaction of sound with carriers 4−72837

acoustic wave amplification
see also acoustoelectric effects
in glow discharge, positive column 4−44426
parametric interaction of travelling waves 4−76996
piezoelectric semiconductor, acoustic surface wave amplification by transverse electric current 4−57142
piezoelectric semiconductor, u.s. wave amplification on interaction with electron beam 4−82463
piezoelectric semiconductor, u.s. wave amplification through interaction with deform. pot. 4−79385
positive column of glow discharge, amplification of sound waves 4−60353
semiconductor, polar, two phonon mechanism 4−75927
wave coupling, in nondissipative and dissipative systems 4−63860
CdS, Joule heating influence on continuous amplification of ultrasound 4−67262
InSb-$LiNbO_3$, acoustoelectric amplification using pseudosurface waves 4−57143

acoustic wave attenuation *see acoustic wave absorption; ultrasonic absorption*

acoustic wave diffraction
see also ultrasonic diffraction
baffle coupled to elastic plate, for plane wave grazing incidence on plate *(Russian)* 4−54747
circular piston source, diffraction correction 4−68555
corners and wide barriers, sound pressure amplitude estimation 4−58642
evanescent waves, by semi-infinite thin rigid surface 4−46505
Lommel diffraction correction integral evaluation 4−54740
nonlinear, review 4−68568
oblate spheroids, h.f. limit *(Russian)* 4−54746
rigid rectangular plate, diffraction effects near spherical sound source *(Japanese)* 4−65302
shock wave, weak, interaction with concave, convex wall 4−72317
thin elastic spherical shell, pressure field calc. *(Russian)* 4−80775

acoustic wave diffusion
see also acoustic wave scattering
ray diffusion by random inhomogeneities, attenuation in sound channels 4−80797

acoustic wave effects
see also ultrasonic effects
aerosol, sonically enhanced depth filtration 4−66666
aerosol coagulation, efficiency 4−75184
aerosol particle diffusion in sound field *(Russian)* 4−52524
AGR, acoustically induced vibr. of thermal insulation containment structs. 4−47772

acoustic wave effects continued
AGR, fuel pin response to acoustic excitation in presence of flow 4−47775
atmospheric acoustic modulation of auroral X-rays 4−54245
bubbles, subharmonic response to underwater sound 4−54756
CAGR fuel pins, Mk 2, dynamic behaviour in flow and noise environment 4−47776
chinchilla, inner ear changes and hearing losses due to intense stimulation 4−54653
ear damage risk criterion, external ear subject to impulsive noise 4−80708
flame, role of acoustic streaming in sound interaction 4−56417
flexural wave, determ. of dynamic elastic modulus and mechanical loss tangent in polymers 4−73997
gas bubble, non-Newtonian fluid, external sound induced fluctuations *(Russian)* 4−60250
hydrodynamic flow generation, structure kinematics, expt. study 4−74199
nonuniform distribution of defects around dislocations in acoustic wave field *(Russian)* 4−66915
nuclear reactor, dynamically scaled gas circuit structure, design and acoustic tests 4−47771
polymer, rigid, acoustocreep and acoustic fatigue, electron-acoustic apparatus 4−53948
polymer, stress relax., sound vibrs. effect, apparatus construct. *(Russian)* 4−50101
polymer film, elasticity modulus and angle of mechanical losses meas. 4−73999
sonic boom glass breakage probability 4−58664
supersonic jet, interaction with external acoustic waves *(Russian)* 4−60211
trichloromethane-trifluoromethane, spectrophone effect, time-resolved thermal lensing 4−52291
turnip seeds germination 4−54707

acoustic wave interference
see also acoustic wave interferometers; acoustic wave interferometry
deep sound channel propag., effect of horizontally varying internal wavefields 4−80793
lateral suppression and loudness reduction of tone in noise 4−68576
parametric interaction of travelling waves 4−76996
reflection from sinusoidal surface, comparisons, hgih freq. limit 4−80781
underwater, rays as interfering modes 4−65308

acoustic wave interferometers
see also acoustic wave interferometry
u.h.f., using quartz delay line 4−74007

acoustic wave interferometry
see also acoustic wave interferometers
Ar, gas const. determ. 4−60142
Li, single crystal, elastic constants meas. from U.S. interferometer meas. 4−79090

acoustic wave propagation
see also acoustic dispersion; Doppler effect; liquid helium sound propagation; shock waves; ultrasonic propagation
acoustic turbulence, inertial range spectra of sound modes 4−46511
adiabatic property explained 4−46538
axial shear waves, in medium with randomly distributed cylinders 4−50911
coherence function for cylindrically spreading waves in random medium 4−76991
coupling, in nondissipative and dissipative systems 4−63860
crystal with helical spin ordering, theory 4−73008
curved ducts, vibrational vel. profile using Bessel functions 4−80776
dielectric, elasticity theory and interaction of coherent acoustic waves with phonons 4−69859
distortions of waves from spherical sound source *(Japanese)* 4−65301
double-layer matching system, rel. to transparency of plane surfaces *(Russian)* 4−77599
duct, variable cross section with flowing gas 4−58649
eigenvalue eqns. for sound absorbing circular and annular ducts 4−73922
elastic rod, arbitrary cross-section 4−50913
elastic shells, interaction with weak shock waves, literature review *(Russian)* 4−77472
elastic thin rod, partial reflection on inhomogeneities, damping coeff. *(French)* 4−54738
exterior problem, integral eqns. 4−58646
fluctuations of plane wave parameters, longitudinal frequency correlation 4−58647
fluid column, dispersion curves, leaky waves 4−83359
gas, multi-component mixture, relativistic kinetic theory 4−81821
glancing, above plane interface with fluctuating impedance *(Russian)* 4−80774
guided flexural acoustic waves along tip of wedge, plate theory soln. 4−73917
harmonic crystals, isotopically disordered, heat conduction and sound transmission 4−59309
impedance boundary propagation 4−58643
information theory wavefront reconstruction 4−68552
infrasonic waves obs., in Antarctica, using microbaroic systems 4−80344
isotropic medium with parallel edge dislocations, shear acoustic harmonics excitation by transverse waves *(Russian)* 4−60554
liquid, nonlinearity due to uniformly distributed air bubbles *(Russian)* 4−52510
liquid acoustic wave, fractional harmonic components 4−65298
liquid crystal, cholesteric, Brillouin zone effect, sound wave propag. investigation 4−66827
liquid-bubble system, two phase, shock wave propag. exam. 4−78633
liquids, hard sphere, eqn. of state, surface tension, derived props. 4−75684
lithium citrate, aq. and non-aq. solns., specific acoustic impedance, temp. depend. 4−56810
lithium salicylate, aq. and non-aq. solns., specific acoustic impedance, temp. depend. 4−56810

acoustic wave propagation continued
metal plate, acoustic vibr. excitation by electron, proton beams 4−79101
moving source solns. relevant to jet noise 4−83360
moving-singularities anal. *(German)* 4−71140
noise, nonlinear propag., farfield lossless and dissipative media 4−80780
nonlinear, aerosol finite amplitude sound propag. 4−68560
nonlinear, finite amplitude noise propag., weak shock theory 4−68559
nonlinear, finite amplitude sound waves non-dissipative medium solns. 4−68558
nonlinear, fluid filled cavity standing waves 4−68561
nonlinear, open pipe, attenuation characts. 4−68566
nonlinear, rectangular duct propag., multiple scales anal. 4−68564
nonlinear, review 4−68568
nonlinear, review of tube propag. 4−68563
nonlinear, spherical wave time domain weak shock theory harmonic and soln. 4−68562
nonlinear effects of gas motion and lining material in two dimens. ducts 4−73923
nonlinear medium, asymptotic solution for h.f. sound 4−58653
nonlinear medium with dislocations, interaction of transverse and longit sonic harmonics *(Russian)* 4−48708
nonlinear waves, mass transfer and flow in stratified fluid 4−66582
nonlinear waves, standing sound waves density gradient switch off effects 4−66583
perforated plate single orifice model, influence of grazing flow 4−46531
physical principles of noise-reducing elements and absorbent materials 4−83363
pipes, open, reson. freq. effects 4−68565
plane circular radiator, near field struct. *(Russian)* 4−46512
radiation, high and low frequency approaches 4−73925
radiation, resonance, and mode conversion in horns with nonuniform flare 4−73915
ray acoustic intensity in moving medium, general expression 4−54741
ray acoustic intensity in moving stratified medium 4−54742
ray theories compared for deep ocean arbitrary sound-velocity profile, comparison of ray theories 4−73933
rectification 4−80773
relativistic gas mixture, absorption coeff. 4−66545
Rytov's method and large fluctuations, inapplicability beyond Born approx. confirmed 4−76989
sawtooth wave propag. in perfect gas, improved version of weak shock theory 4−73924
solar chromosphere, oscillating velocity fields and acoustic-gravity waves 4−65071
sound waves in medium in gravitational field *(Russian)* 4−50914
spherical wave amplitude and phase fluctuations 4−58648
streaming, nonlinear, two dimensional damped wave in free space 4−76995
superconducting wire, order parameter variations *(Russian)* 4−70109
vocal tract, lossy 4−62284
waveguide, semi-elliptical cross-section *(Japanese)* 4−68557
weak shock theory, upper limit on wave strengths 4−73924
As_2S_3, glass, anharmonic figure of merit, acousto-optical appl. 4−70279
GaAs, laser pulse induced damage mechanism 4−55496
^4He liquid, critical exponent of sound attenuation 4−67077
Kr, liq., nonlinear acoustical props. investig., B/A ratio calc. rel. to temp. 4−56813
$LiNO_3$, aq. and non-aq. solns., specific acoustic impedance, temp. depend. 4−56810
$Li_2SO_4.H_2O$, aq. and non-aq. solns., specific acoustic impedance, temp. depend. 4−56810
LiX, (X=Cl, I, Br), aq. and non-aq. solns., specific acoustic impedance, temp. depend. 4−56810
$NaNbO_3$-$LiNbO_3$-$KNbO_3$ ceramics, solid solns., phys. props. investigation for ultraacoustic appl. 4−45739
Ne, liq., nonlinear acoustical props. investig., B/A ratio calc. rel. to temp. 4−56813

acoustic wave reflection
see also echo; reverberation; ultrasonic reflection
barrier, noise reduction, review 4−50929
Doppler shift in echoes from fish schools 4−77000
focusing properties of curved surfaces *(Russian)* 4−54750
gas layer on surface in liquid 4−77618
lossy specular boundary reflection, ray acoustic theory for averaged steady state transmission ratio 4−73931
monostatic reflection press. meas. for Al, WC and brass spheres in water, transient analysis 4−73921
monostatic reflection press. meas. for Al and WC elastic spheres in water, steady state analysis 4−73920
monostatic reflection press. meas. for rigid sphere and spheroid in air, transient analysis 4−73921
non-reflecting end conditions, pseudo-random binary pressure pulses, investigation within a duct 4−68627
nonlinear sound wave, boundary reflection coeffs., N-wave Fourier anal. 4−68567
ocean surface, amplitude fluctuation 4−50920
Rayleigh wave reflection and transmission by thin film edge 4−52817
Rayleigh waves, reflection from groove and step discontinuities 4−71338
shock wave, weak, interaction with concave, convex wall 4−72317
sinusoidal surface, comparison with geometric formula and other predictions, high freq. limit 4−80781
SOFAR ray caustics, media with bilinear sound-speed profiles, closed-form solns. 4−80782
sounding in atmosphere, refractive effects 4−58641
surface beam, at layered substrate boundary, lateral displacement 4−48825
surface topography, spectroscopic determ. 4−68258
two blade rows, transmission and reflection of sound 4−73926
underwater beam control using circular, parabolic and elliptical converging reflectors 4−71161

acoustic wave reflection continued
underwater sound scattering on rough sea surface *(Polish)* 4−62354
urban noise propagation, review 4−50928
wavy ocean surface, coherence parameter meas. 4−54757
$LiNbO_3$, surface acoustic wave reflection at conducting-nonconducting boundary, light scatt. obs. 4−44745

acoustic wave refraction
see also acoustic dispersion; ultrasonic refraction
aerodynamic vortex, wind tunnel expt. 4−46513
atmospheric, influence on wind velocity meas. by 'sodar' *(French)* 4−76758
boreholes, side acoustic logging by refracted waves *(Russian)* 4−54302
reverberation from bottom, shallow-water, downward refr. conditions 4−80798
SOFAR ray caustics, media with bilinear sound-speed profiles, closed-form solns. 4−80782
sonic boom propagation through variable flow field 4−72306
sounding in atmosphere, refractive effects 4−58641

acoustic wave scattering
see also ultrasonic scattering
axial shear waves, in medium with randomly distributed cylinders 4−50911
elliptical cylinder with mixed boundary conditions 4−58651
emulsion, spatial dispersion of sound velocity 4−57790
forward scatt., coherence function for cylindrically spreading waves in random medium 4−76991
liquid interface, stimulated scattering with surface resonance *(Russian)* 4−52819
meas. for 7 n.m. propag. range, Florida Straits 4−80794
multivariate Gaussian surface, use in scatt. expts. 4−74008
oblate spheroids, h.f. limit *(Russian)* 4−54746
ocean, frequency smearing of sound forward scattered from surface 4−54752
random-amplitude random-phase sinusoidal sea surfaces 4−76993
recursive algorithm for spatial density of acoustic point scatterers 4−80784
reverberation from bottom, shallow-water, downward refr. conditions 4−80798
rough sea surface, wave facet interaction model 4−73916
rough surface, pressure-release with multivariate Gaussian statistics 4−76990
shadow region, effect of geometrical symmetry 4−58644
sounding in atmosphere, refractive effects 4−58641
statistically uneven surface, scattering diagrams *(Russian)* 4−42738
turbulent moving medium 4−58640
turbulent scattering, reverberation time expt. 4−62347
underwater sound, from stochastic surface 4−46518
underwater sound scattering on rough sea surface *(Polish)* 4−62354
volume-reverberation spectra, North Atlantic, 33°N to 63°N geographic patterns 4−80800

acoustic wave transmission
see also ultrasonic transmission
anisotropic reinforced plate, flexural waves 4−76994
cylindrical layered elastic shell, transmission matrix 4−74336
double wall, with partition in airspace, transmission losses *(Japanese)* 4−65306
gas layer on surface in liquid 4−77618
inner ear of cat, Mossbauer and laser interf. study *(German)* 4−77259
lined duct, high intensity sound 4−65300
liquid crystals, review 4−75446
loss measurement, ocean, choice of explosive source, processing filter 4−77034
meas. for 7 n.m. propag. range, Florida Straits 4−80794
panels, effect of constant compressive prestress 4−62352
partition acoustic transmission class determ. 4−83362
phase fluctuations, long-range depth depend. drifting hydrophones 4−80801
porpoise head 4−80814
range dependent channels, ray acoustic theory for averaged steady state transmission ratio 4−73931
Rayleigh wave reflection and transmission by thin film edge 4−52817
spherical shell and fluid around spherical transducer 4−46507
transverse velocity temp. gradients effect on sound attenuation, two-dimens. duct 4−80786
two blade rows, transmission and reflection of sound 4−73926
two-dimensional duct, effect of mean-velocity profile shape 4−73927
urban noise propagation, multiple reflections, reverberation, review 4−50928
viscoelastic layered medium *(Russian)* 4−54749
waveguides, relationships between Helmholtz and Schrodinger solutions 4−80787
Webster wave eqn., acoustic horns, two dimens. 4−80778

acoustic wave velocity
see also acoustic dispersion; liquid helium sound propagation; shock waves; ultrasonic velocity
acetone hypersound rel. to pressure, 1 to 1000 atm. determ. by stimulated Brillouin scattering 4−52818
alkali metal, elec. resist. temp. depend. anal. rel. to sound velocity 4−64064
axial shear waves, in medium with randomly distributed cylinders 4−50911
benzene hypersound rel. to pressure, 1 to 1000 atm. determ. by stimulated Brillouin scattering 4−52818
n-butanol-t-butanol mixture, acoustic relaxation *(Russian)* 4−44603
β-p- dichlorobenzene 4−52830
elastic-plastic media, dynamic crack propag., model 4−48686
emulsion, spatial dispersion 4−57790
Fermi gas, superdense degenerate, also equilib. config. *(Russian)* 4−83171
fluid sphere in general relativity, exact soln. for interior Einstein field eqns. 4−59266
fourth sound, velocity determ., superfluid flow through porous media, drag, grain size corrections 4−60669
fresh-water reservoir, phase characts. of spherical receiver of oscillatory velocities *(Russian)* 4−80414

acoustic wave velocity continued
gas flow through porous media, sound velocity, critical flow velocity *(German)* 4−48366
gas mixture containing heat radiating particles, asymptotic solutions 4−62350
gaseous binary mixtures, kinetic theory 4−52328
glass, temp. dependence *(Russian)* 4−44604
glycerol, viscoelastic cooperative modes, nonlinear effects on acoustic propag. and absorpt. 4−55294
lateral waves from continuous transition layer, depth depend. sound speed 4−80796
liquid, near liquid-vapour critical point, altitude dependence *(Russian)* 4−52822
liquid equation of state, molecular acoustic derivation *(German)* 4−52854
methane, dense fluid medium, saturated and compressed 4−69857
ocean, effects of Rossby waves on velocity, variation with depth 4−73930
ocean, exponentially stratified 4−46506
ocean sediment layer interval vels. from sonobuoy technique 4−68080
profiles in deep ocean, attenuation in randomly inhomogeneous sound channels 4−80797
rare earth monosilicides, elastic consts. determ. temp. depend. 4−60534
sea water and sediments, acoustic dispersion relationships 4−50919
SOFAR channel axis sound speed and depth in Atlantic Ocean 4−68144
SOFAR ray caustics, media with bilinear sound-speed profiles, closed-form solns. 4−80782
sound radiation, cylinder, immersed in acoustic fluid, bounded by elastic half-space 4−80783
suspension, solid in gas, sound velocity, critical flow velocity *(German)* 4−48366
water, sound velocity maximum, effect. of non-electrolytes on temp., struct. investig. 4−69858
waveguide with supersonic flow 4−58650
$AuSb_2$, elastic consts. determ. 4−82353
CS_2 hypersound rel. to pressure, 1 to 1000 atm. determ. by stimulated Brillouin scattering 4−52818
Cd, quantum oscills., up to 70 kOe, $1.5K \leqslant T \leqslant 4.2K$ 4−79276
CdS, hot-pressed, investigation of thermal and ultrasonic props. 4−63877
Cr-Fe alloy, mag. ordering, press. effects obs. 4−70151
Ga, strong transverse mag. fields, velocity dispersion of transverse sound *(Russian)* 4−82358
^4He solid, temp. depend. of longit. sound vel. 4−79222
$K_2Pt(CN)_4Br_{0.3}.3H_2O$, lattice anharmonicity, first and zero sound vels. 4−69879
MgF_2, hot-pressed, investigation of thermal and ultrasonic props. 4−63877
N_2O_4, dissociating, smoothed data on sound speed, 70-180°C, 5-50 atm. 4−78559
Na at melting point, speed of sound in principal crystal direction *(German)* 4−79141
SF_6, near critical point 4−56872
V_3Si, influence of magnetic field, range to 80 kOe, 5K to 50K 4−79454
Xe, cryst., and zero-sound elastic consts., temp. depend. 4−60533

acoustic wave velocity measurement
see also ultrasonic velocity measurement
atmospheric effects, gases, resonance tube method *(Japanese)* 4−65386
in bones, structure assessment applic. 4−46447
experimental technique, detect. of indirect pressure waves, termination reflected 4−68627
fluid, shock-compressed, stimulated Brillouin scatt. 4−54831
liquid, resonance reverberation method for u.s. meas. of acoustic props. below 10 kHz 4−74010
sing-around method for acoustic surface-wave vel. meas. using optical probe 4−68626

acoustic waves
see also acoustic emission; acoustic surface waves; shock waves; ultrasonic waves
anisotropic reinforced plate, flexural waves 4−76994
cylindrical layered elastic shell, transmission matrix 4−74336
gas flame generation of acoustic oscillations, impedance condition for prevention 4−68553
gravitational sound waves, instability, influence of natural damping heat diffusion and viscosity 4−81939
hot wire response 4−68855
infrasonic, nonlinear propag. in atmosphere 4−68208
internal, nonstationary, action on rigid cylindrical surface *(Russian)* 4−47131
organ flue pipes, resonance, nonlinear interactions 4−77013
solar chromosphere, nonthermal line broadening interpret. w.r.t. acoustic waves 4−62023
spherical, transient interaction of elastic shell, internal mech. systems 4−77474
visualization using scanning and holographic methods 4−58753
water, i.r. laser induced, temp. distrib. 4−72525

acoustical laboratories
see also anechoic chambers
No entries

acoustics
see also acoustic applications; acoustic devices; acoustic equipment; acoustic noise; anechoic chambers; architectural acoustics; atmospheric acoustics; audio acoustics; hearing; musical acoustics; sound reproduction; ultrasonics; underwater sound; vibrations
conference, finite-amplitude wave effects in fluids 4−68551
historical and philosophical development, resonators in ancient theatres 4−80771
lecture demonstrations 4−42683
noise prevention, theory review 4−68582
nonlinear, review 4−68568
space impression, objective estimation, suitability of hall size *(German)* 4−83361
toy whistle for acoustic demonstrations to children 4−54791

acousto-optical devices
see also acousto-optical effects
atmospheric composition analyser, water vapour absorption limit 4−54329
composition of liquid media meas., receiver with gas simulator 4−51228
fabrication, using u.s. welding, device characts. *(Japanese)* 4−80933
heterodyne laser interferometer with acousto-optical modulator 4−80907
interferometer, collimated lateral shearing 4−51055
laser modulation, principles 4−43339
light modulator, PLM-040B, and driving circuit PLMD-040 *(Japanese)* 4−80934
modulator, sound by light 4−77036
modulator as switchable beam splitter for holography 4−77102
radiationless processes, vapour phase 4−66470
raster as grating for length meas. *(German)* 4−51012
soft mode anomaly device applications 4−63883
$PbMoO_4$ modulator, deflection efficiency, 442-1152 nm, wavelength and polarisation depend. 4−73099
TeO_2, noncollinear tunable filter using birefringence 4−42818
TeO_2 acousto-optical deflector, rapid tuning of dye laser 4−58843
TeO_2 tunable filters 4−65418
TlCl-TlBr, KRS6 crystal, elasto- and acousto-optical props., device appl. *(French)* 4−67551

acousto-optical effects
see also acousto-optical devices
benzene, radiationless processes, lowest singlet and triplet states 4−69513
biacetyl, high press. vapour, triplet state yield and lifetime 4−66471
biaxial crystals, light scattering at elastic waves 4−53393
Bragg diffraction by standing sound wave 4−77615
dielectric medium, light diffr. by two orthogonal sound waves, theory 4−59349
diffraction, Raman-Nath eqn., vector wave formalism 4−43242
diffraction of light by sinusoidal wave, relativistic Doppler shift 4−65871
ferroelectric, photoelasticity meas. by u.s. light diffr. 4−61132
glass, chalcogenide, acousto-optic. characts. 4−49325
gyration tensor, shear elastic wave modification 4−45271
laser modulation, principles, methods and devices 4−43339
liquid, acoustically induced birefringent, optical diffraction 4−73100
liquid crystals, review 4−75446
optical excitation of sound *(Russian)* 4−53392
optical filter, acoustically tuned, optimum cryst. orientation 4−46625
photophysical processes, vapour phase, model, apparatus 4−66470
photophysical processes, vapour phase 4−66471
photophysical processes, vapour phase 4−69513
proustite, elastic and photoelastic properties 4−57497
quartz, light diffracted by acoustic surface waves, incidence angle and polarization depend. 4−61131
semiconductor, surface e.m. wave excitation 4−79387
As_2S_3, glass, anharmonic figure of merit 4−70279
$Gd_2(MoO_4)_3$, light scatt. by acoustic waves 4−79701
HfO_2 crystal, Mandel'stam-Brillouin light scattering 4−53394
$LiNbO_3$, light diffracted by acoustic surface waves, incidence angle and polarization depend. 4−61131
$LiNbO_3$, Schaeffer-Bergmann diffraction patterns due to u.s. waves 4−57498
$LiNbO_3$, surface acoustic wave reflection at conducting-nonconducting boundary, light scatt. obs. 4−44745
$LiNbO_3$, visualization of inverse phase velocity surfaces for bulk and surface u.s. waves, light diff. exam. 4−44746
$LiNbO_3$, wavefront visualisation by imaging technique 4−63968
NaCl, $NaClO_3$, laser beam diffr. by standing u.s. waves 4−53390
Si photoelastic tensor compounds meas. using an acousto optical method 4−53391
TeO_2, figure of merit for circularly polarized light 4−57496
TlCl-TlBr, KRS6 crystal, elasto- and acousto-optical props., device appl. *(French)* 4−67551

acoustoelasticity *see elasticity*

acoustoelectric effects
bolometric detection of hypersound *(French)* 4−54832
intensity fluctuations of Brillouin scatt. laser light from amplified vibr. waves 4−45292
liquid crystals, review 4−75446
metal, e.m. generation of transverse waves, geometric reson. 4−57144
metal, Landau damping, nonlinear effects on magnetic field induced interband tunnelling 4−49045
metal film, e.m. to acoustic wave conversion efficiency 4−45050
metal plate, selective transparency due to e.m. and acoustic wave interaction 4−73214
piezoelectric semiconductor, acoustic surface wave amplification by transverse electric current 4−57142
piezoelectric semiconductor, e.m.f. cond. depend. 4−75928
piezoelectric semiconductor, optimum acoustic wave second-harmonic generation 4−67261
piezoelectric semiconductor, total energy calc. 4−64333
piezoelectric semiconductor, u.s. wave amplification on interaction with electron beam 4−82463
piezoelectric semiconductor, u.s. wave amplification through interaction with deform. pot. 4−79385
plasma, electroacoustic transformation, low temperature *(Russian)* 4−52572
self-consistent field methods, eqn. of motion for one electron density operator 4−49046
semiconductor, acoustic forbidden band effect on absorption of sound and acoustoelectric current 4−72836
semiconductor, acoustoelectric aftereffect investigation 4−72835
semiconductor, acoustoelectronic effects rel. to photoconductivity in mag. fields 4−70052
semiconductor, nondegenerate, acoustic wave second harmonic generation in mag. field 4−44970
semiconductor, nonlinear acoustic wave excitation 4−82464
semiconductor, photostimulated acoustomagnetoelec. effect, theory *(Russian)* 4−72833

- **acoustoelectric effects** continued
  - semiconductor, piezoelectric, recomb.-acoustoelec. current, theory 4—60832
  - semiconductor, polar, acoustic wave amplification, two phonon mechanism 4—75927
  - semiconductor, surface e.m. wave excitation 4—79387
  - semiconductor, unipolar, acoustophotoelec. effect, theory 4—82456
  - semiconductor, u.s. harmonic generation with deformation potential coupling 4—64119
  - semiconductor/piezoelectric interface, elastic wave amplification by refl. 4—57145
  - semimetal, acoustic forbidden band effect on absorption of sound and acoustoelectric current 4—72836
  - semimetal, e.m. excitation of ultrasound and resonant transparency *(Russian)* 4—67167
  - solid-state, elastic and electro-elastic wave phenomena, review 4—53115
  - superlattice, sound absorpt. in presence of elec. field *(Russian)* 4—82225
  - viscous fluid, MHD approximation 4—52330
  - $Bi_{12}SiO_{20}$ higher electromechanical coupling coefficients 4—75683
  - CdS, elastic surface wave amplification, 30-240 MHz 4—48827
  - CdS, Joule heating influence on continuous amplification of ultrasound 4—67262
  - CdS, nonlinear acoustic gain meas. 4—44972
  - CdS, off-axis domains, Brillouin scatt. obs. 4—44971
  - CdS, photocond., high elec. field domain nucleation due to acoustoelec. flux 4—44968
  - CdS, piezoelec. crystals, u.s. propag. meas., 300 to 900K 4—57147
  - CdS, strong magnetic field, formation of stationary domain 4—64120
  - CdS, surface interaction, adsorbed gas influence 4—79397
  - CdS, surface wave acoustoelectric domains excitation 4—75926
  - CdS, trap parameter determ. from temp. depend. of acoustic gain 4—48934
  - CdS, u.s. amplification with electron injection from contacts 4—57148
  - CdS, with acoustoelectrically amplified phonon flux, time evolution of freq. spectrum 4—79719
  - CdSe, luminesc. from acoustoelec. domains 4—53534
  - GaAs, instability, 77K, static and travelling domain form. 4—72834
  - n-InSb, piezoelectric semiconductor, optimum acoustic wave second-harmonic generation 4—67261
  - InSb-$LiNbO_3$, acoustoelectric amplification using pseudosurface waves 4—57143
  - $LiNbO_3$/CdSe film monolithic layered struct., acoustoelec. e.m.f. and electronic gain 4—57146
  - Te, influence of electric field on interaction of sound with carriers 4—72837
- **acoustomagnetic effects** *see magnetoacoustic effects*
- **acoustomagnetics** *see magnetoacoustic effects*
- **acoustooptics** *see acousto-optical effects*
- **actinide alloys**
  - *see also actinide compounds; plutonium alloys; uranium alloys*
  - magnetism, band model, d-f hybridisation 4—45087
  - Gd-Th, h.c.p., magnetocrystalline anisotropy 4—49190
  - La-Th:Ce, supercond.-normal phase boundary, impurity conc. depend. 4—67304
  - Mg-Th alloy, precipitation hardening, effect of additions 4—61472
  - Np alloys, spin fluctuation model, mag. susceptibility, elec. resist. 4—45104
  - Np-Al, crystal structure of intermediate phases, $NpAl_3$ lattice const. 4—69750
  - Np-Pt, crystal structure of intermediate phases, lattice const. NpPt, $NpPt_3$ 4—69750
  - Np-Si, crystal structure of intermediate phases, lattice const., Np_3Si_2 4—69750
  - Np-Sn, crystal structure of intermediate phases, lattice const., Np_3Sn, $NpSn_3$ 4—69750
  - Np-Tl, crystal structure of intermediate phases, lattice const., Np_3Tl 4—69750
  - $NpAl_3$, magnetisation, hyperfine field, ferromag. order 4—64211
  - $NpOs_2$, elec. cond., 1.5-300K, localised spin fluctuation model 4—57075
  - NpPt, magnetic properties 4—64196
  - $NpRu_2$, elec. cond., 1.5-300K, localised spin fluctuation model 4—57075
  - Th, binary, thermodynamic props., review 4—51889
  - Th-V system, impurity controlled diffusion reaction 4—82290
  - $Th(Co_xFe_{1-x})_5$, intermetallic compounds, cryst. and mag. struct. 4—70167
  - $ThRu_2$:Gd, type II supercond. state, e.p.r. of localised moment 4—49127
- **actinide compounds**
  - *see also compounds of individual actinides, e.g. uranium compounds*
  - *see also actinide alloys*
  - carbides, thermodynamics, literature survey 4—51880
  - chlorides, vibr. spectra and force consts. *(German)* 4—61149
  - dioxides, thermal expansion, room temp. to 1000°C 4—60628
  - magnetism, theory 4—57249
  - nuclear materials, thermophysical developments, review 4—51881
  - superheavy element compound, $E110F_6$, mol. orbitals calc. by self-consistent multiple scatt. $X\alpha$ method 4—66373
  - trivalent, octahedrally coordinated M^{3+}, mag. props., obs. on Cs_2NaMCl_6 4—49153
  - $E110F_6$, ground state one-electron energy states, calc. by self-consistent multiple scatt. $X\alpha$ method 4—66373
- **actinide metal compounds** *see actinide compounds*
- **actinide metals** *see actinides*
- **actinides**
  - *see also individual actinides, e.g. uranium*
  - atoms, ionisation energy calc. 4—63346
  - atoms and free ions of actinide series, low-lying electron configs., relative energies 4—63324
  - bioassays, actinide element determ. methods 4—58548
  - magnetism, band model, d-f hybridisation 4—45087
  - removal from radioactive waste, effect on long term hazard 4—81690
  - transplutonium elements separation from neutron irrad. ^{241}Am 4—57876
- **actinides** continued
  - transuranic elements in human lung, in vivo detection 4—83345
- **actinium**
  - No entries
- **actinium compounds**
  - No entries
- **actinometers** *see radiometers*
- **actinometry** *see photometry*
- **activation analysis** *see chemical analysis by nuclear reactions and scattering*
- **active filters**
  - RC 4-poles, computer-aided synthesis, geophysical instruments input realization *(Russian)* 4—46759
- **active nitrogen** *see nitrogen*
- **active oxygen** *see oxygen*
- **active thin film circuits** *see thin film circuits*
- **adaptive control**
  - *see also adaptive systems*
  - occipital theta rhythm, control affects performance of monotonous monitoring tasks 4—68488
  - pattern recognition, visual, space distortion theory for 2 dimensional and 3 dimensional objects 4—58509
  - spacecraft final descent velocity in Martian atmosphere, adaptive algorithm for control 4—76768
- **adaptive systems**
  - *see also adaptive control; pattern recognition*
  - 33 GHz molecular beam spectrometer, real-time electric resonance detection 4—65442
  - astronomical computer interactive photoelectric photometer 4—65227
  - olfactory bulb bioelectric rhythm simulation 4—62279
- **adders**
  - quantum optical half adder using injection laser, working range 4—81338
- **adding machines** *see calculating apparatus*
- **adherence** *see adhesion*
- **adhesion**
  - bimetallic interface, self-consistent theory of adhesion 4—79403
  - bonded materials, u.s. inspection 4—64662
  - clean surfaces, light loads, influence of hardness, ductility, chemical bonding, adsorbed vapours 4—70401
  - coating, heat resistant, temp. depend. of adhesion strength and elasticity 4—49914
  - composite, polymer matrix, interfacial bonding and environmental stability 4—64630
  - composite, testing of strength between materials 4—50060
  - fault detection by nondestructive holographic inspection *(French)* 4—73403
  - fibre reinforced plastics, adhesion effect on tensile props. *(Japanese)* 4—80082
  - ion plating effects on film adhesion, morphology and coverage 4—53596
  - joint bonding composite to metallic substrate, linear elastic analysis 4—53822
  - metal joints glued with epoxy, residual stress distrib. 4—45823
  - nuclear reactor materials in liquid sodium, testing device *(Czechoslovakian)* 4—43647
  - peel strength of joints, plastic and viscoelastic effects 4—50030
  - plasma sprayed reinforced coatings, effective area of adhesion 4—70554
  - point particle substrate electrodynamic interaction, anal. 4—61548
  - polyimide adhesion to IC alumina substrate, improvement 4—49975
  - polymer, preliminary orientation effect on friction forces 4—45820
  - polymeric film on Al surface, bond failure investig., ESCA method 4—77272
  - rubber, butadiene-styrol, modified with surface-active materials, adhesive props. *(Russian)* 4—45795
  - rubber to glass, relaxation props. effect 4—57774
  - rubbery materials, actual contact area formation kinetics 4—50002
  - between solid particles, liquid-bridge mechanism *(German)* 4—56458
  - steel, of epoxy resin, effect of water 4—45822
  - surface energy effects microbalance technique for W or quartz and steel 4—53589
  - thin film adhesion, review 4—75733
  - thin film adhesion, scratch test critical load determ. 4—68621
  - van der Waals adhesion calculations 4—67138
  - van der Waals dispersion force contrib. to work of, macroscopic theory 4—44751
  - VT-200 adhesive for low temp. vacuum joins 4—68652
  - Al vacuum deposited coating on Mg alloy, effect of condensation conditions on adhesion and structure *(Russian)* 4—70480
  - Au-Ti melt/Al_2O_3, intermediate phase formation on adhesion and wetting 4—67930
  - Cr film, to soda lime glass, investigation using film peeling technique 4—75734
  - Cu-Ti melt Al_2O_3, intermediate phase formation on adhesion and wetting 4—67930
  - GaAs anodic oxidation, props. of oxide film 4—49606
  - Mo films on nonmetallic materials, adhesion and wetting by molten metals 4—80045
  - TiC/steel, thin film adhesion, scratch test critical load determ. 4—68621
- **adiabatic compression, plasma** *see plasma heating*
- **adiabatic demagnetisation** *see demagnetisation; magnetic cooling*
- **adion** *see adsorption*
- **administrative data processing**
  - *see also government administrative data processing; management information systems*
  - POS system, He-Ne laser applic. 4—51657
  - water pollution control, computer-aided *(Spanish)* 4—71126
- **admittance**
  - m.o.s.t. surface quantisation, admittance studies 4—64141
  - vibr. of quartz plates, appl. finite element method, admittance curves 4—80806

admittance measurement
- nonlinear, with large loss angle, using asymmetrical closed freq. system *(Polish)* 4−54977

ADP *see administrative data processing*

ADP (ammonium dihydrogen phosphate) *see ammonium compounds*

adsorbed layers
- acetone, on Mo surface, light induced mol. polarisation 4−52993
- adhesion between various clean surfaces, light loads, influence of various adsorbed vapours 4−70401
- alcohol, on Mo surface, light induced mol. polarisation 4−52993
- atomic vibrations of monolayer covered surfaces, LEED, model interpret. *(French)* 4−75682
- atoms on metal surface, dynamic interaction model for induced dipole moments 4−67108
- p-benzoquinone, adsorbed molecules, electronic spectra *(German)* 4−43836
- cleaved crystal, i.r. spectra of adsorbed talcum layers *(German)* 4−72640
- crack detection by magnetic powder method, AKOR-1 surfactant additive 4−50095
- N,N-dimethylaniline, adsorbed molecules, electronic spectra *(German)* 4−43836
- dipole, interface stability 4−44749
- disordered overlayers, dynamical theory of LEED, appl. to 1-dimens. adsorbates 4−44773
- disordered overlayers, dynamical theory of LEED, quasicrystalline analysis 4−44772
- on electrode, effect on near-electrode pot. layer in alkali metal plasma 4−70392
- ethylene on W single crysts., structures of surface complexes 4−52985
- exoelectron emission, physico-chemical nature 4−53584
- gas and surface simultaneous diffusion in capillaries 4−72629
- heterogeneous recombination of gas atoms, temp. depend. 4−54086
- inelastic tunnelling spectroscopy, detection of die organic acids in water 4−55155
- inert gas adsorbed on solid surface, isotherm determ. from virial data model 4−69958
- ion, interface stability 4−44749
- ion monolayers, phase separation 4−57849
- liquid films, adsorbed in cylindrical pores, excitation spectrum, thermodynamic props. 4−44771
- magnetic resonance linewidth of adsorbed species on surfaces 4−53278
- metals, group 1b, on W, substrate surface struct. effect on work function 4−63979
- N-methylaniline, adsorbed molecules, electronic spectra *(German)* 4−43836
- molecular beam method for comp. and struct. determ. *(French)* 4−45393
- multilayer thin film, thermodynamic model 4−56974
- naphthalene, adsorbed on Al_2O_3 and MgO, fluoresc. spectra *(German)* 4−70361
- organic vapour molecules, on glass and kaolinite, elastic moduli, adsorbed phase struct. determ. 4−67103
- phonon field of adatom pairs, indirect interaction 4−44775
- polywater, on quartz capillaries, film props. 4−82313
- pyrene, adsorbed on Al_2O_3 and MgO, fluoresc. spectra *(German)* 4−70361
- sensitizing dyes on AgBr and Ag_2IBr emulsion crysts., absorpt. and reflectance spectra 4−68022
- surface phonons, propagating in adsorbed monolayer of f.c.c. cryst., energies, polarisation calc. 4−63966
- thin film, multilayer, thermodynamic model of adsorption 4−56974
- transition metal adatoms, density of states, binding energy, moment method calc. *(French)* 4−44984
- on transition metals, struct. and form. mechanism relationship from LEED data *(French)* 4−44777
- two-dimensional polymorphism phenomena *(French)* 4−48836
- water, adsorbed on AgI and phloroglucinol, i.r. spectra, ice form. threshold 4−64370
- water, on glass and kaolinite, elastic moduli, adsorbed phase struct. determ. 4−67103
- water adsorption on ice-forming surfaces, i.r. spectra 4−64371
- Al_2O_3, growth and desorption of layers of tungsten cryst. planes, FEM 4−69962
- Au, on W, substrate surface struct. effect on work function 4−63979
- Au on W, broad resonance, field emission spectra obs. 4−63985
- CO, on Mo surface, light induced mol. polarisation 4−52993
- CO adsorbed on evaporated alkali halides, i.r. spectra interpret. 4−61152
- CO on Pt surface, mol. beam scatt. 4−67684
- CO on Pt(111), oxidation, mol. beam investig. 4−53996
- CO_2, adsorbed on ice, critical cluster size determ. 4−48843
- Cu, on Ge, influence on surface electron states 4−49057
- He, momentum accommodation coeff., temp. depend. 4−82318
- He, on solid-porous surfaces, isotherm determ. by compressibility press. plot (K method) 4−44759
- He II, on Cu, thickness as function of surface roughness and saturation 4−82299
- ^3He, ^4He, second virial coeffs. of two-dimens. system using Beck pot. 4−67080
- ^3He, on graphite, specific heat, mag. susceptibility 4−60665
- ^4He, adsorbed, multilayer thin film, thermodynamic model 4−56974
- ^4He, monolayer adsorption on Grafoil, thermodynamics 4−72606
- ^4He, on graphite, specific heat 4−60665
- ^4He monolayer on graphite, Debye temp. 4−79161
- ^4He thin film, multilayer, thermodynamic model of adsorption 4−56974
- Hg on Pt black, surface sensitivity of X-ray photoelectron spectroscopy 4−67699
- I_2, adsorbed molecules, electronic spectra *(German)* 4−43836
- I_2, on W(110), LEED, Auger and work function study 4−48844
- Kr on graphite, adsorpt. isotherms meas., triple point of monomol. layer determ. 4−44768
- Mg-phthalocyanine complexes, changes in fluorescent spectra on transformation to adsorbed state 4−43859
- N_2, hysteresis in sorption isotherms 4−44765
- NO, adsorption on low and high energy surfaces 4−44763

adsorbed layers continued
- NO, NO_2, on oxides, i.r. obs. of molecular complexes 4−43838
- NO on NiO, Co_3O_4 and graphite, X-ray photoelectron spectra 4−56981
- Ni-O surfaces, X-ray photoelectron spectra using ion bombardment 4−56994
- O_2, on Al, effect of electrode separation on contact potential difference 4−49059
- O_2, on Si (111) and (100) surface, electron orbital energies of adsorbed O_2 4−79239
- PF_3, metal surface interaction 4−44762
- S, on (111) face of Pt, catalytic oxidation *(French)* 4−68026
- S, on Ni(111) surface, comparison of ion backscatt. and Auger spectroscopy analysis 4−56966
- Xe, epitaxial, on graphite, entropy of adsorption *(French)* 4−56977

adsorption
- *see also heat of adsorption*
- adatom migration, capture and decay among competing nuclei on substrate 4−60687
- ageing effect of technical adsorbents on adsorption equil. and sorption rate *(German)* 4−52983
- atmosphere, adsorption effect on primary water product appearance 4−50283
- BCF surface diffusion model of cryst. growth, coverage effects investig. 4−63780
- benzene molecules, adsorption on alumina, entropy and mobility 4−52982
- BET method, meas. surface area of powder samples *(Japanese)* 4−74029
- n-butanol, on quartz crystal surface, piezogravimetric method 4−44770
- calcite, of water vapour, induced pore struct. 4−58264
- capillary, fine, vapour diffusion, polymol. adsorption and capillary condensation effects 4−64721
- cement, of water, effect on surface energy and mechanical props. 4−49875
- colloidal dispersions, stability, interaction between particles dispersed in regular mixture 4−67959
- composite, polymer matrix, interfacial bonding and environmental stability 4−64630
- composite isotherms corrected for solution-adsorbate volume differences 4−69961
- diamond (111) surface, of CO, extended Huckel theory 4−60686
- dispersion self-energy concept in phys. adsorption of mols. on dielec. surfaces 4−67106
- on electrode, effect on near-electrode pot. layer in alkali metal plasma 4−70392
- electron spectroscopy appl. to surface studies, review 4−76362
- ethanol, on quartz crystal surface, piezogravimetric method 4−44770
- f.c.c. crystals, of isolated atoms, heat capacity calc. 4−75702
- field, noble gases, field ion microscopy obs. 4−68813
- field electrode, improvements and possibilities of vacuum usage *(French)* 4−80862
- field emission from adsorbate covered surfaces, Anderson model 4−64484
- field-emitters, stabilization during O adsorpt. from residual gas 4−79858
- gas, during boiling 4−69902
- glass, accommodation coeff. of Hg, 4.2-300 K 4−48838
- glass, of Cs and CsCl, Van der Waals forces 4−63977
- glass, of water, p.m.r. relax. meas., pore size depend. 4−52991
- glass, of water and organic vapours, elastic moduli, adsorbed phase struct. determ. 4−67103
- graphite, of Kr, adsorpt. isotherms meas., triple point of monomol. layer determ. 4−44768
- graphite (0001) face, Xe adsorption, first order two dimens. gas to solid transition *(French)* 4−63981
- heterogeneous surface, new isotherm eqn. for multilayer adsorption 4−67107
- heterogeneous surfaces, localised adsorption theory 4−75708
- ice crystal grwoth mechanism, habit formation 4−61783
- inert gas adsorption isobars for small monocryst. surfaces *(French)* 4−82320
- inert gas solids, of He 4−75701
- iodides, of methane and krypton, interaction energies determ. *(French)* 4−44778
- isotherm, isotherm determ. from virial data model 4−69958
- isothermegraph, automatic apparatus for specific surface and pore size distrib. meas. in porous solids *(French)* 4−42920
- isotherms for solutes in dilute solution, classification, expt. interpretation 4−67099
- isotherms for solutes in dilute solution, classification, theoretical basis 4−67098
- kaolinite, of water and organic vapours, elastic moduli, adsorbed phase struct. determ. 4−67103
- LEED from ordered overlayers, scatt. cross section in terms of substrate layer scatt. matrices 4−75700
- linear potential sweep voltammetry, adsorption, autoinhibition, autocatalysis effects on electrochem. react. 4−51223
- lunar fines, of water vapour, induced pore struct. 4−58264
- lunar rocks and soils, pore struct. determ. 4−58263
- macromolecules, lattice model, computer simulation 4−52988
- macromolecules, simulation, loop form., segment density distrib. 4−52989
- mass change, h.f. cryst. microbalance, simultaneous meas. other parameters 4−67711
- mesoporous medium, vapour-solid change of state possibility *(French)* 4−48747
- metal, exoelectron emission kinetics under strain excitation 4−53586
- metal, improved Anderson model 4−64040
- metal, of He, effects of dispersion and surface boundary conditions 4−72630
- metal, of monolayer, film phase transitions 4−79236
- methanol, on quartz crystal surface, piezogravimetric method 4−44770
- micellar interfaces, of alkali metal ions, n.m.r. investig. of spin-lattice relax. times 4−45851
- micropore analysis, Brunauer's method 4−45839
- molecular sieves, of $^{13}CO_2$, n.m.r. studies 4−81792

adsorption continued
molecular size factor, interaction terms evaluation, adsorption isotherms for non-ideal interphases 4−63984
mordenite, of N_2, thermal entropy determ. eq. of state derived, motional state determ. 4−67104
multilayer, mol. field theory, including lateral interactions between atoms 4−44774
multilayer, sticking coeff. curves investig. 4−75693
phosphosilicate glass, of water, film struct. determ. 4−44760
photoemission spectra, angular dependence rel. to symmetry of orbitals and site geometry 4−49523
physical adsorption, review 4−60685
polyenes, optical absorpt. spectra, effect of gas adsorption 4−67600
polyethylene, failure mode, liq. media influence *(Russian)* 4−53859
polymer molecule configuration on adsorption and subjected to solvent effect 4−43892
polymer solution, adsorpt. at interface, multilayer theory 4−68023
polysilicic acid ion-substituted gels, structure of adsorbed water determ. by spin-echo method 4−45854
powder, surface area comparison of porous and non-porous media by diffusional flow and nitrogen adsorption 4−45865
n-propanol, on quartz crystal surface, piezogravimetric method 4−44770
pyrex, of N_2 at very low pressure 4−67102
quartz-Pd resonator, of H_2 and D_2, effect on freq. *(German)* 4−68809
quasithermodynamic treatment 4−44764
refractory, of hydrogen, temp. depend. of atom recomb. coeffs. 4−52998
semiconductor catalysts, exoelectron emission research and applic. in chem. and biology 4−54087
semiconductor film, electronic mechanism 4−63987
silica, of organic molecules, hydrogen bonding 4−69960
silica gel, of deuterated methanol, pulse deuteron mag. resonance, relax. times investig. 4−45198
sintering of powder composition 4−82952
solid porous surfaces, by He, isotherm determ. by compressibility press. plot (K method) 4−44759
solid surface, of ^{4}He in dilute liq. mixtures of ^{4}He in ^{3}He at low temp. 4−67085
solid surface, of gas, effective adsorpt. surface determ. *(German)* 4−56983
solid-gas interface, conf. Ottawa, Canada (Jun. 1973) 4−56963
stainless steel, of N_2 at very low pressure 4−67102
steel wire, effect on tensile strength and elec. cond. 4−49819
supported Mo, of O_2, e.s.r. investig. of mol. ion $(O_2)_s$ using ^{17}O labelled O_2 4−44766
surface area meter, electrochemical 4−58739
surface crystallography via ELEED, review 4−75669
surface hydroxyl group/adsorbed molecule interaction 4−69959
surface kinetic data, evaluation by transform anal. of modulated mol. beam meas. 4−63974
surface phonons, simple method for study *(French)* 4−52831
suspended particle potential effect on adsorption kinetics of ions with similar sign charges 4−73384
thermodynamic equations from cross differentiation of modified Helmholtz and Gibbs energies 4−44769
transition metal electrocatalysts., optical surface spectroscopy 4−54025
transition metal substrate, of H or transition metal atom, group orbital calcs. 4−56993
transition metals, of inert gases, differences for polycryst. and single cryst. surfaces *(French)* 4−44758
tribochemical reactions, on solid bodies in gas phase, adsorpt., kinetics investig. *(German)* 4−50206
two-dimensional lattice, of diat. gas, dissoc. adsorpt. investig., kinetic model 4−76620
wall-N_2 interaction, deactivation of vibr. excitation by collision, Raman investig. 4−60121
water, on quartz crystal surface, piezogravimetric method 4−44770
zeolite: benzene, mol. rot. and p.m.r. temp. depend. *(German)* 4−64274
Ag, of O_2 and N_2O, FEM and volumetric studies 4−75706
Ag electrode, of pyridine, Raman spectra 4−57844
Ag film, of water, contact angle meas., adsorpt. investig. 4−68024
AgBr photographic emulsion, effect of adsorbed ions on desensitisation *(French)* 4−54066
AgI, competitive adsorption of polyethylene-oxides and gelatin 4−54068
Al, effect of electrode separation on contact potential difference 4−49059
Al-O_2-H_2O system, triboinduced electron emission and work function meas. under UHV conditions 4−53585
Al_2O_3, alumina, of benzene molecules, entropy and mobility 4−52982
Al_2O_3, alumina, of cyclohexane, weak interaction mechanism 4−56972
Al_2O_3, cationotropic. of methyl alcohol, toluene, H_2O and acetic acid, mag. study 4−69957
γ-Al_2O_3, of H_2S, methanethiol, ethanethiol, diemethyl sulphide, heats of adsorpt. determ. 4−52987
Al_2O_3 powders, of ^{85}Kr, adsorpt. investig. *(French)* 4−56968
Al(100), Al(111), of Na, ELEED, Auger and contact potential meas. 4−75695
Ar(100) surface, of Ar, binding of closed shell absorbates on closed shell substrates, effect of nonadditive forces 4−48841
Au, (111) and (110) faces, adsorpt. and surface alloying of Pb monolayers 4−52992
Au, of Cs and CsCl, Van der Waals forces 4−63977
$BaSO_4$ surface, of water, rel. to hydrophilic sites 4−52997
BiI_3, of O_2, illumination effect, memory effect *(Russian)* 4−48845
C, activated, benzene adsorption rate 4−75691
C, of O_2, influence on valence band shape, XPS obs. 4−75776
C amorphous film, of Cu, zones of adsorbed-atom capture 4−79235
CO-O_2, on Fe_2-O_3, effect of ageing and roasting obs. 4−70581
CO_2 condensed layers, 20K, adsorption capacity and pumping speed for H_2 *(German)* 4−82316
Cd, photoelectron spectra, high resolution valence band, adsorpt. effects 4−53573

adsorption continued
$CdBr_2(Cl_2)(I_2)$, of NO, two-dimens. polymorphism *(French)* 4−48836
CdS, acoustoelectric interaction, adsorbed gas influence 4−79397
CdS, in air, effect on {0001} surface work function 4−60841
CdS, powder layers, of water, effect on corona charging pot. 4−60842
CdS film, of O_2, electrical conductance change 4−48837
CdS surface photopotential, spectral distrib., effects of oxygen and water vapours adsorption 4−60838
CeO_2 and CeO_2:ZnO, effects of heating in vacuum, CO, and H_2, e.s.r. determ. 4−57353
Cs, of Rb, work functions with different phase diagrams 4−63978
Cu, of He II as function of surface roughness and saturation 4−82299
Cu, single cryst. (1,1,1) face, of Kr 4−56970
Cu film, of water, contact angle meas., adsorpt. investig. 4−68024
Cu:S surface, Pb deposition, quantitative Auger electron spectroscopy using co-adsorption 4−67100
Cu(II) ion complexes adsorbed on interlamellar surfaces of montmorillonite, e.s.r. 4−63976
Fe, liq., adsorption and surface activity of Se *(Russian)* 4−45487
Fe-P solid solns., reversible temper brittleness and phase transform. in adsorption layers at boundaries *(Russian)* 4−73315
$FeCl_2$, of NO, triple point of first monomolecular layer 4−60688
GaAs, (100) surface, clean and Cs-coated, LEED obs. *(Russian)* 4−48822
GaAs, adsorption of GaI_3, H_2 and mixtures during epitaxial growth 4−67724
GaAs epitaxial and polycrystalline growth in GaAs-I_2-He 4−44795
Ge, of Hg from soln., surface props. 4−75707
Ge, of NH_3, (111) and (100) surfaces, LEED obs. 4−72631
Ge, of Rh, electron surface states 4−67270
Ge, with adsorbed noble metals, neutralization of surface states 4−60846
Ge single crystal, of Mg, mol. beam obs. of reactive nucleation 4−53012
GeO_2, of fluorobenzene, interaction with OH groups 4−69959
^{68}Ge-^{68}Ga generator ^{68}Ga prod. in ionic form 4−70615
^{3}H, total extraction from air and waste gases, adsorption system 4−63310
He on mol. sieve, isotherm meas. in 10^{-11}-10^{-7} torr range at 4.2K 4−74025
Hg, of Cs, K, Rb, work functions with different phase diagrams 4−63978
HgS, of N_2, specific surface area meas. 4−53927
InSb, of O_2, surface cond. meas. 4−44978
K, of Cs, Rb, work functions with different phase diagrams 4−63978
LiCl aqueous solns., surface layer thermodynamics 4−83036
MgO, of NO, i.r. investig. 4−67105
Mo, of SiO, Al_2O_3, effect on electron field emission 4−61277
Mo, single crystal, photoelec. work function 4−45411
Mo tips, of Si, field emission microscope obs. 4−63982
NH_4Cl aqueous solns., surface layer thermodynamics 4−83036
N_2O, i.r. spectra, mode of attachment 4−56971
Na, of Cs, K, Rb, work functions with different phase diagrams 4−63978
NaCaA-zeolite, of H_2S, adsorpt. investig. rel. to temp., equilib. evaluation *(German)* 4−60684
NaCaA-zeolite, of n-butane, adsorpt. investig. rel. to temp., equilib. evaluation *(German)* 4−60684
NaCl, coloured, adsorption effect on thermally stimulated exoelectron emission 4−49550
Nb, gas adsorpt. effects on surface self-diffusion 4−81641
Nb of H, adsorption and soln. 4−78252
Ni, of H_2, LEED, Auger spectroscopy, desorption, electron energy loss, and work function obs. 4−67097
Ni, of N_2 at very low pressure 4−67102
Ni, of Xe, differences for polycryst. and single cryst. surfaces *(French)* 4−44758
Ni, of Xe, isobars determ. *(French)* 4−82320
Ni film, of H_2, surface pot. meas. rel. to deposition, adsorpt. temps., struct. 4−48840
Ni film, polycrystalline, of CO 4−75703
Ni surface, of CO, build-up of surface carbon layers investig. 4−75692
Ni-SiO_2 catalyst, of acetylene, saturation magnetis., LEED and thermodesorption meas. *(French)* 4−44776
$NiCl_2$ highly disperse crystals, adsorption isotherms for Xe 4−72628
Ni(001), LEED spectra anal. of c(2 × 2) structures of adsorbed O_2, S, Se, Te 4−75694
Ni(100), of S and O, surface crystallography via ELEED 4−75669
Ni(110), adsorption of H_2 exam. using LEED, work function and flash desorption meas. 4−75698
Ni(111) surface, of S, comparison of ion backscatt. and Auger spectroscopy analysis 4−56966
n-PbS film, adsorption of O_2, kinetic characteristics *(Russian)* 4−82319
PbSe, of O_2 and H, epitaxial film, effect on galvanomag. effects 4−75979
Pd, of H_2, heats of adsorpt. determ. for Pd single phase α and β regions 4−48839
Pd, reaction of CO with adsorbed O_2 obs. at room temp. 4−75721
Pd single crysts., of CO 4−56978
Pt, of Xe, ESCA obs. at 100K 4−75697
Pt, of Xe, field emission microscopy obs. 4−67109
Pt, surface analysis, ESCA 4−76366
Pt surface, of O_2, rel. to press., LEED, Auger spectroscopy, work funct. investigs. *(French)* 4−56988
Pt thin film electrode, adsorpt. studies by electrode elec. resist. meas. 4−80189
Pt/Al_2O_3 catalyst, of H_2, isotherm determ. by i.r., heat of adsorpt. calc. 4−44767
Pt(111) surface, molecular beam investigation of CO oxidation 4−72643
Rh surface, of Li and Li salts, surface ionisation investig., work function determ. 4−79826
Ru, of CO and O_2, work function meas. 4−80209
Sc film, influence of Ba, Cs and CsCl adsorption on film resistance and work function *(Russian)* 4−52999
Si, of H, and surface struct. determ. 4−56979

adsorption continued
- Si, of O_2, electronic transitions, energy loss spectroscopy obs. 4−48842
- Si:Cs,O(100) surface, of H_2, effect on thermionic emission 4−57662
- SiO_2, gel, of methyl alcohol, toluene and benzene, mag. study 4−69957
- SiO_2 aerosols and porous forms, influence of adsorptive compounds on surface properties 4−67101
- SiO_2 gel, of H_2S, methanethiol, ethanethiol, dimethyl sulphide, heats of adsorpt. determ., adsorpt. investig. 4−52986
- SiO_2 gel, porous, diffusion and adsorption of polyethyleneimine 4−53917
- SiO_2-B_2O_3 glass, of H_2O, i.r. obs. of borosilicate glass films 4−56967
- SiO_2-supported Pt, of N_2, i.r. absorption spectral investig. 4−80211
- Si(100), of Cs and O_2, struct. obs. 4−56982
- Si(111), of In, flash desorpt. obs. 4−56992
- Si(111), of In, mass spectra obs. 4−56991
- Si(111) and (100), of O_2, electronic states 4−75699
- Ta, gas adsorpt. effects on surface self-diffusion 4−81641
- Ta, of O_2, FEM study, Ta work-function thermodesorpt. *(Bulgarian)* 4−82317
- TiO_2, anatase, of Kr, surface heterogeneity anal. 4−52990
- TiO_2, of O_2, kinetics investig. by vibr. condenser method, rel. to work funct. investig. *(French)* 4−44761
- W, coadsorption of Cs and O on (100) single crysts., Auger obs. *(French)* 4−45392
- W, condensation of Ti, initial phase, struct. form. *(Russian)* 4−82333
- W, gas adsorpt. effects on surface self-diffusion 4−81641
- W, of Al_2O_3, field electron emission changes, decomposition products 4−64482
- W, of Ba, activation energy of surface diffusion meas. 4−72627
- W, of K, field emission flicker noise, single face spectral density functions 4−70400
- W, of N_2 and NO, X-ray photoelectron spectra 4−56980
- W, of O_2, at (110) face, electron stimulated desorption 4−56975
- W, of O_2, coverage at high temp. and low press. 4−75705
- W, of S and P, diffusion to surface, Auger effect obs. of internal adsorption 4−56919
- W, of S and Se, effects on work function 4−82782
- W, of Si on single crystal faces 4−52996
- W, of Ti, and surface diffusion, field ion microscopy 4−56976
- W, pair distrib. function meas. for W atoms self-adsorbed on (211) and (321) planes 4−52995
- W, wire, effect on tensile strength and elec. cond. 4−49819
- W (100) plane, possible dissociation of adsorbed CO, electron field emission obs. 4−63986
- W (100) surface, adsorption of ethylene, meas. of work function changes 4−77122
- W single cryst., of ethylene and H_2 4−52985
- W(100), of Sr, work function and heat of adsorption investigation 4−72632
- W(100) surface, of oxygen, electron work function change meas. *(German)* 4−48846
- W(110), LEED, Auger and work function study of I_2 adsorption 4−48844
- W(110), of Si and Ge, LEED obs. of film structure 4−72655
- W(111), of Xe, X-ray photoelectron spectroscopic study 4−75704
- W(111) surface, direct visualisation of adatom sites by field ion microscopy 4−75696
- W(112) surface, of O, p(1 × 4) surface struct., combined LEED/RHEED Auger obs. 4−63983
- Y film, influence of Ba, Cs and CsCl adsorption on film resistance and weak function *(Russian)* 4−52999
- Zn, photoelectron spectra, high resolution valence band, adsorpt. effects 4−53573
- ZnO, formation of O^- from dissoc. of adsorbed N_2O, e.p.r. obs. 4−48639
- ZnO, of CO, i.r. investig. *(German)* 4−56984
- n-ZnO, of O_2 and H_2, surface activity investig. after γ-irradiation 4−57887
- ZnO, oxygen exposure effect on exoelectron emission 4−49544
- ZnO, surface pot. change on oxygen photosorption 4−57158
- ZrO_2, of Ar, N_2, water vapour, pore system 4−56969

aerials *see antennas*

aerodromes *see airports*

aerodynamics
- *see also flow of gases; jets; shock waves; supersonic flow; turbulence; wind tunnels*
- acoustic far field pressure rel. to airfoil flow characts. 4−44031
- aerofoil, moving, shear flow with const. vortices *(French)* 4−69581
- aerofoil, response to oblique gust 4−75130
- aerofoil design by conformal mapping 4−48269
- aircraft, supersonic flight in stratified sheared atm. 4−75132
- aircraft aerodynamic prediction methods, conf., Brussels, Belgium, 13-17 May 1974 4−63565
- aircraft noise, leading edge serrations on airfoils, acoustic effects, expt. 4−75128
- aircraft wake incidents, automatic correction simulation 4−66587
- aircraft wake viscous model 4−78615
- airfoil, lifting and nonlifting potential flow, curvilinear coord. system 4−75126
- airfoil cascade edge losses, jet flow model 4−44020
- airfoils in turbulent flow, due to water surface proximity, propeller efficiency *(German)* 4−44027
- axisymmetric bodies moving under conditions of law of locality 4−81910
- of balloons, tethered multi-stage 4−59081
- blunt bodies in supersonic flow, heat transfer, missile domes with i.r. seekers design *(German)* 4−52432
- boundary layer calculation methods, applic. 4−63567
- boundary layer on spinning sharp body at angle of attack 4−81885
- boundary layer theory, flow over wave surface 4−81909
- boundary layer transition on cones near Mach one 4−81897
- cascade, calc. of plane, stationary incompressible flow *(German)* 4−52431
- cascade aerofoils, unsteady response in periodically varying gust 4−60200

aerodynamics continued
- Cauchy problem for nonlinear heat cond. eqn. in combustion theory and gasdynamics 4−47245
- chimney stacks in high wind, model tests with roughened surfaces *(French)* 4−75133
- circular cylinders, free fall at intermediate Reynold's numbers 4−70694
- compressible viscous fluid motion equations, with gravity, low Mach number 4−81904
- convergent-divergent nozzle, with two-fluxes, subsonic blocking *(French)* 4−44047
- corner layer flow, optimisation of ADI method 4−78617
- cylindrical shell, stringer-stiffened, vibration and flutter 4−81199
- diffuser channels with near-separating turbulent boundary layers, aerodynamic characts. 4−48276
- discrete tones of isolated airfoils, generated by aerodynamic self-excited feedback loop 4−72291
- drag, two infinitesimal surface elements in free-molecular flow, diffusion model of gas reflection *(Polish)* 4−72331
- equilibrium temperature of stream of hot gas, analytic formula 4−48211
- finned free elastic structure, following load, dynamic stability 4−55297
- flight-buffeting response at subsonic and transonic speeds 4−48282
- flow visualisation techniques, combination of optical, tracer, and surface indicator 4−46994
- free-molecular medium, stationary interaction of two spheres 4−60222
- gasdynamics, conservation equations in curvilinear coordinate systems 4−48267
- generalised capacity matrix appl. 4−78619
- ground effect wing, induced drag 4−48270
- incompressible flow, calc. of wings of finite span *(Rumanian)* 4−56405
- interference in system of two harmonically oscillating airfoils 4−81933
- interference of streamwise vortex on two-dimensional wing 4−48229
- interferometer for gas dynamic measurements 4−71299
- inverse transonic flowfield calcs. using exptl. press. distribs. 4−81898
- irrotational flows, small perturbations, integral eqn. analysis 4−52421
- isothermal turbulent boundary layer, turbulent stresses rel. to mean flow parameters 4−44008
- jet engine exhaust noise, rough combustion, nonsteady aerodynamic sources 4−78583
- jet-transverse flow interference, review 4−44028
- jets, aerosonic games with control elements and externally generated pulses 4−44032
- kernel functions derivation 4−48261
- laminar boundary layer in noncentred unsteady waves 4−48263
- laminar boundary layer on rotating three-dimensional blade, flow investig. 4−75131
- laminar gas flow past plane plate *(German)* 4−69585
- lifting using cylinder combinations, transonic flow, calcs. 4−72294
- lifting-surface programs evaluation 4−78618
- mass flow parameter calculation, inverse solution 4−48273
- minimum ballistic factor missile shapes for variable skin friction coeff. 4−75125
- mixed transonic flow, oscillatory kernel function method for lifting surfaces 4−48283
- noise propagation, nonlinear, farfield, lossless and dissipative media 4−80780
- noise source diagnostics using causality correlations 4−42740
- non-linear self excited limit cycles, vibrs. of shallow shells, supersonic flow, anal. 4−69583
- oscillating cascade aerofoils, unsteady characts. in supersonic flow 4−60199
- oscillatory flow visualisation, nontoxic, liquid aerosol generation 4−48376
- parachute, unsteady vortex flow past inflating, decelerating wedge 4−81862
- pressure distributions on in-line tube arrays in cross flow 4−48222
- pressure fluctuations, local and long range, induced by fluid flow in sudden enlargement 4−44029
- radiative transfer geometry computation 4−81255
- rectangular wings moving near screening surface, calculation of characteristics 4−75134
- Riemann invariants for nonhomogeneous systems of partial quasi-linear differential eqns. 4−59041
- rotating cascades, solid particle flow eqns. 4−78616
- shock driven laser, cavity flow aerodynamics 4−71546
- slender delta wing with conical camber, characts., calcs. 4−75129
- sonic boom behaviour near a caustic 4−44045
- sound generation in presence of solid boundaries, unified approach 4−81908
- sound sources, impulsive 4−44030
- space vehicle aerodynamic drag coeff. for single axis orientation 4−44018
- spacecraft shrouds, in-flight fluctuating, vibration response 4−69582
- subsonic and supersonic stagnation pressure probe 4−77321
- subsonic flow around wings, vortex-lattice method extension, w.r.t. leading-edge separation effects 4−48274
- subsonic flow into downstream facing inlet 4−72293
- subsonic flow over biconvex airfoil, numerical soln. of Cauchy-Riemann eqns. 4−60198
- subsonic jet, heat exchange with normally disposed flat obstacle 4−44059
- subsonic jet separated by vortex sheets, instability due to acoustic radiation 4−63575
- subsonic turbulent jet, noise intensity calc. 4−44057
- thin profile theory generalization 4−48280
- tornado-generated missiles, velocity calc., appl. to safety of nuclear power plants 4−83100
- trailing edge flow, numerical soln. of asymptotic eqns. 4−66608
- transonic flow, around aerofoils at zero incidence, improved calculation 4−48292
- transonic flow, two-dimens., over cirular arc bodies 4−81902
- transonic flow past bodies, stabilisation law 4−81905

aerodynamics continued
- transonic flow past lifting airfoils, method of local linearization applic. 4−56403
- transonic inviscid flow over lifting airfoils by method of integral relations 4−81903
- transonic selfsimilar flows with oblique shock wave, rectilinearity conditions *(Russian)* 4−75145
- unsteady, finite element method applic. 4−81896
- unsteady transonic flow over oscillating airfoils, loading prediction method 4−48284
- vibrating profiles, non-steady aerodynamic characteristics *(Russian)* 4−56406
- VTOL handling, flapped blade rotor 4−48271
- wall confinement effects in industrial aerodynamics 4−48285
- wind tunnel scaling, transonic, high Reynolds number test facilities 4−78621
- wind tunnel wall interference minimisation 4−48272
- wind tunnel with simusoidal walls, gust simulation 4−78614
- wing, free flight, laminar boundary layer, control of form drag 4−44019
- wing, low aspect ratio, thickness effect, slow oscillation at subsonic speed 4−51410
- wing aerodynamic design methods, for subsonic flight, computer applic. 4−63566
- wing characteristics, expt. study of spanwise air jet influence 4−75135
- wing profile for rotating flap in shear flow *(Russian)* 4−60201
- wing-body combinations, slender properties nonlinear lift and pitching moment *(German)* 4−75137
- wings, with given lift and root-bending moment, minimum induced drag 4−44026

aeronomy *see meteorology; terrestrial atmosphere; upper atmosphere*

aerosols
- *see also foams*
- acoustic nonlinear wave propagation, finite amplitude sound propag. 4−68560
- air pollutant, sounding by LIDAR 4−50910
- alpha-activity, long-lived, determination, with background of daughter products of Rn and Th 4−47815
- artificial activity, sensitive method for early determination 4−77182
- atmosphere, aureole haze scattering functions rel. to aerosol microstructure *(Russian)* 4−54223
- atmosphere, choice of refractive index for microstructure determ. by optical methods *(Russian)* 4−58032
- atmosphere, microstructure and light scattering matrices 4−46025
- atmosphere, sampling error corrections *(Russian)* 4−54224
- atmosphere solar radiation transmission at Mauna Loa, seasonal variations due to aerosols 4−70723
- atmospheric, depolarisation meas. using LIDAR analogue 4−68282
- atmospheric, extinction meas. using Sun photometer, 0.44-1.6 μm 4−70832
- atmospheric, humidity effect on light attenuation *(Russian)* 4−61773
- atmospheric, humidity effect on optical constants *(Russian)* 4−61772
- atmospheric, in situ determ. method of refractive index 4−50394
- atmospheric, latitudinal variation of solar radiation 4−64914
- atmospheric, neutron activation anal. of trace elements using short-lived isotopes 4−46961
- atmospheric, over Southern California coastal waters 4−61794
- atmospheric composition and source at South Pole 4−68203
- atmospheric concentration rel. to middle u.v. reaching ground, multiple scatt. calcs. 4−70688
- atmospheric distribution of particle size, aerosol source 4−73389
- atmospheric radiant heat flow, effect of aerosol *(Russian)* 4−46022
- atomization of fluid by rot. disc, satellite drop obs. 4−44148
- automatic filter changer for short-period high-volume aerosol sample collection 4−68276
- charged water mist, origin of incendive sparks 4−82079
- circular cylinders, free fall at intermediate Reynold's numbers 4−70694
- cloud nucleation efficiency, effects of urban air pollutants 4−80321
- coagulation due to sound waves, efficiency 4−75184
- continuum-slip flow analysis for particle interactions in viscous flow 4−66668
- Denver aerosols, size distrib. at two polluted sites 4−68167
- diffusion of particles in sound field *(Russian)* 4−52524
- droplet evaporation, interfacial conditions, integral eqns. 4−64650
- dynamics, small aerosol particles 4−72348
- ferrosol, ferroparticle association in mag. field *(Russian)* 4−63621
- filtration by fibrous filters 4−66669
- filtration by fibrous filters 4−66670
- formation mechanism, binary homogeneous nucleation 4−53912
- generation and meas., review 4−80144
- generation for flow visualisation, nontoxic 4−48376
- generator, submicron standard, condensation nuclei counter calibration 4−53915
- growth processes in high temp. lead and soot aerosols by light scattering meas. 4−73390
- in-cloud scavenging, rate-limiting aspects 4−76705
- inertial impaction, stagnation flow, aerosol theory 4−72347
- light element analysis by elastic proton scattering, Ep=16 MeV 4−51213
- Mednikov's equation, transport of aerosol particles, turbulent boundary layer 4−72345
- methylene blue dye, use in calibrating cascade impactor for radon monitoring 4−62345
- mixing layer, Western Oregon, lidar obs. 4−54190
- nephelometer use as optical probe for photoelec. aerosol particle counter 4−58951
- nuclear reactor, gamma-ray spectrometry for identification 4−47816
- optical aerosol particle counters, response characteristics 4−70833
- optical particle counters, channel width determ. and electronic pulse processing losses 4−65537
- optical sounding size boundaries determ., wavelength selection 4−53918
- particle deposition in tubulent flow 4−66667
- particle size classifier, variable slit impactor with photo-counting 4−54331

aerosols continued
- particle size distrib. meas. by electroprecip. method, particle shape effect on error 4−82992
- point-discharge current, rel. to sea-breeze 4−46018
- poly-dispersed aerosols, scattering and absorption 4−76726
- production of droplets from solutions by ultrasonic irradiation 4−42923
- radioactive, gathering methods 4−50396
- radioactive emanations in air of mining installations, conc. change dynamics 4−72011
- recoil nuclei effects and free atom conc. 4−76707
- respiratory tract deposition, mathematical model, heat transfer analogy 4−83289
- sonically enhanced depth filtration 4−66666
- sound dispersion in gas mixture containing heat radiating particles 4−62350
- stratosphere, sulphate aerosol distrib. seasonal variation 4−73546
- stratosphere, vertical transport in 20-120 km range 4−54206
- stratospheric aerosol layers obs. by optical radar at Fukuoka, Japan 4−61755
- stratospheric aerosols, review of measurements and techniques 4−64871
- stratospheric H_2SO_4-HNO_3-H_2o ternary system, equilibrium vapour pressure 4−64922
- stratospheric layer, physics and chemistry 4−61748
- terrestrial i.r. radiance, effect of particulate matter 4−70714
- thermospheric base aerosol influence on satellite O_2 meas. 4−64944
- troposphere aerosol absorpt. of spectral radiative flux 4−46012
- tropospheric spectral short wave radiative flux divergence variability, aerosol absorption *(Russian)* 4−54222
- two unequal spheres, moving through viscous fluid under gravity hydrodynamic interaction investig. 4−75183
- vapour pressure over an aerosol particle 4−70725
- volcanic, solar radiation attenuation 4−70737
- water droplet aerosol, above micron range, production and characteristics 4−61928
- H_2O vapour diffusion coeff. in drop growth eqn. 4−70724
- LiBr aerosols, particle size distrib., effect of flow rate and temp. 4−70586
- Na, atmospheric behaviour rel. to sodium-cooled fast reactors 4−59886
- Na, thermal ionization-type leak detector for use with fast breeder reactor 4−81568
- PbCl aerosol, coagulation in presence of water vapour 4−70585
- ^{124}Sb, inhaled, retention in dogs, effect of temp. of aerosol formation 4−65243
- SiO_2 influence of adsorptive compounds on surface properties 4−67101

aerospace
- *see also aerospace applications of computers; aerospace control; aerospace instrumentation; aerospace propulsion; aerospace simulation; aerospace test facilities; aircraft; ground support systems; space research; space vehicles; terrestrial atmosphere*
- Apollo space vehicles, sonic-boom overpress., meas., instrumentation, conditions 4−80809
- noise, aeromedical aspects 4−46387
- space vehicle entry into planetary atmosphere for min. heat absorpt. *(German)* 4−59083

aerospace applications of computers
- *see also aerospace control*
- aerodynamics appl. of generalised capacity matrix 4−78619
- aerothermal mapping, photographic data processing 4−48226
- corner layer flow, optimisation of ADI method 4−78617
- Earth satellite orbits, computer illustrations 4−76771
- experimental research, fluid and solid mechanics 4−48385
- flight turbulence, modelling 4−43979
- Goddard Space Flight Center, scientific satellites, communications, tracking 4−46723
- Helios-A solar probe 4−58461
- lifting-space programs evaluation 4−78618
- Netherlands astronomical satellite ANS, onboard digital computer 4−54610
- nozzles, variable inlet geometry, maximum thrust design 4−81925
- Skylab's data acquisition camera system 4−42828
- spacecraft final descent velocity in Martian atmosphere, adaptive algorithm for control 4−76768
- supersonic nonuniform flows over cones at angle of attack 4−81907

aerospace control
- *see also attitude control*
- aircraft wake incidents, automatic correction simulation 4−66587
- Copernicus orbiting astronomical observatory, stability and control systems 4−71070
- Netherlands astronomical satellite ANS, onboard digital computer 4−54610
- orbiting telescope, large, fine pointing system 4−76925
- OSO satellite, improvements, review 4−76926
- spacecraft final descent velocity in Martian atmosphere, adaptive algorithm for control 4−76768
- VTOL handling, flapped blade rotor 4−48271

aerospace engines
- Concorde powerplant noise reduction 4−46532

aerospace ground equipment *see ground support equipment*

aerospace instrumentation
- *see also aircraft instrumentation; Langmuir probes*
- Apollo, gamma-ray spectrometer 4−62538
- Apollo light flash moving emulsion detector, study of visual phenomena reported by astronauts 4−68510
- gyroscopic stabilising system, triaxial, periodic motions *(Russian)* 4−51384
- heat pipe/radiator, passive cryogenic cooling of electrooptics, spacecraft appl. 4−77049
- micrometeoroid detector, Prospero satellite 4−58277
- pulse area analyser for high resolution gamma-ray spectroscopy 4−51162
- Skylab's data acquisition camera system 4−42828
- space shuttle transportation system, post-Apollo NASA project 4−54607
- spectrometers for 0.4 to 30 keV electrons and protons *(French)* 4−65533

aerospace propulsion
see also aerospace engines
μgradB plasma accelerator, beam intensity and energy distrib. expt. *(Japanese)* 4−44409
arc-jet chamber vortex expts. 4−78598
combustion gas analysis, chromatographic 4−46931
magnetoplasmadynamic arc, quasi-steady, electrolytic capacitor power source design 4−82043
solar electric, circular orbit transfer, starting orbit radius calc. 4−80448

aerospace simulation
see also aerospace test facilities
aerodynamic heating, phase-change paint photography data reduction 4−48226
aircraft wake incidents, automatic correction 4−66587
planetary atmosphere entry, using mass spectrometer with efficient ioniser 4−46899
reentry, plasma studies in hot shot wind tunnel, r.f. interference 4−48405
space plasma simulation, plasma characts. and wave studies 4−75218
turbulence, mathematical model, appl. to aircraft 4−43979
wind tunnel, hypersonic, laser-gas coupling method 4−47384
wind tunnel scaling, transonic, high Reynolds number test facilities 4−78621

aerospace test facilities
see also wind tunnels
ablation, aeroballistic range, photographic instrumentation 4−47396
holographic NDT of P-3 wing plank slices 4−46684
planetary atmosphere simulator, using mass spectrometer with efficient ioniser 4−46899
Space Shuttle laboratories 4−50225
tribology, European Laboratory of Space Tribology 4−61572

AFC *see automatic frequency control*

afterglows
see also discharges (electric)
inert gas, plasma afterglow, microwave and mass spectroscopic obs., ion densities 4−60321
ion acoustic instability, new type 4−82002
ion heating, by r.f. modulated electron beam 4−44259
plasma, atom-atom and atom-ion collisions 4−63694
plasma, electron cyclotron resonance heating, electron distribution function anisotropy 4−72388
plasma, electron density probe meas. 4−48448
plasma, space charge fields, time and space vars. 4−75304
shock wave compression as probe 4−78822
toroidal plasma, electron beam injection, stationary shock-like struct., enhanced diffusion 4−66747
Ar, harmonic emission from Tonks-Dattner resonance excited afterglow plasma 4−63687
Ar, microwave discharge, emission spectra of PF impurities 4−52130
Ar, pulsed corona discharge, afterglow due to H_2O and N_2 impurities *(German)* 4−52646
Ar metastable atom relaxation at pyrex walls *(French)* 4−51982
Ar plasma, electrical conductivity, radiowave diagnostics *(German)* 4−48451
Ar_2 metastable dimers, u.v. continuum decay, temp. depend. 4−75014
$CaWO_4$:V, effect of V additions on optical props. *(Russian)* 4−73209
He, development of atom density and metastable molecule density *(French)* 4−69672
He, Stark effect, allowed and forbidden transitions, $\lambda=4471.5$, 4470 Å 4−56010
He metastable atom relaxation at pyrex walls *(French)* 4−51982
He-Ar, pulsed afterglow, laser oscillation at 4765 Å 4−43306
He_2 excited states, stimulated emission, recombining afterglow of electron-beam discharge in He at 3 atm. 4−43287
He_2^+-N_2 mixture, stimulated emission, afterglow of electron beam discharge 4−59384
Hg, $6^3P_{0,2}$ state decay in afterglow, diffusion coeff. 4−69552
N+O, f-value of NO $\delta(0,0)$ band 4−48000
N_2, vibr. distrib. and relax. of Vegard-Kaplan band 4−66419
Ne, harmonic emission from Tonks-Dattner resonance excited afterglow plasma 4−63687
O^+, vacuum u.v. detection of electronic states 4−48463
Xe*, XE_2*, decay in afterglow of pulsed discharge 4−47871

AGC *see automatic gain control*

age (earth) *see earth age*

age determination, radioactive *see radioactive dating*

ageing
alloy, aged, with dispersed phase segregation, fine struct. of X-ray diffr. lines *(Russian)* 4−79945
asbestos plastic, physico-mech. props. in vacuum and atmospheric conditions, temp. influence *(Russian)* 4−53863
borosilicate glass, sintered film, Vickers microhardness 4−76547
crack propagation in a strain ageing, comparison with stabilized mild steel 4−79992
dislocation, electrocond. changes in crystals *(Russian)* 4−44892
Duralumin, quenched, serrated flow 4−76516
dynamic rheological properties meas. using principle of externally shifted and restored reson. 4−51243
glassy amorphous plastics, ageing, recovery after creep 4−70583
inert gases, solid layers, density and refr. index 4−70378
International Atomic Time, statistical ageing of clocks 4−65359
magnetostrictive ferrite, stabilization of props. *(Russian)* 4−61006
m.o.s. structure, at high temp., time dependent voltage shifts 4−57177
Nimonic, PE16 alloy, ageing, resistometric study, use in nuclear reactors 4−70497
Polwinit resin, tensile behaviour, thermal ageing and d.c. field effects *(Polish)* 4−82981
polycaproamide, heat treatment effect on static and fatigue strength 4−80126
polycaprolactam, moisture and mech. stress effects on i.r. spectra 4−49354
polycarbonate, thermally aged, changes in strength, fracture and supermol. struct. 4−45833

ageing continued
quartz crystal, ageing reduction due to resonance vibrations in two directions of symmetry *(French)* 4−64331
static testing and thermomech. treatment device for 4.2-1200K range 4−61563
steel, 316 stainless, fatigue and microstructure effects of He implantation and thermal ageing at 650°C, obs. 4−55940
steel, austenite, recrystn. during high-temp. thermomech. treatment, carbide forming elements effect 4−61388
steel, austenitic, structural singularities and thermal stability *(Russian)* 4−61412
steel, bainitic, deform. effect of metastable austenite on bainite morphology *(Czech)* 4−79935
steel, chromium type, austenite recrystn. after thermomech. treatment *(Czech)* 4−82846
steel, Hadfield's manganese type, highly deformed, ageing phenomena, Mossbauer obs. 4−79939
steel, high-strength structural, with martensitic struct., complex eval. of mech. and metallurgical characts. *(Czech)* 4−49777
steel, hot rolled rings, toughness and ductility increase 4−80028
steel, internal friction, effect of creep, ageing and reducing heat treatment 4−49825
steel, low-C, preliminary plastic straining character effect on hardening 4−49834
steel, low-C electric sheet, mag. ageing 4−60986
steel, maraging, crystallographic properties *(Chinese)* 4−64543
steel, maraging, precipitated phases analysis by DTA-EGA after ageing treatment 4−49688
steel, maraging, struct. and phase comp. of weld seams 4−45728
steel, martensite, C atom redistrib. calc. 4−57754
steel, martensite ageing, carbon atom redistrib. *(Czech)* 4−79934
steel, martensite state after high temp. thermomech. treatment *(Russian)* 4−53655
steel, mechanical, electrical polishing, surface plastic deformation, natural ageing 4−82949
steel, mild, annealed, subsequent yield surfaces under dead weight loading 4−49840
steel, roller type, high-temp. thermomech. treatment 4−61439
steel, stainless, austenitic 18Cr-8Ni, coaxing effect *(Japanese)* 4−79998
steel, stainless, martensitic-ageing, stress type effect on mech. props. and struct. 4−61463
steel, strain ageing problem in cyclic loading process 4−61453
thermomechanical strengthening using substructural strengthening 4−45685
Udimet 520, effect on microstruct. and tensile props. 4−45704
Al alloys, dynamically strain ageable, annealing characteristics 4−73324
Al-Ag, precipitation process obs., particle size distribution, using X-ray scattering *(Japanese)* 4−82844
Al-Ag alloys, precipitation process obs., G.P. zones *(Japanese)* 4−82843
Al-Ag alloys, quenched from melt, decomp. products exam. 4−49704
Al-Cr(0.5 wt.%) alloy, precip. during recrystn. 4−79968
Al-Cu-Sn alloy, ageing accelerating at high temps., aged struct. obs. *(Japanese)* 4−64578
Al-Ge (4%) alloy, struct. changes during decomp. *(Russian)* 4−67768
Al-Mg_2Si(1.3 wt.%) alloy, two-step ageing behaviour *(Japanese)* 4−45637
Al-Mg_2Si(1.35 at.%) alloy, reversion treatments effect on precip. mechanisms 4−45563
Al-Mg-Si alloy, serrated yielding, strain effect on ageing time 4−53703
Al-Mg-Si alloys, plastic deform. effect on precip. 4−64565
Al-Mg-Si alloys, weakly precip. hardeningm low temp. thermomech. treatment 4−61440
Al-Mn(1.3 wt.%) alloy, precip. during recrystn. 4−79968
Al-Ni-Si-Mn bronze, magnesium effect on struct. and mech. props. 4−61442
Al-Si alloy, dil., clustering processes, elec. resist. obs. 4−67800
Al-Si-Cu-Mg-Ni piston alloy, copper influence on microstruct. and mech. characts. *(German)* 4−61398
Al-Zn alloy, ageing, analysis, Johnson-Mehl eqn. applic. *(Polish)* 4−64567
Al-Zn alloy, phase transform. during ageing, hardness variations, effect of Mg *(Polish)* 4−67746
Al-Zn alloy, two-step ageing, GP zone final size 4−61443
Al-Zn-Ag alloy, precipitation characts., clustering rate-reversal temp. and solute-vacancy interac. 4−49680
Al-Zn-Mg, Guinier-Preston zones, initial stage of ageing, growth kinetics 4−79958
Al-Zn-Mg alloy, multiple ageing, structural changes 4−45562
Al-Zn(29 at.%) alloy, metastable rhombohedral R-phase form., quench rate depend. 4−49693
Al-Zn(6.8 at.%) alloy, G.P. zones formed by nucleation and growth, small-angle X-ray scatt. 4−79965
Al_2O_3, alumina, delayed failure and ageing in water and physiological media 4−61482
Co-Ni-Cr-Ti alloy, coarsening behaviour of γ' particles 4−45547
Co-Ni-Ti, effect on yield point, temp. depend. *(Russian)* 4−61415
Cu-Al-Co (2 wt.% Co and 8 or 15 wt.% Al) decomp., precipitated phase *(Russian)* 4−67776
Cu-Ni alloys conc. depend. of residual resistance, ageing and clustering effects 4−53078
Cu-Ni-Sn alloy, spinodal decomp. and effects 4−64525
Cu-Ni-Sn alloy, strengthening due to early stage spinodal decomp. 4−79892
Cu-Ti (1.3-4.3 wt.%) alloys, temp. effect on ageing, hardness and thin foil electron microscope exam. 4−76454
Cu-Ti alloys, age hardening characts., effect of Ti conc. *(Japanese)* 4−67789
Cu-Ti(5 wt.%) alloy, hardness recovery anomalies *(Russian)* 4−49793
Cu-Zr (1.07 wt.%), stacking fault generation during ageing 4−67798
Cu-Zr and Cu-Al-Zr alloys, ageing mechanism *(Russian)* 4−49682
Cu_3Au, ordered, discontinuous yielding mechanism and dislocation locking 4−79974
Cu_3Au, ordered, strain ageing yield drops 4−79975

ageing continued
- Fe, strain hardening, 200-600°C, dopants influence *(Russian)* 4−45708
- Fe polycrystal, strain ageing, dynamical processes *(Russian)* 4−70483
- Fe-C alloy, electron irrad. effect on precip. phenomena, excess point defect obs. *(Japanese)* 4−45551
- Fe-Cr and Fe-Cr-Co alloys, phase decomp. and 475°C embrittlement *(Japanese)* 4−45501
- Fe-Cu alloy, prep. by vacuum deposition, ageing process, solubility limits *(Japanese)* 4−45626
- Fe-Cu(1 wt.%) alloy, age-hardening, grain size and precip. hardening contribs. to mech. props. 4−61423
- Fe-Ni, 36NChTyu, mechanical props., rel. to γ' and η precipitation *(Russian)* 4−61374
- Fe-Ni-C alloys, austenite stability and martensite burst 4−53663
- Fe-Ni-C alloys, hydrogen charged, premature fracture in martensite *(French)* 4−80023
- Fe-Ni-Co-Mo, field ion microscopy of aged martensite 4−61395
- Fe-Ni-Cr, 36 NKhTYu alloy, precip. of γ' and η phases, mech. props. *(Russian)* 4−73318
- Fe-Ni-Mn alloys, martensitic, microstruct. changes during ageing, TEM obs. *(Japanese)* 4−67787
- Fe-Ni-Ti alloys, discontinuous decomp., phase hardening and austenite recrystn. influence *(Russian)* 4−73276
- Fe-Ni-Ti alloys, martensite morphology changes *(Russian)* 4−49641
- Fe-Si-Ti alloys, precip. hardened, strength and ductility characts. 4−49802
- Fe-Zn alloys, ferritic, cellular precip. kinetics, small Mn additions influence 4−53696
- Fe_2O_3, hydrous, effect on adsorption rate of CO-O_2 4−70581
- Mg, hardening by lattice defects 4−61361
- Mg-Li-Al alloys, $\alpha+\beta$ type, stability of mech. props. rel. to thermal and thermomech. treatment *(Russian)* 4−53743
- Nb, creep activation energy, anomaly due to dynamic strain ageing 4−45659
- Ni alloys, state of coherent precip., plastic deform. *(Russian)* 4−67780
- Ni-Al(6.38 wt.%) alloy, effect on microstruct. and tensile characts. 4−45704
- Ni-Cr alloy, hardened by Ni_3Nb phase, influence on struct. and mech. props. *(Russian)* 4−45713
- Ni-Cr-W-Mo-Al-Ti alloy, precipitation vol. change effect on X-ray scatt. 4−61394
- Ni-Cu(40 at.%) alloy, modulated structure *(Japanese)* 4−61382
- $Ni_3(Fe,V)$ alloys, vanadium effects on mag. and mech. props. *(Russian)* 4−64235
- Ni_4Mo, domain struct. changes during isothermal ageing at 800°C, electron microscope obs. 4−64529
- Re, internal friction, after torsional deform., liq. N_2 temp. 4−70513
- Se, vitreous, struct. ageing, bulk and films 4−75462
- n-Si, electron scatt. due to plastic deformation *(Russian)* 4−72780
- Si-SiO_2 interface stress ageing, surface state generation in HCl-grown oxides 4−49073
- $SmCo_5$, microstruct. changes caused by O_2, sinter-annealing, and thermal ageing 4−64549
- Ta-N system, modulated structure 4−76429
- α-Ti, alloying effect on plasticity collapse at 500°C *(Russian)* 4−79985
- Ti alloy, β-III, effects of thermal and mechanical processes 4−82901
- β-Ti alloy, ductility increase by thermomech. treatment *(Russian)* 4−53713
- βTi alloys, metastable, low temp. ageing, decomp. processes *(Japanese)* 4−67790
- Ti-Al-V alloy, phase transforms. and effects on hardness during soln. treatment and ageing 4−67757
- Ti-Al-V alloy TA6V, microstruct. characts. as function of thermomech. treatments in $\alpha+\beta$ region *(French)* 4−49710
- Ti-Mo alloys, hardened by ω-particle precip., microscopic deform. behaviour 4−79977
- V, with interstitial oxygen, neutron irrad., strain ageing 4−80041
- Zn-Al alloy, tensile instability following yield drop 4−49814
- Zn-Cd, dilute supersaturated alloy, electronic struct. changes with room temp. ageing 4−53030
- Zn-Cu (up to 2.0 wt.%) alloy, heat treatment, ageing, microstruct., creep resist. 4−70494
- ZnS electroluminescent film sources *(Russian)* 4−79822

ageing characteristics *see ageing*

agriculture
- *see also farming*
- ERTS data interdisciplinary analysis and interpretations 4−70825
- Hambledon vineyard, meteorological obs., 1972 4−61816
- product colorimetry, dualistic conceptual model 4−54924
- remote sensing, environmental anal., book 4−50384
- HTO, uptake and loss in grass vegetation, atmospheric exposure, expt. results 4−65285

air
- *see also terrestrial atmosphere*
- a.c. arc, residual current during extinction 4−75345
- air-H_2(HE)(Xe)(carbon tetrachloride) mixtures, accelerating laminar boundary layer flow 4−81883
- air-naphthalene laminar flow in duct, local mass transfer coeffs. 4−75083
- air-suspension vortex flow incinerator system, fluid dynamic and combustion theory 4−44138
- air-water two-phase flow, 180° pipe bend, disturbed flow region obs. *(Japanese)* 4−81958
- air/water two-phase flow in spirally grooved tubes 4−48342
- anticyclonic cell over Nagpur, causing unusually low night temp., 1970, November 4−80332
- atmospheric, primary streamers, electron mean energy 4−82075
- boundary layer flow on flat plate, leading edge shape influence on transition processes 4−48257
- boundary layer flow on plate, temp. and turbulent Prandtl number profiles 4−43937
- breakdown, 1.06 μm laser induced, dust effects 4−69671
- breakdown, by pulsed laser, focal length depend. using effective photon concept 4−82059
- breakdown, long air-gap, first corona delay depend. 4−75379

air continued
- breakdown between independ. temp. controlled electrodes 4−75364
- breakdown in air and air-CO_2 mixture, negative ion spectra 4−75361
- breakdown processes in positive point to plane gap 4−75380
- bubble, liquid film formed behind bubble in sloping channel 4−52497
- bubble formation in water, glycerine, glycerine-water systems, heat transfer 4−56443
- bubbles, in water, damping, from desinent threshold for subharmonic-$^1/_2$ 4−78691
- bubbles in Newtonian fluid, enveloping water layer effect on rise time 4−66660
- bubbles in three-phase fluidised bed, rising vel. 4−78690
- buoyant force, expt. illustration of Archimedes principle 4−73953
- clear air turbulence electronic detection *(Japanese)* 4−73579
- compressed gases in ball-plane system of electrodes *(Russian)* 4−56550
- corona discharge, neutral and charged particle influence on subsequent one 4−75388
- corona inception, sparking potential, Trichel pulses 4−75387
- critical field strength for cylindrical conductors, Peek's formula extsn. 4−75390
- discharge, ambient pressure, turbulence effects 4−48461
- discharge, breakdown voltage control by changing corona form 4−75393
- discharge, low-inductance, transition to spark regime 4−75366
- discharge, plasma sheath equivalent circuit, pulse meas. 4−75299
- discharge development near atm. press. 4−75362
- discharge pulse rate behaviour at moderate pressure under d.c. excitation 4−82050
- electric breakdown, effect of electrode surface on breakdown voltage 4−75407
- electric breakdown, effect of field geometry and conducting particles 4−75404
- electric breakdown, point to plane breakdown, effect of floating barrier 4−75415
- electric breakdown, rod-rod air gap lightning impulse breakdown, electrode parameter depend. 4−75414
- electric breakdown, switching impulse breakdown probability distribs. 4−75413
- electric breakdown 50 Hz conditioning curves for compressed air 4−75411
- electrical breakdown in long gap final jump, voltage depend. 4−75377
- electron currents excited from atoms by γ-rays, calc. 4−44562
- electron-photon cosmic ray shower, equilibrium spectra *(Russian)* 4−61968
- flow in narrow channels, heat transfer 4−43954
- flow rate meas., using laser-Doppler anemometer problems due to varying refractive index 4−51238
- heat transfer from vibrating cylinder 4−52369
- hypersonic flow around blunt body, non-equilib. air stream *(Russian)* 4−60197
- hypersonic flow props. in expansion tube 4−81911
- ionisation, electron attachment and detachment 4−56559
- ionisation in long uniform field gaps, formative time lag 4−75358
- isothermal turbulent boundary layer, turbulent stresses rel. to mean flow parameters 4−44008
- jet, plane, discharge into blind pass 4−44062
- laser, spark, charact. expansion vel. 4−78789
- laser breakdown in stationary elec. field *(Russian)* 4−69076
- laser induced breakdown, 20 psec. pulse, focal length depend. 4−44255
- methane-air flame, ground-state population distrib. of OH, tunable u.v. laser determ. 4−70599
- methane-air mixture, flame gases, positive ion mobilities, electrostatic probe meas. 4−56351
- mixing heights in lower atm. over India, seasonal var. 4−70701
- optical breakdown, laser induced, dielectric surface effect on threshold 4−52337
- optical breakdown by mode-locked laser pulses, picosecond framing photography 4−42831
- optical breakdown freq. depend. 4−78850
- permeability in HgS, specific surface area meas. 4−53927
- plane turbulent mixing layer, heat transport 4−54203
- Rayleigh scattering coefficients for dry air 4−46010
- rising thermal, entrainment coefficients 4−43972
- s.h.f.-discharge at atmos. press. 4−75381
- shock wave generation by CO_2 TEA laser radiation 4−43337
- shockwave flow field and vel. profile measurement in e.m. shock tube 4−71298
- spheres in air, inclined tube flow 4−52514
- streamer propagation, radn. duration meas. 4−75372
- supersonic flow, high current arc 4−82062
- suspension of Y_2O_3 dust, u.v. induced cond. 4−48180
- temperature meas. and radiative cooling phenomena, shock tube generated flow 4−71171
- thermochemistry, reverse problems soln. *(Russian)* 4−53966
- trace components, anal. using mass filter system, nonconc. principle and detection limit *(Japanese)* 4−46501
- turbulent field, optical study method *(Japanese)* 4−56381
- turbulent flow in smooth pipes 4−43925
- turbulent flow through concentric annuli 4−60164
- turbulent free convection from vertical surfaces, computer calcs. 4−78580
- turbulent high-temperature flow, in cold-walled tube, heat transfer and frictional drag 4−43936
- turbulent jet, disturbance press. waves development 4−66626
- turbulent jet, entrainment characteristics 4−60208
- turbulent jet moving along porous cylinder 4−69611
- turbulent jet passing through semipermeable obstacle 4−52450
- turbulent stream, heat transfer from cylinders 4−56414
- two-phase flow, co-current and counter-current, comparative investig. 4−52492
- CO_2-air mixture, ionisation, electron attachment and detachment 4−56559
- H_2-air fuel cell, chem. and electrochem. processes, load-capacity *(German)* 4−50172

air bases *see airports*

air bubbles *see bubbles*

air cleaning, electrostatic *see electrostatic precipitation*

air clutches *see clutches*

air compressors *see compressors*

air conditioning
  hygrometer, absolute humidity measurement and control, heated LiCl applic. *(Dutch)* 4−80400
  particulate filters and gas absorbers, acceptance testing 4−55980

air permeability *see permeability*

air pollution
  see also pollution detection and control; smoke
  aerosol, sounding, by LIDAR 4−50910
  aerosol Pb in Rome atmosphere, dependence on meteorological and traffic parameters 4−80365
  aerospace operation impact on environment, San Diego conf. 4−80319
  Aitken nuclei source intensity meas. and sources in SW France *(French)* 4−70834
  ambient air monitoring by computer-controlled stations 4−71136
  atmospheric diffusion and turbulence, air pollution, Santa Barbara Conf. 4−80320
  atmospheric measurement techniques *(French)* 4−71131
  atmospheric particulates, determ. of trace elements using spectroscopic graphite electrodes as filters 4−54734
  auto exhaust control using mixed oxide catalysts 4−54735
  automotive engine induced, math. modelling 4−54196
  aviation, general, design implications 4−58632
  Belgium, pollution by sulphur oxides and smoke (1 Apr. 1971-31 Mar. 1972) 4−61813
  Bombay, monthly average concentrations of gaseous pollutants 4−54214
  chemical analysis using computerized gas chromatograph and quadrupole mass spectrometry 4−62646
  chemiluminescence monitors 4−76986
  chromatography systems, for control 4−55153
  climate effects *(Norwegian)* 4−50305
  cloud nucleation efficiency, effects of urban air pollutants 4−80321
  continuous sequential air sampler 4−58138
  control, C adsorption applic. 4−62343
  control by microwave spectroscopy 4−71137
  control techniques, electronics applic., review 4−58633
  Denver aerosols, size distrib. at two polluted sites 4−68167
  detection, by correlation spectroscopy 4−46503
  dispersion on regional scale estimation, limitations and prospects 4−58024
  dust, detrimental effects, behaviour and control *(Norwegian)* 4−58636
  dust and particulate characteris. using SEM backscatt. electron imaging 4−77250
  dust control and air cleaning, book 4−65290
  energy dispersive X-ray fluorescence spectrometry analysis 4−51212
  fallout, global, useful effects on science 4−58059
  fly ash, fluoresc. meas., in situ and remote detection 4−71134
  gaseous effluent from tall stack, dispersion model 4−58021
  gases, remote detection with laser heterodyne radiometer and obs. 4−71135
  Gaussian plume model sensitivity 4−54193
  generation of dilute mixtures of pollutant gases 4−76983
  halocarbons distrib. over Los Angeles Basin 4−54189
  health studies, statistical problems 4−83358
  hydrocarbon conc. meas. by ionised-flame detector *(Croatian)* 4−46500
  hydrocarbon control, roofing products manufacture 4−50904
  India, pollution potential, ventilation coeff. calcs. 4−80335
  i.r. spectroscopic detection, long path 4−62579
  Israel and vicinity, monitoring using ERTS-1 imagery 4−70626
  large scale dispersion, use of air trajectories 4−62339
  LWR, radiological environmental impact 4−55983
  mixing layer, Western Oregon, lidar obs. 4−54190
  monitoring system 4−83356
  monitoring systems, choice of methods 4−68550
  Moscow surface pollutants, influence of atmospheric processes *(Russian)* 4−83354
  nuclear power station gaseous effluent, computer compatible field monitoring system 4−51916
  nuclear power stations exhaust gases, calc. *(German)* 4−69395
  observation using laser radar car 4−65289
  opto-acoustic gas conc. detector, resonant, characteristics 4−73913
  optoacoustic air pollution detectors, laser calibration system 4−71138
  particle detection using optical extinction meas. 4−76759
  particle size distribution rel. to aerosol source 4−73389
  particulate matter, trace element anal., emission spectrographic method 4−77273
  particulate pollutant conc. rel. to lapse rate/stability 4−70751
  permeation wafer and diffusion devices, calibration by press. differential method, for condensible and noncondensible gases 4−46499
  peroxy acetyl nitrate in Atlantic air 4−50308
  photochemical, evaluation of mathematical modelling 4−68165
  physical transfers of pollutants, problem analysis principles *(French)* 4−71129
  plume dispersion parameters from 3-dim. aerial probing 4−58003
  plume persistence from natural draught cooling towers 4−70691
  radioactive products release *(Czech)* 4−50901
  radioactive tracer investigation of impurity transport in air flows 4−42957
  radionuclides, resuspended, computer-controlled sampling system 4−54333
  Raman Lidar, sensitivities for field investigations 4−65287
  reactor, gas flow, particularly suited to air pollution studies 4−55148
  remote sensing photography, corrections for particulate air pollution effects 4−61944
  sampling and analysis methods *(French)* 4−71128
  sampling reciprocity 4−50905
  satellites for air pollutants meas., feasibility consideration 4−62338
  stack parameters, guide book for nuclear and ancillary chemical installations 4−78312

air pollution continued
  suspended particles, Detroit-Windsor, Sarnia-Port Huron area 4−61763
  Sydney, high photochemical air pollution days, meteorology 4−68166
  trace components, anal. using mass filter system, nonconc. principle and detection limit *(Japanese)* 4−46501
  tracing simulation for pollutant diffusion in atm. *(French)* 4−71130
  tropospheric positive ion clustering, effect of organic vapour pollutants 4−50297
  turbulent diffusion differential eqns. *(French)* 4−54192
  turbulent diffusion in environmental pollution, symposium (Charlottesville, USA, 8-14 April 1973) 4−54201
  turbulent jet, entrainment characteristics 4−60208
  Uppsala, wet fallout patterns for wet sulphate and strong acid 4−58027
  urban, source orientated mathematical models 4−58018
  urban air pollution modelling 4−68164
  urban isotope-excited energy-dissipative X-ray fluorescence anal. 4−46045
  urban meteorological modelling 4−58019
  weather and climate, effects of atm. pollution 4−68204
  X-ray spectrometer, multi-channel, fully automatic, for environmental protection *(German)* 4−83353
  As, in atm. particulate matter, determ. by automated flameless at. absorpt. technique 4−51202
  CO, detection using radioactive kryptonates 4−50903
  CO as toxic pollutant, review 4−70750
  CO containing turbojet plume, chem. reaction in turbulent flow 4−60262
  H_2S, determ. in air, by impregnated tape methods, assessment 4−58631
  ^3H, total extraction from air and waste gases, adsorption system 4−63310
  Hg deposition near point sources 4−83104
  Hg trace element in atm., magneto-optic coherent light scatt. detect. method 4−46122
  ^{127}I, airborne concentration meas. using charcoal collector and neutron activation anal. 4−54334
  ^{131}I releases to atmosphere from nuclear power plant, meas. and calcs. 4−51917
  $(NH_4)_2SO_4$-graphite, removal by rain in shallow air flow 4−61780
  NO, NO_2 radicals, atm. conc. meas., problems, 'state of the art' 4−50900
  NO_2, quantitative analysis method *(French)* 4−46932
  NO_2 conc. in urban atmosphere, differential absorpt. meas. technique 4−62337
  NO_2 emission from chemical factory, remote meas., differential absorption technique 4−65284
  O_3 decrease causing increase in biologically effect u.v. solar radiation 4−46473
  O_3 removal from atmosphere by soil and vegetation 4−70743
  ^{239}Pu contaminated air samples, track autoradiography 4−55978
  Rn, airborne radioactivity in Italian mines, survey results 4−58637
  SO_2, conversion to H_2SO_4 *(Norwegian)* 4−50310
  SO_2, interaction of primary and industrial end-products *(German)* 4−76725
  SO_2, long range transport 4−61765
  SO_2, long-range diffusion from urban centre 4−61764
  SO_2, meso-scale pollution transport in the Netherlands 4−61762
  SO_2 distribution, St. Louis metropolitan area, model 4−64907
  SO_2 mean hourly average maximum ground level concentrations at Tilbury 4−68163
  SO_2 measurement, Barringer correlation spectrometer, passive mode modelling 4−50909

air pumps *see compressors*

air terminals *see airports*

aircraft
  see also aerospace control; aerospace instrumentation
  accidents, clear air turbulence electronic detection *(Japanese)* 4−73579
  aircraft aerodynamic prediction methods, conf., Brussels, Belgium, 13-17 May 1974 4−63565
  alloys microfractographic features and failure analysis *(German)* 4−80167
  atmospheric pressure increases at Earth's surface under flying aircraft *(Russian)* 4−46021
  aviation wind reports, optimum averaging time 4−64916
  Cessna 170, smoke-marked wakes, photography 4−48307
  Concorde noise reduction 4−46532
  emission and noise laws implications 4−58632
  engine and propeller system, calc. of torsional vibrations by Biot method *(Italian)* 4−43095
  flyover noise recordings, acceptability 4−77010
  helicopter noise, urban environment, reverberant sound field explanation 4−80811
  hovercraft jet nozzle design *(Russian)* 4−75155
  jet noise, secondary wave nonlinear generation 4−68584
  noise, near Arlanda airport, wind direction and vel., temp., humidity depend. 4−80810
  noise abatement, climb flight path calcs. *(German)* 4−62357
  noise abatement, major hub airports, strategies for 4−80805
  noise levels, not hazardous inside modern jet passenger cabins 4−77002
  noise levels inside passenger cabins of modern jets 4−77003
  noise regulations, aims and methodology *(French)* 4−50922
  performance considerations for noise reduction 4−65318
  public, passenger noise environment, levels meas. 4−71146
  slender delta wing with conical camber, characts., calcs. 4−75129
  stratospheric aircraft exhaust, effect on O_3 concentrations 4−54240
  subsonic, noise abatement, leading edge serrations on airfoils, acoustic effects, expt. 4−75128
  supersonic, sonic booms, effect on man and animals *(French)* 4−62327
  supersonic flight in stratified sheared atm. 4−75132
  vibration flight tests, direct meas. of generalized coords. *(French)* 4−42712
  vortices, lift-generated, inviscid rolled-up structure 4−48268
  VTOL handling, flapped blade rotor 4−48271
  wake, viscous model 4−78615

aircraft continued
wake incidents, automatic correction simulation 4−66587
wake vortices, sensing equipment 4−44068
wing, low aspect ratio, thickness effect, slow oscillation at subsonic speed 4−51410
wing plank slices, holographic NDT 4−46684
aircraft instrumentation
derotator, compact design using Delta prism for stabilised aircraft sight 4−62449
search and rescue system, dye lasers application 4−77670
airfields *see airports*
airglow
see also atmospheric spectra; aurora; nightglow; sky brightness; twilight
airglow, excitation by precipitating low energy electrons *(Japanese)* 4−83106
artificially heated ionosphere, polarization of 6300 A line of metastable O 4−46068
artificially heated ionosphere polarization at 6300A 4−54258
enhancement by HF radiowave heating of ionosphere 4−58102
excitation, by precipitating low energy electrons *(Japanese)* 4−83106
strong enhancement in low latitudes during magnetic storms 4−58069
He I latitudinal var. from e.u.v. obs. of 584 Å airglow emission 4−50319
Mg II equatorial dayglow intensity distrib. TD1-A satellite obs. in 2796-2803 Å range 4−64936
N_2^+ 3914 Å emission in twilight airglow 4−50318
O density, spatial and temporal variation from Ogo 6 airglow obs. 4−61833
OH 6329 A line intensity variations at twilight 4−58068
OH emission over Ashkhabad, rotational temp. short period variations 4−68214
OH i.r. airglow intensity variations at 1.65 and 2.15 μ 4−50325
OH intense i.r. airglow sky maps at 1.65 and 2.15 μ 4−50324
OH near i.r. airglow intensity, balloon-borne telescope obs. 4−70766
OI 5577 A line intensity variations at twilight 4−58067
OI 5577 and 6300A line diurnal variation at Yokosuka 4−76734
OI 6300 A intensity variation at twilight 4−54256
airports
aircraft noise abatement, climb flight path calcs. *(German)* 4−62357
noise abatement, strategies for major hub airports 4−80805
alarm systems
explosives, mass analyser for dynamite effluent detection 4−55141
preventive radiation protection, IRR-2 experience 4−55979
tsunami, ionospheric acoustic wave Doppler technique 4−46135
albedo
Arctic river snow-ice cover 4−68120
HZ Herculis X-ray heating using double grey body approx. 4−50642
increase in N. hemisphere rel. to anomalous global weather patterns, 1972 and 1973 4−58055
isotropically scattering slab, irrad. by cylindrical beam, optical thickness. albedo determ. 4−74469
Jupiter, atm. model, spherical and geometrical albedo calcs. *(Russian)* 4−80516
Mars, albedo changes, Earth based obs. 4−73630
Mars, albedo changes of shield volcano Pavonis Mons 4−58244
Mars, variable surface features, comparison of Mariner 1969 and 1971 photography 4−50490
Mars albedo markings, McLaughlin's volcanic predictions rel. to Mariner 9 photographs 4−50477
Mercury's surface, wavelength dependence, Mariner 10 obs. 4−68369
Moon, geometric albedo in near u.v. 2570-3270A 4−46184
Moon, u.v. reflectivity in 2400-2900 A range 4−58265
natural formations, spectrophotometry from Soyuz-9 spacecraft 4−68094
neutron, azimuthally dependent in slab geometry, numerical evaluation 4−74771
ocean, flat homogeneous, diffuse refl. bottom depth and albedo influence 4−80283
Saturn inner satellites, albedos and densities 4−58246
Saturn rings, i.r. radiometry 4−58247
semi-infinite homogeneous atmosphere, radiation intensity calculation methods 4−58248
Titan, narrow band photoelectric meas. rel. to methane band contours, geometric and bolometric albedo 4−50483
Venus cloud layer albedo computation by statistical trials method 4−46175
Venus visual phase curve, inverse multiple scatt. problems 4−68360
alclad *see aluminium alloys*
Alfven waves *see magnetohydrodynamic waves; solid-state plasma*
algebra
see also Boolean algebra; linear algebra; matrix algebra
/C formalism for momentum coarse graining of Fermi systems in infinite free space 4−74413
axiomatic quantum mechanics, operational and convex set methods, mixtures of quantum states 4−59241
C*, derivations *(German)* 4−42992
C*, normal approximate spectrum 4−43000
C*, with locally compact symmetric groups *(German)* 4−42991
C* formalism for coarse graining, general theory 4−74411
C* formalism for momentum coarse graining for finite volume Fermi systems 4−74412
connected shells, different materials and thickness, algebraic eqns. 4−81168
E(2) enveloping algebra, construction of $l = -{}^1/_2 +$ is representation of Virasoro algebra *(Russian)* 4−74208
extrema and rate of change, algebraic method 4−68593
fixed-point theorems for semicontraction *(Italian)* 4−77330
irreducible tensor operator methods in intermediate-field coupling 4−62660
Jordan, half-spaces and bounded symmetric domains 4−51259
lattice structure of quantum logics 4−71354
linear operator traces in infinite dimens. Hilbert space *(German)* 4−47143
algebra continued
local algebras, product states 4−47411
local observables, axiomatic approach to quantum field theory 4−74566
local observables theory, appl. of dilation invariance to structural questions 4−74546
metrics, algebraically special, geometry of modified Gersh-Held-Penrose formalism 4−74385
metrics, algebraically special, new formalisms for investigation 4−74384
multiple scattering molecular model, free electron Green function 4−63395
Neumann, extension theorem of Galois theory *(Japanese)* 4−81113
number fields, albebraic, properties 4−81117
On*-algebras of field operators, essential self-adjointness 4−69124
operator of class G_a powers, Crabb's theorem generalisation *(Japanese)* 4−81114
operators, pseudo-differential and Fredholm type, oscillatory integrals of symbols 4−42996
partitions of large multipartites with congruence conditions 4−65618
pseudodifferential operators with generalised homogeneous characters 4−77335
quasifree states of C*-algebra of CAR, quasiequivalence 4−51431
time differentiation, algebraic 4−68592
variational scatt. calcs., use of contracted basis functions 4−78365
Virasoro algebra and the enveloping algebra of E(2) *(Russian)* 4−74208
von Neumann, generalised entropy function 4−65852
von Neumann, generalization of entropy using traces 4−74442
von Neumann algebra of observables and quantum logic 4−71353
von Neumann algebras of observables with non-Abelian commutator algebra and superselection rules 4−55565
algorithms *see subroutines*
aliphatic compounds *see organic compounds*
alkali metal alloys
see also caesium alloys; lithium alloys; potassium alloys; rubidium alloys; sodium alloys
dilute alloys, electrical and thermal resistivity calc. 4−82385
liquid, pseudopot. theory of enthalpy of mixing *(German)* 4−70434
liquid, pseudopot. theory of enthalpy of mixing *(German)* 4−73274
Na-K(Rb) liq. alloys, u.s. absorpt. obs. 4−79104
alkali metal compounds
see also alkali metal alloys; alkali metal halides; caesium compounds; francium compounds; lithium compounds; potassium compounds; rubidium compounds; sodium compounds
alkali-alkaline earth phosphates:Eu^{2+}, luminesc. 4−76295
alkali-borates, theoretical analysis of miscibility gaps 4−75631
alkali-lead silicate glasses, viscosity meas. in softening region *(Japanese)* 4−70573
alkyl sulphates, spin-lattice relax. times in electrolyte solns. and surfactant micellar solns. 4−45851
aluminosilicate glass, alkali ion exchange *(German)* 4−76543
borate glass:S^{2-}, blue binary, optical absorpt., emission and excitation spectra 4−70328
borate glass melts, comp. variation of optical basicities 4−64397
borate glasses, Cu, Cl effects on colour, absorpt. spectra obs. 4−70335
chlorate ion pairs, matrix isolated, vib. spectra 4−56215
ferrocyanides, $A_2BFe(CN)_6.xH_2O$, (A = alkali, B = alkaline earth or transition metal), struct. and ionic mobility 4−48991
fluorides, aq. solutions, ^{19}F nuclear mag. relax. time meas., water reorientation, struct. investig. 4−82102
germanate glasses, soln. calorimetric approach to struct. *(Japanese)* 4−69731
halides, ionic polarizability, ionic radius, empirical relation 4−57460
iodates, cryst., vibrational spectra of IO_3^- ion 4−45296
metaphosphate glasses, interionic vibrs., glass transitions investig. 4−66832
oxide, in Li_2O-SiO_2 glass, effect on luminescence of two types of centre, activated by Dy *(Russian)* 4−45347
oxides effect on flint glass microstruct., i.r. spectroscopic investigation 4−48511
perchorlates, i.r. and permittivity obs. during transform. 4−69906
silicate binary glass systems, miscibility gaps, thermodynamic interpret. 4−67948
silicate glass, quantum chem. analysis of structural units 4−60413
sulphates, u.s. velocity in molten salt *(French)* 4−50966
tetracene complexes, photoelectron emission, charge transfer *(Russian)* 4−75029
TNCO-alkali metal salt films, vapour synthesis, structure analysis 4−64518
$Cs(M_{0.5}Al_{1.5})F_6$, pyrochlore, M = Li, Na, K, Rb, 1/3 cation ordering *(French)* 4−48580
$LaCl_3$-ACl system, A = Li, Na, K, Rb, Cs, thermodynamic quantities of mixing meas. using electrochem. cell method 4−68011
$M^+Bi(TO_4)_2$, T = Mo, W, cryst. chemistry 4−82147
alkali metal halides
see also compounds of individual alkali metals, e.g. sodium compounds
alkali halide-AgCl binary liquid mixtures, enthalpies of mixing determ. by high temp. calorimetric meas. 4−45942
aqueous solns., relation between association and short-range hydration of ions 4−68029
aqueous solution, concentrated, viscosity, equiv. cond., self-diffusion meas. rel. to soln. struct. *(French)* 4−45941
aqueous solutions, i.r. reflect. meas,, refractive indices determ., struct. of water investig. 4−70292
binding energy calculations 4−66855
bonding, comparison of polarisable models having effective many body interaction, review 4−52828
cathodoluminescence, electron-hole recomb., cond. relax. *(Russian)* 4−73202
crystal binding, electron density calc., polymorphism 4−63788
crystal structure parameters, space groups and lattice constants, data collection 4−60464
crystallophosphors, struct. and luminesc. props. *(Russian)* 4−82731
crystals of various orientations, dynamic compression effects on microhardness and dislocation density *(Russian)* 4−69846

alkali metal halides continued
- defect-induced resonance modes, zero-freq. limit, isotope effects and amplitude patterns 4–79128
- dielectric behaviour, effect of three-body forces 4–49297
- dielectric behaviour, second neighbour interaction calc. 4–64322
- dielectric breakdown electrochem. aspects 4–61109
- dislocation break-away kinetics, obs. 4–69815
- dynamic model, diatomic molecule props. 4–66400
- electrolyte solutions, magneto-optical rotary dispersion, 350-650 nm 4–67606
- electron attenuation length from photoelectron absorption coefficient in thin layers 4–53570
- electron-coupled 'through-space' nuclear spin-spin interaction 4–69463
- electrooptical constants, shell model calc. 4–76236
- epitaxial embryo accommodation of f.c.c. metal 4–75727
- excited-state absorption spectra of self-trapped excitons 4–49386
- exciton dissociation on defects of cationic sublattice *(Russian)* 4–72726
- exciton states, pseudopotential formalism 4–64051
- extinction technique for optical storage using anisotropic colour centres 4–73097
- F-centre calcs., electronic wave func. and polarization props. 4–48951
- F-centres, ionic polarisation effects, strong binding case 4–44873
- F-centres, lifetimes investig. 4–69807
- fractional ionic character 4–44508
- gas, photoelectron spectra, level struct. 4–56294
- gas, photoelectron spectra, spectral band assignment 4–52259
- geologic salt systems, ALKHAL computer-accessible file of bibliographic data 4–64766
- halide centres, ion addition, form. conditions *(Russian)* 4–72464
- impurity states, pseudopotential formalism 4–64051
- ion electronic polarisability and radii, cryst. pot. effects 4–66852
- ionic charge, fractional ionic character and effective charge 4–66851
- ionic polarisability crystal radius relation 4–57462
- ionicity and photoelectron emission 4–64470
- ions in aqueous soln., conc. depend. of chem. shifts and hydration 4–70620
- i.r. absorption, temp. depend. in transparent regime multiphonon density of states 4–67590
- lattice model calculation, Hugoniot curves, Gruneisen parameter 4–72545
- LEED observable voltage range from (100) surfaces 4–75678
- luminescence, theory for self-trapped excitons 4–45357
- luminescence decay times of Ga^+ centres obs. at 295 and 77K 4–70354
- melting and elastic shear instability calc. from u.s. data 4–63849
- mixed crystals, excitons, coherent potential approximation 4–48947
- mixed crystals, Urbach-Martienssen rule for exciton spectrum, coherent pot. approx. 4–53068
- molecule, elec. field gradients calc. from HF wavefunctions 4–78421
- molecule, ion-ion interaction pots. calcs. 4–66351
- nuclear spin relaxation, dislocation vel. effect 4–76182
- optical absorption ion line shape for B-band of Tl^+-like ions 4–82717
- optical breakdown, laser damage, intrinsic mechanism 4–55509
- pair modes, molecular model calc. 4–82245
- phosphor, activated with Tl^+-type ions, dynamical Jahn-Teller splitting of B absorpt. band 4–53483
- phosphors, optical transition from valence band to local level 4–79769
- photoelastic constant, i.r., rel. to laser windows 4–57500
- photoionization in p-band, cross section determ. 4–74863
- photoplastic effect 4–56801
- photostimulated exoemission in soft X-ray region 4–49537
- positron annihilation from F-centres, theory 4–48653
- radiation effects, unrelaxed holes, V_k-centre dissociation *(Russian)* 4–82186
- repulsive potential parameters, combination rules and correlations 4–74933
- rigid-ion models of interionic potential 4–72441
- segregation from aqueous solns. or from melts, thermodynamics, comparison 4–52709
- solid solution hardening by small additions of alkaline earth ions, theory 4–53748
- solid solutions, nature of bulk defects 4–79033
- solid solutions pulsed nuclear double reson. 4–45208
- sputtering of hyperthermal beams by 6keV Ar^+ bombardment 4–70385
- stacking fault energy, from creep data 4–60510
- surface structure, LEED apparatus design *(French)* 4–52973
- thermal conductivity, 80-900K, temp. depend. 4–75655
- thermoluminescence, heavily γ-irrad. crystals, F-centre thermal annealing 4–67668
- use in sorption properties investig. in $Ce(HOP_4)_2.1.33H_2O$ and $Ce(HAsO_4).2H_2O$ ion exchanges 4–50211
- Van der Waals potentials and crystal energies 4–44507
- X-ray absorption, soft, atomic, molecular and band struct. treatments 4–70373
- X-ray absorption spectra, excitonic nature, soft region 4–67675
- X-ray photoemission spectra, valence band characts. 4–64478
- X-ray scattering, single phonon 4–63866
- D_2O-diamagnetic electrolyte solutions, effect of press. on deuteron spin-lattice relax., struct. breaking investig. 4–61015

alkali metals
- *see also caesium; francium; lithium; potassium; rubidium; sodium*
- alkali + N_2 collisions in flames, quenching cross section investig., energy transfer mechanism, model 4–74872
- alkali atom + N_2* collisions, chemiionisation, N_2 vibr. distrib. investig. 4–74866
- alkali-inert gas atom pairs, pot. model, excited mol. term effects 4–52013
- aqueous solns. of electrolytes, hydration number calc. 4–79176
- atom + $Cl_2(Br_2)(O_2)$, ionising collisions 4–78527
- atomic quadrupole shielding and antishielding factors calc. for nd states 4–59894
- band structure, non-selfconsistent calc. of potential 4–79278

alkali metals continued
- chemisorption on transition metal, work function variation, atomic viewpoint 4–69963
- chemisorption on transition metals, theory 4–44782
- condensation coefficients, condensate surface prop. effects 4–63907
- critical volume and temp. calc. effective ion-ion interaction 4–82266
- electrical resistivity, temp. variation in free-electron approx. lattice dynamical model 4–48958
- electrical resistivity temp. depend. at low temps. anal. 4–64064
- electron-ion coupling, vol. depend. determ. from resistivity 4–60749
- third harmonic production, rate of two-photon resonance 4–59936
- ignition temperature determ. 4–61610
- inert gas ion + alkali metal ion interaction, molecular ion formation 4–66353
- ion + inert gas atom repulsive interaction pot. curve calc. 4–66350
- ions, spectral line excitation functions in vacuum u.v., reson. transitions *(Russian)* 4–78353
- liquid, atomic and electronic transport props. and molar vol. 4–72581
- liquid, electrical resistivity using modified perturbation theory 4–79330
- liquid, heat transfer crisis during boiling 4–44666
- liquid, heat transfer in vap. generating tube, boiling effect 4–43624
- liquid, positron annihilation, perturbation calcs. 4–60519
- liquid alkali metal-nonmetal solutions, model approach, enthalpy of soln. calc. 4–60399
- melting, mean field theory, Lindeman's law 4–72561
- optical constants and photoemission, 250-630 nm. 4–45324
- plasma confinement in multipole-mirror trap, nonstationary expts. 4–44385
- positron annihilation rate calc. by canonical transformation method, positronium formation 4–48898
- sensitised fluorescence measurement, using pulsed dye laser 4–59459
- two-photon ionization, near resonance effects, resolvent operator analysis 4–63342
- vapours, optically excited, ionising transition processes for atom-atom collisions and stepwise photoionisation *(Russian)* 4–43746
- M + O collisions, single-electron excitation, change exchange 4–72079

alkaline earth compounds
- *see also barium compounds; beryllium compounds; calcium compounds; magnesium compounds; radium compounds; strontium compounds*
- alkali-alkaline earth phosphates:Eu^{2+}, luminesc. 4–76295
- alkaline earth monohalides, radiative lifetimes 4–56265
- digermanides, elec. resist., 20-800°C 4–60795
- dihalides, ion-ion interaction pots. calcs. 4–66351
- disilicides, elec. resist., 20-800°C 4–60795
- ferrocyanides, $A_2BFe(CN)_6.xH_2O$, (A = alkali metal, B = alkaline earth), struct. and ionic mobility 4–48991
- fluorides, figure of merit calc. for appl. as large diam. i.r. window, 2-6 μm 4–58845
- fluorides, H-centre prod. by electron irrad., e.p.r. obs. 4–66912
- fluorides, radiolysis prod. coloration, perturbed F and compensating V_k, H-centres 4–66911
- group II dihalide molecules, valence angles 4–66360
- halides, conc. aq. solns., struct. investig., viscosity, equiv. cond., self-diffusion meas. *(French)* 4–45941
- halides, cryst., interionic forces, ionic polarisation, cryst. struct. calc. 4–82142
- halides, crystal binding, electron density calc., polymorphism 4–63788
- metaphosphate glasses, interionic vibrs., glass transitions investig. 4–66832
- oxalates, powder precip. from aqueous soln., cryst. numbers and sizes 4–82801
- oxide:$Dy^{3+}(Yb^{3+})$, ion ground state determ., e.p.r. 4–57362
- oxides, dielectric behaviour, effect of three-body forces 4–49297
- oxides, dielectric constant, theory 4–49288
- oxides, diffusion and Schottky defect formation, importance of vacancy pairs 4–48789
- oxides, ion polarisability-ionic cryst. radius relation 4–57461
- selenides, ion polarisability-ionic cryst. radius relation 4–57461
- sulphides, ion polarisability-ionic cryst. radius relation 4–57461
- tellurides, ion polarisability-ionic cryst. radius relation 4–57461
- $M_{1-x}Eu_xFCl$, M = Ca, Sr, Ba luminescence spectra *(French)* 4–64430

alkaline earth metals
- *see also barium; beryllium; calcium; magnesium; radium; strontium*
- band structure, non-selfconsistent calc. of potential 4–79278
- chemiluminescence photon yields on reaction with halogen or oxygen 4–57825
- ions, addition to alkali halide crysts., theory of solid soln. hardening 4–53748
- ions, resonant charge exchange *(Russian)* 4–74917
- liquid, electrical resistivity using modified perturbation theory 4–79330

alkalinity *see pH*

allotropism *see polymorphism*

alloys
- *alloys such as Au-Cu, Au-Cu-Zn are indexed under components of the named elements i.e. gold alloys; copper alloys; zinc alloys in these examples*
- *see also actinide alloys; alkali metal alloys; aluminium alloys; antimony alloys; arsenic alloys; beryllium alloys; bismuth alloys; cadmium alloys; dilute alloys; gallium alloys; germanium alloys; indium alloys; lead alloys; liquid alloys; magnesium alloys; mercury alloys; noble metal alloys; rare earth alloys; silicon alloys; solid solutions; thallium alloys; tin alloys; transition metal alloys; zinc alloys*
- A15 type phase stability 4–82134
- A-15 compounds, applicability of model for phonon dispersion and instability in linear chain cryst. 4–44623
- aged, with dispersed phase segregation, fine struct. of X-ray diffr. lines *(Russian)* 4–79945
- aircraft materials microfractographic features and failure analysis *(German)* 4–80167

alloys continued
amorphous, fracture topography 4−61420
amorphous, structure, review 4−49631
b.c.c., microyielding strain bursts correl. with acoustic emission pulses 4−67871
binary, charge transfer and spin susceptibility, Wolff model 4−57248
binary, coherent potential approx., off diagonal randomness 4−72668
binary, disordered systems, matrix coherent potential approximation 4−72674
binary, free enthalpy of mixing, chemical spinodal curve calc. 4−76413
binary, positron behaviour, pseudopotential picture 4−72679
binary, quenched, time evolution, computer simulation of 2-dimens. model system 4−79956
binary, short-range order influence on volatilisation thermodynamics *(Russian)* 4−53652
binary, solid/liquid diffusion couple obs. of peritectic reactions 4−64535
binary, two particle electron Green function *(Russian)* 4−75760
binary systems, conc. depend. of diffusion coeffs. *(Russian)* 4−75642
binary systems, kinetic theory of interdiffusion, vacancy conc. *(Russian)* 4−48785
Bragg-Williams interface model, multilayer consistent 4−61331
C_{1b}(MgAgAs) structure X-ray diffraction, computer appl. 4−69697
cavitation creep, review 4−61425
cellular and dendritic growth, theory 4−49649
contact melting process, calculation of unsteady kinetics *(Russian)* 4−70435
creep, transition from dislocation climb to viscous glide 4−61401
creep processes, mag. and elec. field effects 4−61438
Debye characteristic temperature, rel. to order parameter 4−44633
design, application of materials science, review 4−82795
directionally solidified eutectic, axial extension during cyclic torsion 4−45594
disordered, continued fractions and cluster theory, density of states 4−79262
disordered, generalized coherent potential method 4−44816
disordered, Landau levels, de Haas-van Alphen effect 4−64008
disordered, paramag., critical concentration, phenomenological theory 4−82561
elastic behaviour of spherically symmetric conc. fluctuation in finite body 4−61357
electrical resistivity temp. depend., apparatus for simultaneous graphical and digital recording *(Czech)* 4−80944
electrotransport, steady state method anals. 4−44700
embrittlement by liquid metals, specificity concept 4−53766
eutectic composites, thermal stability in temp. gradient 4−49939
eutectic systems, coarsening of lamellar structures at elevated temps. 4−49736
exciton relaxation in substitutionally disordered alloys, quasiparticle description 4−69994
fatigue striation spacing rel. to cracks, notched light alloys *(French)* 4−67868
f.c.c. and h.c.p., Neumann strain burst phenomenon rel. to acoustic emission during deform. 4−67870
f.c.c. binary, applic. of iterative procedure in cluster-variation calcs. 4−52851
ferromagnetic, amorphous, spin-excitation spectrum and resistivity minima 4−48963
ferromagnetic, concentrated, hyperfine fields systematics at sites of nonmag. ions 4−67361
ferromagnetic, self-diffusion coeffs. estimation method *(Russian)* 4−79182
ferromagnetic binary alloy, generalized CPA approach to the disordered Heisenberg ferromagnet 4−67330
films, production by flash evaporation device *(Spanish)* 4−79867
fracture viscosity at high temp., optimum method selection 4−61452
heat resistant alloys, ductility of coatings 4−83006
Heisenberg spin systems, two-dimensional, disordered, coherent exchange cluster approach 4−64179
Heusler, virtual double exchange mechanism 4−76071
inhomogeneous, conc. profile, X-ray diffr. determ. 4−82879
intermetallic phases, pair pot. model 4−53644
itinerant-electron antiferromagnetism, theory 4−76048
$L1_2$ superstructure, dislocation sources 4−49820
$L2_1$ (Heusler alloy) structure, X-ray diffraction, computer appl. 4−69697
liquid and vapour-quenching, amorphous and cryst. alloys., non-equilib. phases prep. 4−79990
magnetic neutron scattering, mag. struct. 4−57286
magnetic susceptibility vibrating sample magnetometer 4−68744
mechanical strength improvement by thermomechanical hardening *(Russian)* 4−70476
metal-semiconductor eutectic, supercond. obs. 4−72894
narrow band, electron correlation 4−57029
neutron radiation analysis, gamma-ray Ge(Li) detector 4−46943
nonideal binary, $\alpha \rightleftharpoons \beta$ diffusionless transform. charact. 4−53665
optical conductivity, optical effective mass derivation 4−67153
order-disorder transformations, domain form., group theoretical considerations 4−45490
ordered, dislocation loops analysis w.r.t. slip, twinning and phase transforms. 4−79923
ordered, f.c.c. and b.c.c., cluster variation method applic. to phase diagrams 4−49673
ordered, transform. twins growth 4−61343
ordered with small domains, dislocation struct. 4−61392
peritectic transformations, equil. and non-equil. effects 4−61330
phase transformation, velocity of break, effect of diffusion 4−49675
phase transitions, structural aspects 4−63919
precipitate dissolution on deformation 4−53693
radiation effects on substruct. and mech. props., conf., Los Angeles, USA (June 1972) 4−43656
radiation stimulated electron transmission processes, excited electrons role *(Russian)* 4−48661
random, binary, coherent pot. theory, scatt. effects 4−44823
residual thermal stresses due to quenching *(French)* 4−53708

alloys continued
semiconducting, energy gap, variation with composition, virtual crystal approximation 4−44854
solidification, two-phase zone formation 4−67756
spinodal decomposition, symmetrical, first approx. derivation 4−49670
stress corrosion cracking, fracture mechanics role 4−45615
substitutional, local environment effect, density of states calc. 4−48922
substitutionally disordered, static elec. cond., tight binding model 4−53081
superconducting, dirty, type II, density of states near T_c 4−57207
superconducting, nonmag. weak-coupling, coherent potential approximation 4−57192
superconducting, with local states within gap, temp. depend. of Josephson tunnelling current 4−45065
superconducting transition temp., soln. of vertex eqn. for Cooper pair 4−76002
superconducting with paramag. impurities, Josephson tunnel effect and order parameter 4−49104
superplastic, potentially useful alloys 4−67859
superplasticity, temporary, during metal-forming 4−53756
ternary, f.c.c., order-disorder transforms., equilib. eqns. 4−82252
ternary, f.c.c., order-disorder transforms., quasi-binary section of phase diag. 4−82253
ternary, quantitative microprobe analysis, Wedge specimen correction method 4−51234
ternary systems, diffusion composition path patterns 4−82289
texture ensuring grain growth of definite orientation 4−49732
tight binding, cluster approx. for off diagonal disorder 4−48885
true tensile strength, short time high-temp. testing 4−50056
two-phase, containing fibre, tensile behaviour simulation under tensile load *(Japanese)* 4−45630
two-phase, cyclic stress/strain response 4−61434
two-phase, cyclic stress/strain response 4−61435
two-phase, recrystn. behaviour 4−70462
two-phase materials, image effects on screw dislocation pile-up near circular interface 4−67793
two-phase system, binary, nonparabolic interface motion due to diffusion 4−79190
two-phase system, finite, interface motion due to atomic diffusion 4−79191
two-phase system, locked screw dislocation effect on pile-up, applic. to fracture 4−49702
vacancy, formation energy as an alloy problem 4−66907
X-ray emission spectra, review, annotated spectral index 4−79815
X-ray spectral microanalysis 4−46942
yielding and grain boundary ledges, Hall-Petch relation 4−64570
Ca-Ba, liq., thermodynamic props. *(German)* 4−48768
Ca-Sr, liq., thermodynamic props. *(German)* 4−48768
Ca_2As, struct. *(German)* 4−72445
PdMnTe Cl_b type intermetallic, crystallographic and mag. characts. 4−48543
Se-Te cryst. growth, interface stability criteria investig. 4−63776
Sr-Ba, liq., thermodynamic props. *(German)* 4−48768

alnico alloys *see iron alloys*

alpha decay
see also alpha-decay theory; alpha-particle spectra; radioactivity
nuclides in environmental samples, detection by grid ionization chamber *(German)* 4−68791
^{226}Ac radioactive decay scheme *(Russian)* 4−71836
^{227}Ac, α branching ratio meas. 4−61635
^{212}At populated in (α,α) and (α,n) reactions, $T_{1/2}$ meas. 4−66224
$^{10}B(\alpha,\alpha)^{10}B^*(\alpha)^6Li$, 24 MeV, sequential decay mechanism 4−71930
$^{212}Bi \rightarrow {}^{208}Tl$ α-decay, γ-ray energies and rel. intensities 4−47659
^{245}Bk decay, ^{241}Am level scheme determ. 4−78001
^{215}Fr produced in $^{209}Bi(^{12}C, \alpha 2n)$, ground state decay meas. 4−55798
Ho isotopes, α-decay branching ratios for high and low-spin isomers 4−74739
$^{16}O \rightarrow {}^{12}C + \alpha$, parity non-conservation in decay of 8.87 MeV 2 state 4−71848
^{231}Pa, γ and X-ray spectra meas. 4−66158
^{207}Po α-decay half-life and branching ratio meas. 4−63114
^{210}Po, alpha decay, K- and L-shell autoionisation probabilities 4−63116
^{210}Po, internal ionisation, binary encounter model, zero-impact parameter 4−47672
^{210}Po, L shell ionization meas. 4−55797
^{210}Po radioactivity in marine fish organs 4−80759
^{211}Po populated in (α,α) and (α,n) reactions, $T_{1/2}$ meas. 4−66224
^{239}Pu in environmental samples, detection by grid ionization chamber *(German)* 4−68791
^{223}Ra producing ^{219}Rn, spectroscopic meas. of ^{219}Rn transitions, spin assignments 4−47671
$^{224}Ra \rightarrow {}^{220}Rn$ quadrupole interaction of recoil nucleus in Al and Al oxide 4−63065
$^{226}Ra \rightarrow {}^{222}Rn$, quadrupole interaction of recoil nucleus in Al and Al oxide 4−63065
^{150}Sm neutron resonances, obtained from $^{149}Sm(n, \alpha)^{146}Nd$ 0.025 to 20 eV *(Russian)* 4−66208
^{233}U, determ. of specific activity and $T_{1/2}$ in α-decay 4−63117
^{235}U, meas. of half-life 4−71849
^{235}U α-decay half-life determ. comment on previous paper 4−71850

alpha-decay theory
see also alpha decay
internal ionisation, binary encounter model, zero-impact parameter 4−47672
spherical nuclei, absolute alpha decay widths, finite size particle calcs. 4−63115
$^6Li \rightarrow \alpha + d$, peak consts. rel. to e.m. form factors *(Russian)* 4−81452
^{210}Po, ratio of widths with nucleon pairing and in shell model *(Russian)* 4−47637

alpha-particle absorption
see also nuclear reactions and scattering due to alpha-particles
melting point meas. apparatus using α-particle absorpt. *(Japanese)* 4−50981

alpha-particle angular distribution
see also alpha-particle spectra
^{197}Au(γ, α), 500 MeV bremsstrahlung, alpha-particle energy and ang. distrib., cascade-evaporation model 4−43512
^{10}B(^{16}O,α)^{22}Na, 44 to 46 MeV, ang. distrib. and cross-section meas. 4−59800
^{10}B(α,α)^{10}B*(α)^{6}Li, 24 MeV, sequential decay mechanism 4−71930
^{44}Ca(d,α)^{42}K, 4.0 MeV, angular distribs., ^{42}K level spin assignments 4−47704
^{6}Li(p,^{3}He) ^{4}He, 0.5 to 2 MeV, ang. distrib. meas. 4−51830
^{7}Li(d,α)^{5}H, E=600 to 1250 keV, ^{9}Be spin and parity *(French)* 4−51834
^{6,7}Li(p,α)^{3,4}He, T-cellit detector discrimination of reaction products 4−74135
^{96}Mo(^{3}He,α)^{95}Mo, 18 MeV, ang. distrib. anal., energy level obs. 4−43462
^{100}Mo(^{3}He,α)^{99}Mo, 18 MeV, ang. distrib. anal., energy level obs. 4−43462
^{20}Ne(t, α)^{19}F, 20 MeV, proton hole configuration 4−74755
Ni(α,α), 60 MeV, A=58 to 64, optical model anal. 4−55860
Ni(α,α), back-angle scatt. on even isotopes, ang. distrib. meas. at 18 to 27 MeV 4−63194
^{77}Se+^{40}Ar, at 146 to 200 MeV, ^{117}Te compound nuclei charged particle emission 4−55876
Ti(α,α'), A=46, 48, 50, 27.2 MeV, angular distributions fitted by macroscopic theory and distorted wave approx. *(Russian)* 4−47715
^{235}U(n,f), thermal neutron induced LRA fission 4−63217

alpha-particle attenuation *see alpha-particle absorption*

alpha-particle detection and measurement
see also alpha-particle spectrometers; dosimetry; particle detectors; radioactivity measurement
cellulose acetate detectors, effect of electrons and X-rays on registration 4−68775
cellulose triacetate foam for α-particle track recording 4−81004
cosmic, on Prognoz satellites 4−54598
grid ionization chamber for spectroscopy of α-emitting nuclides in environmental samples *(German)* 4−68791
plastic, automatic counting technique 4−65516
polymer thermal stability rel. to damage track registration 4−74138
scintillation counting reln. to meas. of low U levels in water and urine 4−58925
scintillator, thin glass, pulse shape differences for alpha- and beta-particle detection 4−77189
solid state nuclear track detectors, uses, low level counting 4−74134
solid track detectors for α-particles 4−55078
spectrometry, high resolution 4−55073
telescopic system for (n,α) reactions induced by fast neutrons 4−55064
track-detector, solid state, meas. of ^{3,4}He in ^{6,7}Li(p,α)^{3,4}He reaction 4−74135
urine, Pu content, rapid determ. by ultrafiltration 4−65278
d(target,α)n associated particle method for meas. prompt γ-ray spectra 4−46801
^{8}Be identifier from α-particle meas. following (α,^{8}Be) reaction at 35-70 MeV 4−77178
CdTe n-type surface barrier detectors, energy resolution 4−62540

alpha-particle effects
see also nuclear reactions and scattering due to alpha-particles
bacterial spores inactivation by charged particles 4−80758
collodion film, etch pits formed on alpha particle irradiation 4−60693
energy loss per ion pair in tissue equivalent gases *(Japanese)* 4−80984
heavy ion path, spatial energy distrib. 4−60526
metal, K-shell ionisation, 1 to 5 MeV α impact, cross section determ. 4−49496
photographic reproduction using etch-tracks from radioisotope toned images 4−42824
spark gap irradiation effects, elec. field distortion calc. 4−75375
steel, stainless, high-temp. embrittlement, helium distrib. and grain size effects 4−43643
GaAs, electron-hole pair creation average energy, bandgap dependence 4−79316
LiF, damaged region depth meas. 4−56782
NaCl, irrad., F-centre form. rate and distrib., channelling effect *(Russian)* 4−82171
^{242}PuF$_3$, ht. capacity, entropy, enthalpy, 10-350K 4−79159
Si, electron-hole pair creation average energy, bandgap dependence 4−79316
Si, implantation damage, X-ray and Berg Barrett obs. 4−52793
Si surface barrier detector, radiation damage effects 4−58923
V, irradiated, helium mobility obs. 4−63279
W, vacancy cluster interaction with helium 4−60525
ZnTe, film, energy loss and projected range of 0.3-2 MeV alpha particles 4−69840

alpha-particle interactions
see also nuclear reactions and scattering due to alpha-particles
No entries

alpha-particle model *see nuclear cluster model*

alpha-particle scattering
see also nuclear reactions and scattering due to alpha-particles
lunar chemical composition from space probe alpha particle scatt. expts. *(Norwegian)* 4−68372
$\alpha\alpha$ elastic scattering, continuum ambiguities in phase-shift analysis 4−66222

alpha-particle spectra
see also alpha-particle angular distribution
biosphere mineral sample, lattice ionization chamber meas. *(German)* 4−77169
energy and intensity values catalogue 4−51804
grid ionization chamber for spectroscopy of α-emitting nuclides in environmental samples *(German)* 4−68791
high resolution, dielectric track detection 4−55073
^{209}Bi (p, α), 4 to 45 MeV, level densities, near doubly magic nuclei 4−66122
^{1}H(^{11}B,α)$\alpha\alpha$ nucl. reaction, hydrogen analysis in solids by ^{11}B ion beams 4−74181

alpha-particle spectra continued
^{3}He(^{3}He,α)2p, spectral anal. using two-body interactions, evidence for three body effects 4−43557
^{3}Li(d,2α)n, 1.0 MeV, spectra meas. 4−63179
^{6}Li(^{3}He,αp)^{4}He, 1.25 MeV, alpha-proton coincidence, intermediate ^{5}Li ground state 4−66221
^{20}Ne(^{12}C,α)^{28}Si, α-spectra meas. comparison with ^{16}O(^{16}O,α) reaction 4−63208
^{16}O(^{16}O,α)^{28}Si, α-spectra meas. comparison with ^{20}Ne(^{12}C,α) reaction 4−63208
^{16}O→^{12}C+α, parity non-conservation in decay of 8.87 MeV 2 state 4−71848
Pb (p, α), A=206, 207, 208, 4 to 45 MeV, level densities, near doubly magic nuclei 4−66122
^{208}Pb(α,α'), anal. of cross-section enhancement 4−55852
^{207}Po α-decay half-life and branching ratio meas. 4−63114
^{146}Sm/^{147}Sm rel. to ratio meas. former cosmic radiation intensity determ. *(French)* 4−54349
^{118}Sn(^{3}He,α), 81.7 MeV, excitation of neutron-hole deeply bound state in ^{117}Sn 4−63192
^{228}Th, appl. of InSb radiation detector 4−58931
^{235}U fission, energy spectra of polar emitted particles by evaporation from fragments 4−43571
^{235}U(n,f), thermal neutron induced LRA fission 4−63217

alpha-particle spectrometers
see also alpha-particle spectra
lattice ionization chamber meas. α-radiation from biosphere mineral sample *(German)* 4−77169
^{222}Rn, short-lived decay products meas. using α-spectrometry *(Bulgarian)* 4−55039

alpha-particles
see also cosmic ray alpha-particles and helium nuclei
energy straggling in matter 4−75555
$\alpha\alpha$ elastic scattering, continuum ambiguities in phase-shift analysis 4−66222

alpha-radiation *see alpha-particles*

alpha-rays *see alpha-particles*

alpha-rhythm *see bioelectric potentials; electroencephalography*

alternators
Taylor vortices, meas. *(French)* 4−43995

altitude measurement *see height measurement*

aluminium
absolute energy deposition profile meas., calorimetric method 4−42873
acoustic reflected pressure for sphere in water 4−73921
activity, rel. to coating mechanism in pack aluminiding of Ni alloys 4−49769
adsorption of Na on (100) and (111) faces, ELEED, Auger and contact potential meas. 4−75695
anelasticity during plastic deformation of single crysts. *(German)* 4−73333
annealing deformed, neutron irradiation effect on structural changes *(Russian)* 4−53774
anode surface temperature in microsec. vac. arc. 4−78842
anodic galvanoluminescence spectrum *(Russian)* 4−76608
appearance potential spectrum, struct. anomaly 4−64444
atom, internal partition function, 0-15000K 4−47820
atom, triply ionised Al IV, 2p^{5}3s, 3p, 3d and 4s configs., revised anal. 4−43718
atomic electron scatt., atomic field bremsstrahlung, cross section coincidence meas. 4−59954
Auger L$_{2,3}$ emission band satellites, double ionisation process 4−70383
bicrystal, grain boundary effect on tensile plastic deform. *(Japanese)* 4−70502
bicrystal, non-isoaxial, mech. behaviour of cryst. boundary, photoelastic coating method 4−67786
bicrystals, non-isoaxial, pure, deform. 4−73334
block boundaries formed in creep, stability *(Russian)* 4−76438
Born-von Karman force constant model 4−79111
chemiluminescence during chemisorption of O$_2$ 4−53001
coarse-grained crystals, grain boundary effect on plastic deformation *(Japanese)* 4−49731
coating, on cast iron, struct. and comp. 4−76482
coating of organic compounds to reduce irradiation damage in electron microscopy 4−82094
coatings, ductility, heat resistant alloys, chrome aluminising in vacuum, FeAl(NH$_4$)$_2$Cl soln. 4−83006
coloured surface brightness, visual and tristimulus colorimeter meas. 4−54912
compression of polycrysts. prestrained by tension, region of const. flow stress 4−76502
Compton X-ray scatt. meas., electron momentum distrib. 4−61254
condensation on quartz, contact angles determ. by thin film techniques 4−75686
condensation on sapphire, contact angles determ. by thin film techniques 4−75686
contact resistance in liquid N 4−70061
cracked plate, partially debonded stringer effect on stress intensity factor 4−67818
creep deformed at 600°C, slip plane obs. in single crysts. *(French)* 4−45586
crystallographic details of growth twinned dendrites 4−76441
cutting, high speed, expended specific work components *(Russian)* 4−57744
deposition in vacuum on Mg alloy, effect of condensation conditions on adhesion and structure *(Russian)* 4−70480
determination in Ni alloy powder by X-ray fluoresc. 4−74162
diffusion, obs. of ^{28}Mg tracer 4−48802
diffusion in Si, plastic deform. effect, thread like model *(Russian)* 4−75650
diffusion of ^{100}Ag, near surface effect 4−52945
diffusion of Ga at grain boundaries, atomic ionolum. microanalysis obs. *(French)* 4−45564
dislocation loop shrinkage mechanism, diffusion eqn. 4−49690
dislocation loops, nucleation and growth during quenching and annealing 4−56754
dislocation structure form. during deform. *(German)* 4−53694

aluminium continued
dislocations, pinning points, neutron irradiated and cold worked samples *(French)* 4−52770
Doppler shifted cyclotron resonance study, multiple dopplerons *(Russian)* 4−82357
elastic constants, third order, calc. 4−73314
elastic energy state eqn. rel. to nonspherical deform. tensor *(Russian)* 4−61326
elastic spheres, acoustic reflected pressure, steady state analysis 4−73920
electric field gradient, non transition metal, impurities in dilute alloy single crystals 4−73046
electrode, O_2 adsorption, effect of separation on contact potential difference 4−49059
electrolysis using solid-state power convertor *(French)* 4−70607
electrolytic capacitor grade, Fe microsegregation, effect on etchability 4−45546
electron attenuation lengths in solids, low-energy electrons 4−63846
electron beam dose characts., holographic interferometry 4−75539
electron bombarded, multi-faulted dislocation loops, helium preinjection influence 4−53679
electron damage near threshold energy, purity effects 4−69827
electron emission energy distrib., oxide coating and plastic deform. effect, temp. depend. 4−64481
electron energy loss at 600 eV *(Russian)* 4−44574
electron escape depths meas. 4−76345
electron momentum density distribution by positron annihilation *(Russian)* 4−82197
electron-phonon interaction model, mass enhancement, transport scattering and resistivity calc. 4−82387
electron-phonon scattering times 4−53075
electroplating of Zn, electrolyte composition, electrolysis conditions rel. to transition layer struct., props. investig. 4−54039
electropolishing, use of masks, electron microscope specimen prep. 4−44449
elongated and annealed, mutual annihilation of dislocations, obs. *(Japanese)* 4−49692
fatigue, low cycle impact, pure specimens *(Japanese)* 4−70508
fatigue damage characteriz. by photoemission, ellipsometry and Auger spectra 4−53781
fatigue life in high cycle region 4−67855
fatigue strength, prestraining influence, stacking fault interpret. *(Russian)* 4−45607
f.c.c. and b.c.c. crystals, static lattice Green's function and its asymptotic behaviour 4−63822
Fermi surface, stress depend., oscill. magnetostriction 4−82355
fibre reinforced, necking, Al-Borsic composites 4−82963
fibre reinforced thermal conductivity, electrical conductivity 4−64624
fibre texture formation process rel. to drawing wire *(Japanese)* 4−45726
film, bulk and surface plasmon excitation in X-ray photoemission 4−67187
film, Cu grain boundary electromigration 4−82334
film, damage mechanism with focused N_2 laser irradiation 4−51622
film, electrolyte for electropolishing and revealing struct. 4−67113
film, escape depth of secondary electrons *(French)* 4−73232
film, evaporated, oxide microstruct., surface plasmons 4−79245
film, laser-induced damage, temporal development of optically etched gratings 4−59441
film, paramagnetically limited superconductor, fluctuations and resistive transition 4−64162
film, reaction with SiO_2, electron and X-ray diffr. obs. 4−44807
film, thermal profile meas., use of laser thermoprobe 4−65392
fine particles, supercond. transition temp. meas., size depend. 4−60905
flux quantisation above supercond. transition temp. *(Russian)* 4−72887
foil, 3.3-165.8 keV photon attenuation, photoelec. cross sections 4−80985
foil, microstruct. revealed by selective etching 4−67783
foil, multiple scatt. of protons and N ions 4−57654
form factors determ. from a.p.w. calc. 4−53039
formation and coalescence of He bubbles 4−70498
fracture toughness theory development, K_{Ic} prediction from tensile data 4−67815
free energy, electronic contrib., electron-phonon mass enhancement 4−44679
Frenkel defects, f.c.c. metals, after electron irrad. 4−72491
fretting corrosion, metal fatigue testing, transverse bending 4−83008
gamma-ray infinite medium buildup factors including bremsstrahlung contribution 4−81701
gamma-ray total absorpt. cross-section at 250 to 550 MeV 4−63127
gradient-elastic tensor determ., n.m.r. obs. 4−61047
grain growth, steady-state, mechanism 4−82853
grain size control 4−70465
Gruneisen constant, volume depend. calc. 4−67008
heterodiffusion of Au and Cu at infinite dilution, neutron irrad. effect *(French)* 4−44699
high-rate sputtering aided by permanent magnets 4−51000
hot compressed, zonal inhomogeneity of primary recrystallization *(Russian)* 4−70449
impulsive heating profiles meas., vaporisation expansion wave 4−48746
internal friction, amplitude-time dependent meas., mechanism 4−56807
internal friction, fatigue and neutron irrad. effects 4−64574
internal friction change during creep, model of screw dislocation lateral glide *(Russian)* 4−79987
internal photoemission contrib. to KLM Auger spectra determ. 4−76365
internal stress during high temp. deform., dip test applic. *(Japanese)* 4−45638
interstitial diffusion mechanism of Au and Cu under neutron irradiation *(French)* 4−81637
K-shell ionisation, 1 to 5 MeV α impact, cross section determ. 4−49496
K-spectra edge shape of free-electron metals, broadening mechanisms 4−45383
laser mirror, light scatt. meas., dominant mode refl. 4−68713

aluminium continued
lattice dynamics, correlation and exchange effects calc., pseudopot. technique 4−63870
LEED, rot. diagrams for (001) surface, t-matrix and τ-matrix approaches 4−44454
LEED surface structure determ. 4−75677
liquid, collective modes calc. using self-consistent phonon scheme 4−79129
liquid, diffusion of H_2, coeff. determ. 4−82284
liquid, electrical resistivity, depend. on model potential form factor, dielectric screening function and struct. factor 4−67201
liquid, electrical resistivity using modified perturbation theory 4−79330
liquid, interaction of pyrolytic graphite, 1050-1350°C *(Russian)* 4−53793
liquid electrotransport of 3d transition element solutes 4−82283
localised defects (vacancies), elastic continuum model improvement using interatomic forces 4−63828
lunar samples, ^{26}Al saturation activity as function of chemical composition 4−68374
magnetoconductivity, pseudopot. Fermi surface model 4−48964
magnetoresistance, linear component meas. at 4.2K 4−60781
mass absorption coefficients for CK_α line *(Japanese)* 4−45382
mass spectrometer ion source insert, exposed to atomic oxygen beam 4−48112
Matthiessen's rule, theory of deviations 4−67198
melt, heat of dissolution and modifying ability of transition metals *(Russian)* 4−79983
memory effect obs. by u.s. attenuation, reln. to point defect-dislocation interactions *(French)* 4−67784
metal-oxide tunnel junction, effective barrier height and thickness 4−60858
microscopic optical fields and mixing coeffs. of X-ray and optical freqs. 4−73096
model pseudopotential, appl. to calc. of interionic pot., force consts. 4−82129
molten, wetting of vitreous C 4−79233
mosaic spread measurement by neutron multiple scatt. 4−82091
muffin-tin impurity model, application to 3d transition metal impurities 4−64037
negative ion excited states and energy determ. by electron detachment in elec. field *(Russian)* 4−78354
neutral atom, electron bremsstrahlung cross section calcs. 4−72085
neutron activation analysis of Si and Al in minerals and rock ores 4−58982
neutron irradiated, alignment of dislocation loops in presence of voids 4−66943
n.m.r. free induction decay, temp. depend. 4−64272
nonisothermal transition scheme for reversing torsion *(Russian)* 4−45609
optical constants, superconvergence and sum rules, comparison with expt. 4−45264
optical filter design, 2000-3000 Å wavelength *(German)* 4−46631
oxidation, suboxide form., electron diffr. anal. 4−75718
Pauli principle model, electronic stopping power of channelled ions 4−69836
phonon dispersion, effective interionic pot. and liquid resist. 4−44615
photoelectron cross-section, γ-ray attenuation coeff. meas. 4−72068
photoemission in annealing process, tempered Al *(Russian)* 4−73237
plasma, laser heated, conversion efficiency to X-ray energy 4−56494
plasma, laser produced, electron temp. variation with laser pulse and target parameters 4−44405
plasmon damping, ang. depend. meas. *(Japanese)* 4−44875
plasmon damping, loss peak meas., ang. depend. 4−57055
plasmon peak, meas. angular dependence *(Japanese)* 4−44874
plasmon satellite band in X-ray K-emission spectra 4−45384
plastic deformation, heat and latent strain energy anal. in polycrystalline model 4−59191
plastic deformation and failure during rotary rolling *(Russian)* 4−79986
plastic strain distrib. at fatigue crack tip *(Japanese)* 4−79933
plastic stress/strain response in high cycle region 4−67854
plate, intermittent motion of friction, SEM obs. 4−67885
plate, projectile perforation, exptl. obs. 4−45614
point defects, diffusion kinetics *(Rumanian)* 4−44694
polygonization substructure migration due to electromigration and creep *(French)* 4−45544
porous, hypervelocity impact heating 4−68377
porous, shock compressibility at l.p. *(Russian)* 4−61478
positron and electron emission, comparison keV region 4−53559
positron annihilation determ. of recovery using coincidence routing 4−71229
positron annihilation investigation 4−79065
positron diffusion constant and mobility calc. 4−82384
positron distribution from pseudopotential calc. of ground state wavefunction and energy 4−44871
positron lifetime, effect of thermal expansion, 100-300K 4−56773
positron surface states properties 4−67268
positron wave function calc., pseudopotential method 4−48893
powder, mech. activated, lattice distortion and Debye temp. investigations *(German)* 4−57737
powder, particle size alterations during wet-milling process *(German)* 4−80061
pressure vessel fabrication for liquefied natural gas carrier 4−74788
quasi particle energy band calcs. 4−75794
quenched, annealing effect on electrical resistivity 4−57076
radiography, transmitted and scattered X-ray data, 50-300 kVp 4−46914
recrystallisation, metallographic investig. using double-etching method *(German, English)* 4−64563
recrystallisation, secondary, after high speed deform. *(Czech)* 4−49697
residual lattice strain meas. by n.m.r. 4−50073
rolled, reciprocal pole figure construction 4−75419
secondary electron emission as result of ion bombard., role of plasmons 4−57660

aluminium continued
- sheet with planar anisotropy, Hill generalized strain hardening curve validity 4—76458
- solar Al I autoionization lines, non-LTE profiles 4—54381
- spall fracture of monocrysts., void growth 4—49851
- spallation, laser induced, pulse shaping effects 4—47366
- spectral emission intensity rel. to cold plastic deform. *(French)* 4—64595
- sputtering, neutron induced in samples doped with ^{235}U 4—78242
- static heat transfer to boiling liq. He 4—77050
- stopping power for 7.2 MeV protons 4—60528
- stopping power for heavy ions due to inner shell excitation, ^{59}Pr and ^{60}Nd 4—79083
- strain measurement, in-plane, by speckle photography, Young's fringes assessment 4—42723
- stress wave production by nanosecond laser pulses 4—70588
- stress-strain curve for [135] and [113] single cryst., rel. to deform. heterogeneity *(Polish)* 4—67811
- stress/strain curve shape depend. on deform. rate, temp. and specimen purity *(Slovak)* 4—49778
- superconducting, Landau domain structure in dynamic intermediate state, expt. 4—57202
- superconducting, tunnelling investigation of energy gap anisotropy 4—45042
- superconducting, weakly linked junctions, coherent properties 4—45064
- superconducting film, crit. field, electron paramagnetism effect 4—49116
- superconducting film, T_c depend. on deposition conditions, substrate 4—60904
- superconducting film, temp. depend. of heat capacity near T_c 4—45036
- superconducting foils and rods, thermal phonons reson. scatt. by dislocations 4—64164
- superconducting layer on PbTe, interface superconductivity, LEED obs. 4—45038
- superconducting microbridge with reduced self-heating, Josephson weak link behaviour 4—45062
- superconductor, strong-coupling, electron-phonon interaction const. calc. *(Russian)* 4—72904
- superplasticity and dislocation structure 4—79976
- superpure, with transition metal additions, columnar-equiaxed change 4—49669
- surface, ion bombardment induced light emission, influence of reactive gases 4—45345
- surface, ionisation processes during low energy ion sputtering, theory and expt. 4—64464
- surface, lubricant interaction during combined plastic deform. and u.s. exposure *(Russian)* 4—45604
- surface, polymer adhesion studies, bond failure investig., ESCA method 4—77272
- surface, sparked areas investig. with SEM and energy dispersive X-ray analyser 4—62624
- surface plasma oscillations, anisotropic model 4—44982
- tensile tests below 1K, load-elongation curves 4—50089
- texture and structure correl. with formability 4—45548
- thermal diffusion of Ag, conc. and grain size effects 4—75640
- thermionic electron emission, gamma irrad., oxide form. 4—45398
- thermoelectric power, quantum oscillations 4—67203
- thin film, superconductivity rel. to electron tunnelling 4—70117
- thin layers, real structure characterisation by dislocation density, reln. to surface resistance 4—72875
- thin-film bicrystals, vacuum welding technique, grain boundaries obs. 4—82864
- tilt boundary mobility investigation 4—79967
- trace element analysis by atomic absorpt. spectrometry after matrix enrichment *(German)* 4—62629
- trace metals in crude oil determ. by nonflame atomic absorption spectroscopy 4—77284
- 3d transition metal impurities, calculation of Dingle temperature 4—67179
- triboinduced electron emission and work function meas. in $Al-O_2-H_2O$ system under UHV conditions 4—53585
- u.s. absorption, 15-75 MHz, temp. depend., 300-1200K *(Russian)* 4—72529
- u.s. attenuation, elastic const. data, Gruneisen parameters, phonon viscosity, thermoelasticity 4—66997
- u.s. velocity measurement, coherent pulse/c.w. technique 4—48709
- vacancy formation energy and positron annihilation, temp. depend. 4—79036
- vacancy loop denuded zones, near grain boundaries, formation and morphology 4—73326
- vacancy-impurity interaction, pseudopotential method study 4—56731
- valence-band Auger-electron spectra investigation 4—49517
- waveguide, brazing seam form. during joining with Ga alloys *(Russian)* 4—80055
- wire, texture 4—82875
- wire, texture 4—82876
- X-ray absorption, meas., 1.5-3 keV 4—61238
- X-ray absorption thresholds, many electron theory, comparison with expt. 4—79811
- X-ray emission spectra, obs. of low energy plasmon satellite bands 4—49493
- X-ray excitation spectrum, solid-state electron gas, Wigner electron lattice 4—60764
- X-ray isochromat and continuous spectra 4—53545
- X-ray K-edge emission spectra, many-electron theory assessment 4—64453
- X-ray $L_{2,3}$ absorption spectrum, cond. band density of states 4—73211
- X-ray photoemission spectra, characteristic energy loss structure 4—67698
- X-ray spectra, bombardment by S ions, target-thickness depend. 4—82780
- X-ray spectra produced by Ne^+ bombard. 4—76328
- X-ray topographic study of isothermally and thermal cyclic annealed specimens 4—67785
- Al (001), electron backscattering rel. to plasmon excitation *(French)* 4—57657

aluminium continued
- Al and Al^{n+}, s, p, d valence states, energy evaluated *(French)* 4—55985
- Al I, Al II, spectra, series perturbations, superposition of configurations calcs. 4—63334
- Al I absorption spectrum, theoretical analysis 4—43734
- Al I autoionization lines in solar spectrum, centre-to-limb profiles for 1929-1941 Å region 4—65065
- Al III, oscillator strength, photoionisation cross section calcs. 4—66292
- Al XII, Al XIII, X-ray spectra in laser plasma, satellites to resonance transitions 4—51959
- Al XII, XIII, electron impact cross sections, rates, Gaunt factors 4—66328
- $Al:^{57}Fe$, computer simulation of electric field gradients and Mossbauer spectra 4—53048
- Al:O, superposed supercond. films, magnetic coupling properties of vortex arrays 4—64167
- Al/steel strip composite, metallographic investigs. of deform. behaviour *(German, English)* 4—82967
- Al/W, solid matrix, discontinuities, dynamic behaviour *(German)* 4—73307
- $Al-Al_2O_3$, composite material, density and mechanical props. 4—82970
- $Al-Al_2O_3-Al$, electron emission, energy distrib. 4—49089
- $Al-Al_2O_3-Sn$ tunnel junction, current-voltage characts. 4—75969
- $Al-Al_2O_3-Sn$ tunnel system with metallic impurities, mag. scatt. obs. *(Russian)* 4—70119
- $Al-Al_3Ni$, composite material, fracture microrelief examination 4—49929
- Al-amorphous GeSe-Al structure, relax. behaviour, model 4—67272
- Al-I-Ag junction barrier, tunnel, Ti paramag. impurities effect 4—60876
- $Al-MgF_2$, double layer mirrors, high transmission triple refl. polariser for Lyman α-radiation 4—65415
- $Al-MgF_2$, light absorbing coatings on glass and metals, vacuum prod. method 4—68674
- $Al-MgF_2$ interference filters, u.v., surface plasmon effect due to roughness 4—51010
- $Al-MgF_2-Al-MgF_2-Al$ type, Fabry-Perot interference filter, transmission in far u.v. 4—58818
- Al-oxide boundary anal. using electron diffraction 4—72411
- Al-sand mixtures, frequency dependence of dielectric properties, 10^2-10^7 c/s 4—49290
- $Al-SiO_2-Si$, injection and conduction mechanisms, pulsed meas. *(French)* 4—60874
- $Al-SiO_2-Si(100)$, m.o.s. struct., self-quenched breakdown regions, SEM obs. 4—75964
- $Al + O_2 \rightarrow AlO + O$, homogeneous gas phase reaction, temp. depend. 1000-1700K 4—73407
- $Al + O_3$, $Al + O_2$ reactions, gas phase, dissoc. energy limits determ. 4—48136
- Al + Si, binary elemental standards for electron microscope microprobe anal. 4—58993
- Al_2^- relative secondary emission intensity, interpretation with ab initio calc. *(French)* 4—52047
- Al^{3+}, in laser-produced plasma, intensity anomalies in extreme vacuum u.v. spectrum 4—72031
- ^{26}Al in lunar soil, primary cosmic rays intensity meas. 4—80422
- Al(100), LEED, surface struct. determ., direct transform-deconvolution method 4—72621
- B-Al composite, B-fibre reinforced, uniaxial compression 4—82969
- B-Al metal matrix composite, initial yield surfaces 4—80087
- $BaTiO_3:Al$, electromechanical props., transverse coupling coeff. 4—49305
- Cu foil and wire, elec. explosion, products condensation and movement *(Russian)* 4—69686
- D-T fuelled fusion reactors, blanket designs using Al structures 4—69377
- GaP:Al, free excitons in luminesc. spectra 4—73183
- Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4—61309
- Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4—61310
- MgF_2-Al alternate layers, interference coatings of low reflectance *(French)* 4—65412
- Nb/Al, duplex layer, long range migration of Nb during anodic oxidation 4—67122
- Nb_3Sn superconductors, Al-clad, cryogenic stability 4—59874
- Si:Al, doped by recoil-atom method, impurity and carrier distrib., and appl. in semicond. technology 4—57717
- Si:Al, electron irradiated, impurity effects on photoluminesc. 4—76305
- β-SiC:Al,N crystals, edge emission, effect of temp. and excitation intensity 4—49443
- $SiO_2:Al$, smoky quartz, paraelec. reson., phonon bottleneck 4—64320
- $SnO_2:Al$, e.s.r., g-values *(Japanese)* 4—82615
- $SrTiO_3:Al$, relative energy level scheme for impurities 4—44866
- ZnS:Al, single crystal, impurity photoplastic effect *(Russian)* 4—82721

aluminium alloys
- *see also aluminium compounds*
- 2024-T351 Al alloy, crack propagation, cyclic deform. at crack tip, necking 4—67838
- age hardened plates, projectile geom. influence on adiabatic shear and target failure 4—45643
- Al-Mg, creep, deformation and initial anisotropy 4—82947
- Alcomax III with dynamic excitation, mag. props. 4—70179
- annealing characteristics, dynamically strain ageable Al alloy 4—73324
- cast, seizure resistance, effect of microstruct. and mech. props. 4—67887
- cast surface composites with Al matrix, microstruct. and wear test data 4—57765
- cavitational surface failure *(Russian)* 4—53718
- composite, B fibre reinforced, tensile failure modes 4—70564
- composite, B reinforced, crippling strength improvement 4—49957
- composite, B reinforced, elastic consts. by u.s. vel. meas. 4—61509
- composite, B/epoxy reinforced, static tensile behaviour 4—80090

aluminium alloys continued

- composite, Borsic reinforced, delamination process, crack length and bond strength effect 4−61519
- composite, Borsic reinforced, dynamic fracture behaviour 4−49961
- composite, Borsic reinforced, elastic-plastic Poisson's ratio 4−61516
- composite, graphite reinforced, liq. phase hot pressed, mech. props. 4−61517
- composite, microprobe analysis of transition zone 4−61524
- crack growth in 2024-T851 alloy, cyclic freq. and corrosive environment effects 4−50115
- crack propagation resistance, preloading and environment influence *(Russian)* 4−53716
- crack propagation under variable amplitude loading, Willenborg retardation model 4−50107
- crack tip opening displacement, difficulties in meas. *(French)* 4−67867
- crack tip plasticity, specimen geom. effect, 7075-T6 alloy 4−45590
- creep at specimen rock at 450°C *(Russian)* 4−53746
- cylindrical shells, integrally ring stiffened, buckling under axial compression 4−82885
- determination of Tl in Al-, Fe- and Ni-base alloys by at. absorpt. method 4−58975
- dispersion strengthened SAP alloys, dislocation emission and sink phenomena as deform. characts. 4−45656
- dispersion strengthening by nitriding in h.p. autoclave *(German)* 4−49781
- Duralumin, quenched, serrated flow 4−76516
- duralumin, u.s. vibration modes in rods *(Russian)* 4−54762
- duraluminium type, spectral emission intensity rel. to cold plastic deform. *(French)* 4−64595
- dynamic yield strength at elevated temps. after pulse heating, 6061-Tb alloy 4−70590
- embrittlement by liq. Ga and brazing of waveguides *(Russian)* 4−80055
- fatigue, low-cycle, crack distrib. in small specimens 4−61454
- fatigue crack growth, compressive overload effects, 7050-T73 alloy 4−50104
- fatigue crack growth, continuous monitoring by acoustic emission 4−45879
- fatigue crack growth rate in AU2GN, Paris law, high temperature tests *(French)* 4−49809
- fatigue crack growth rates, effect of specimen polarisation, 7075-T6 alloy 4−45677
- fatigue crack growth retardation under aircraft spectrum loads 4−45877
- fatigue crack length meas. by NDT 4−50077
- fatigue crack propagation, secondary microcracks, 2024 and 2618 alloys 4−45593
- fatigue crack propagation in AU2GN related to fracture mode *(French)* 4−53762
- fatigue crack propagation model based on inverse hyperbolic tangent function 4−50106
- fatigue striation spacing rel. to cracks *(French)* 4−67868
- fracture and cyclic flaw growth, effect of combined modes loading, 2219-T87 alloy 4−50117
- fracture mechanics, conference, Cadarache, France, November (1973) 4−67861
- fracture parameter J evaluation test method 4−67967
- fracture toughness 4−82942
- fracture toughness and stress corrosion cracking behaviour 4−49742
- fracture toughness meas. 4−70512
- fracture toughness meas. under hydrostatic pressure, Al high resist. alloy *(French)* 4−67865
- fretting fatigue, normal load effects, 7075-T6 alloy 4−49842
- fretting fatigue damage, metallographic analysis, 7075-T6 alloy 4−49843
- liquid, diffusion and permeability of hydrogen, penetration rate meas. method *(Russian)* 4−79925
- molten, wetting of vitreous C 4−79233
- αNi-Al solid solns., minimum creep rate, stress and temp. depend. *(Japanese)* 4−67849
- oxidation, high temp., electronic and ionic cond. of Al_2O_3 4−48865
- powder, prealloyed 7075, extrusion-consolidation variables effect on integrity and strength 4−70530
- precipitation, liquid quenching, phase decomposition 4−64539
- precipitation hardened, neutron irrad. damage 4−43661
- rare earth Al_2, spin wave dispersion relns. determ. by variational method 4−60966
- reinforced with steel wire, explosive-welded, struct. and mech. props. *(Russian)* 4−49938
- reinforced with steel wire, mech. props. and brittleness *(German)* 4−49935
- reinforced with steel wire, phase stability *(Russian)* 4−49937
- rod, with large length/diameter ratio, buckling failure modes on rigid plate impact 4−49861
- sheet, fatigue strength improvement by edge treatment 4−76456
- solubility of hydrogen, quantitative meas. methods 4−49632
- strength in static tension and torsion, deep circumferential grooves influence 4−61460
- sustained load subcritical flaw growth characts. of 2024-T850 alloy 4−50116
- texture and structure correl. with formability 4−45548
- two-phase, containing fibre, tensile behaviour simulation under tensile load *(Japanese)* 4−45630
- welding by electron beam, forces acting on weld pool during melting *(Russian)* 4−70520
- Ag-Al, molten, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
- Ag-Al, rapid growth of single crysts. in solid state using massive transform. 4−61344
- Ag-Al(2.1%), cold-worked, lattice thermal cond., 0.5-4K 4−44640
- Al alloy-steel wire composite, rupture of two-zone intermetallic layer *(Russian)* 4−70560
- Al:Er, dil., exchange and cryst. field parameters from transmission e.s.r. 4−79603
- Al-3d metal, dil., low temp. thermoelec. power, calc. in LSF approx. of Anderson model 4−53084
- Al-3d transition metal compound, phonon resistivity investigation, temp. depend. 4−60771

aluminium alloys continued

- Al-Ag, high energy electron transmission plasma energy loss, obs. of increase with Ag conc. 4−44577
- Al-Ag, network deform. due to GP zones, X-ray scatt. obs. in Bragg spot region *(French)* 4−61366
- Al-Ag, precipitation process obs., G.P. zones *(Japanese)* 4−82843
- Al-Ag, precipitation process obs., particle size distribution, using X-ray scattering *(Japanese)* 4−82844
- Al-Ag, quenched from melt, decomp., products exam. 4−49704
- Al-Ag(14 at.%) alloy, liq. quenched, small-angle X-ray scatt. obs. phase decomp., diffusion 4−70442
- Al-Ag(5.7 at.%) splat-quenching, supersaturated solid soln. struct. 4−79931
- Al-$Al_2Cu(Al_3Ni)$, eutectic alloy, growth crystallography of a single cryst. 4−69738
- Al-Al_3Ni, composite material, fracture microrelief examination 4−49929
- Al-Al_3Ni, unidirectionally solidified eutectic, Bauschinger effect 4−49813
- Al-Al_3Ni composite, impact strength, crystn. rate depend. 4−61523
- Al-Al_3Ni eutectic, directionally solidified, tensile failure 4−49779
- Al-Al_3Ni eutectic, directionally solidified, impurity effects on anomalous growth 4−53659
- Al-Al_3Ni eutectic, directional solidification, Al_2O_3 inclusions role *(Slovak)* 4−79900
- Al-Al_3Ni eutectic composites, stress partitioning between fibre and matrix during tensile deform. 4−45767
- Al-Al_3Ni fibrous composite, mechanism of rupture in tension *(Russian)* 4−53827
- Al-Al_3Ni rod eutectic, fault density and thermal stability, coarsening kinetics 4−76449
- Al-Au(2 wt.%), growth kinetics of platelike precipitates 4−76430
- Al-Be-Mg-Zn quaternary, solidification 4−79910
- Al-Co, soft X-ray emission spectra and electronic states 4−64445
- Al-Cr(0.5 wt.%), precip. during recrystn. 4−79968
- Al-Cu, columnar, solidification microstruct. effect on corrosion behaviour 4−49791
- Al-Cu, dilute, solute-vacancy binding energies, theory 4−52751
- Al-Cu, eutectic, superplastically deformed, quantitative texture meas. 4−61362
- Al-Cu, eutectic crystn. 4−76424
- Al-Cu, fatigue cracks of precipitates *(German)* 4−61471
- Al-Cu, force constant ratio evaluation 4−82248
- Al-Cu, Hall effect and resist. meas., comparison with two band model 4−60782
- Al-Cu, liq. phase sintering 4−80058
- Al-Cu, oxidation kinetics at phase boundary 4−57745
- Al-Cu, soft X-ray emission spectra and electronic states 4−64445
- Al-Cu, splat-quenching, glass substrate effect on cooling rate 4−79991
- Al-Cu, unidirectional solidification, change of fraction solidified *(Japanese)* 4−67761
- Al-Cu (4 wt.%), neutron irrad. effects on precip. 4−76443
- Al-Cu (4.4 mass %), solute depleted zone effect on stress-corrosion susceptibility 4−57752
- Al-Cu alloy, thinning technique for transmission electron microscope obs. 4−82849
- Al-Cu system, cellular and dendritic growth, expt. 4−49648
- Al-Cu system, cellular and dendritic growth, theory, comparison with expt. 4−49649
- Al-Cu with duplex dendritic struct., casting effect on mech. behaviour 4−49790
- Al-Cu-Si, Hall effect and resist. meas., comparison with two band model 4−60782
- Al-Cu-Si film, electromigration effects 4−57186
- Al-Cu-Sn, ageing acceleration at high temps., aged struct. obs. *(Japanese)* 4−64578
- Al-$CuAl_2$ aligned lamellar eutectic, Zn diffusion and transform. processes 4−45517
- Al-Cu(17.3 at.%), splat-quenching and noncryst. phase form. 4−61419
- Al-Cu(3.7 wt.%), solidification microstruct. effect on corrosion behaviour 4−49775
- Al-Cu(4 wt.%), antiphase domain boundaries within θ' and η precipitates 4−67792
- Al-Cu(4 wt.%), growth kinetics of platelike precipitates 4−76430
- Al-Cu(4 wt.%), repeated θ' precip. at prismatic dislocation loops 4−49695
- Al-Cu(4 wt.%) film, microprobe technique for nondestructive determ. of Si conc. profile 4−77305
- Al-Cu(4%), W wire reinforced, metal-matrix/metal fibre composites, crack propag., strength, toughness 4−73368
- Al-Cu(4%), W wire reinforced, metal-matrix/metal fibre composites, crack propag., fatigue behaviour 4−73369
- Al-Cu(4.5 wt.%), solute redistrib. in duplex dendritic struct. 4−49696
- Al-Cu(4.5 wt.%) morphology of solid/liquid interfaces and solute distribs. *(Japanese)* 4−45497
- Al-Cu(4.5 wt.%). solidification substruct. and solute distribs. at solid/liq. interface, quenching effects *(Japanese)* 4−45503
- Al-Fe, dil., Fe diffusion, activation energy, resist. obs. 4−67068
- Al-Ge, metastable phases 4−73284
- Al-Ge(4%), struct. changes during decomp. *(Russian)* 4−67768
- Al-In, isochronal recovery of quenched in elec. resist. 4−57751
- Al-Li, radiation generated prismatic loops around gas bubbles 4−69826
- Al-M-B alloys, M=Ti, V, Zr, Nb, Hf, Ta, grain refinement, segregation and solidification interval effects 4−73311
- Al-Mg, dilute, solute-vacancy binding energies, theory 4−52751
- Al-Mg, dislocation loop development, quenching and annealing 4−56754
- Al-Mg, extension rate and temp. influence on mech. props. and microstruct. 4−67882
- Al-Mg, high temp. deform., dip test applic. to internal stress meas. *(Japanese)* 4−45638
- Al-Mg, high temp. steady-state creep, activation parameters 4−64585
- Al-Mg, high-angle grain boundaries, annealing of dislocations 4−82862

aluminium alloys continued

- Al-Mg, network deform. due to GP zones, X-ray scatt. obs. in Bragg spot region *(French)* 4−61366
- Al-Mg (7.2 mass %), solute depleted zone effect on stress-corrosion susceptibility 4−57752
- α-Al-Mg$_2$Si eutectic, spiral growth 4−79899
- Al-Mg$_2$Si(1.3 wt.%), two-step ageing behaviour *(Japanese)* 4−45637
- Al-Mg$_2$Si(1.35 at.%), reversion treatments effect on precip. mechanisms 4−45563
- Al-Mg-Si, plastic deform. effect on precip. 4−64565
- Al-Mg-Si, serrated yielding, strain effect on ageing time 4−53703
- Al-Mg-Si, strain distrib. during inhomogeneous deform. 4−49815
- Al-Mg-Si, weakly precip. hardening, low temp. thermomech. treatment 4−61440
- Al-Mg(5.5 at.%) solid soln., effective stress in steady state creep 4−53702
- Al-Mg(5.83 wt.%), discrete creep during repeated static loading 4−49830
- Al-Mn, nonequil. crystn. influence on UTS *(Russian)* 4−53742
- Al-Mn, soft X-ray emission spectra and electronic states 4−64445
- Al-Mn(1.3 wt.%), precip. during recrystn. 4−79968
- Al-Mn(2.9 wt.%), Al$_6$Mn precip., activation energy determ. 4−53689
- Al-Mn(3 wt.%) rapidly solidified structures, solidification rate and thickness effects *(Japanese)* 4−67763
- Al-Ni, soft X-ray emission spectra and electronic states 4−64445
- Al-Ni-Si-Mn bronze, magnesium effect on struct. and mech. props. 4−61442
- Al-Pb (5 wt.%) alloy, obs. of annealing of liquid Pb inclusions in Al matrix 4−70493
- Al-Pt solid soln., non-equil. phase behaviour 4−49651
- Al-Si, crystallographic orientation relationships between primary Si and Al halo crysts. *(Japanese)* 4−61381
- Al-Si, crystn. of Si, effect of Na on eutectic modification 4−45495
- Al-Si, dil., quenched, clustering processes, elec. resist. obs. 4−67800
- Al-Si, Hall effect and resist. meas., comparison with two band model 4−60782
- Al-Si, hypereutectic primary silicon refining treatment effect on strength *(Korean)* 4−76474
- Al-Si-Cu-Mg-Ni piston alloy, copper influence on microstruct. and mech. characts. *(German)* 4−61398
- Al-Si-Mg, occurrence of metastable β'' phase 4−70469
- Al-Ti, peritectic transformations, equil. and non-equil. effects 4−61330
- Al-transition metal, soft X-ray absorption near $L_{2,3}$-edge 4−70374
- Al-Zn, dislocation loop development, quenching and annealing 4−56754
- Al-Zn, equil. diagram parameters, thermal and quantitative thermal analysis 4−49645
- Al-Zn, metastable rhombohedral phase, solvus line determ. 4−49635
- Al-Zn, monoeutectoid, liq. quenched, decomp. mode and microstruct. 4−49647
- Al-Zn, network deform. due to GP zones, X-ray scatt. obs. in Bragg spot region *(French)* 4−61366
- Al-Zn, partitioning of alloying elements during discontinuous precip. 4−53688
- Al-Zn, solid soln., rhombohedral phase formation in slow cooling 4−53646
- Al-Zn, stable and metastable equilibria, solvus line determ. 4−49636
- Al-Zn, two-step ageing, GP zone final size 4−61443
- Al-Zn (38 at.%), isochronous phase transform., 273K-643K 4−76408
- Al-Zn alloy, ageing, analysis, Johnson-Mehl eqn. applic. *(Polish)* 4−64567
- Al-Zn alloy, phase transform. during ageing, hardness variations, effect of Mg *(Polish)* 4−67746
- Al-Zn alloy, thermodynamic props. and struct. of precipitates *(Polish)* 4−67770
- Al-Zn and Al-Cu-Zn unidirectional solidification, microstruct. and plane to cell transition *(Korean)* 4−76423
- Al-Zn eutectic, unidirectionally solidified, cellular struct. *(Korean)* 4−67791
- Al-Zn-Ag alloy, precipitation characts., clustering rate-reversal temp. and solute-vacancy interac. 4−49680
- Al-Zn-Ge, Ge influence on Guinier-Preston zone formation rate 4−70468
- Al-Zn-Mg, grain boundary sliding role in superplastic deform. 4−67844
- Al-Zn-Mg, growth kinetics of Guinier-Preston zones 4−79958
- Al-Zn-Mg, multiple ageing, structural changes 4−45562
- Al-Zn-Mg, precip. hardening high-strength, extended ductility 4−49770
- Al-Zn-Mg, SCC vel. and grain boundary precipitates 4−80007
- Al-Zn-Mg, stress corrosion susceptibility, heat treatment influence 4−45648
- Al-Zn-Mg, stress corrosion of normal and welded specimens *(Russian)* 4−73317
- Al-Zn-Mg, stretched zone size correl. with fracture toughness 4−67821
- Al-Zn-Mg, ternary, Guinier-Preston zones, X-ray diffuse scatt. 4−49735
- Al-Zn-Mg, trace Ag additions influence on stress corrosion 4−49743
- Al-Zn-Mg alloys, stress corrosion cracking, microstructure 4−70594
- Al-Zn(15 at.%), random fluctuation effects on spinodal-like decomp. 4−53645
- Al-Zn(15 wt.%), nucleation and spinodal decomp. processes separation by mag. susceptibility meas. *(French)* 4−49671
- Al-Zn(29 at.%), metastable rhombohedral R-phase form., quench rate depend. 4−49693
- Al-Zn(6.8 at.%), G.P. zones formed by nucleation and growth, small-angle X-ray scatt. 4−79965
- Al-Zr, nonequil. crystn. influence on UTS *(Russian)* 4−53742
- Al-Zr dispersion alloy, recrystallisation, grain size effect 4−64566
- Al$_{0.1}$Cu$_{0.9}$, coherent pot. approx., calc. of local phonon modes 4−52841
- AlMg, dilute alloy, impurity screening, one electron model *(French)* 4−44864

aluminium alloys continued

- AlMg, dilute resistivity between 0 and 100°C generalised model approach 4−82388
- AlMn, dilute, resistivity between 0 and 100°C generalised model approach 4−82388
- Al$_{50}$Ni$_{50-c}$Fe$_c$, isomer shifts of Fe, Mossbauer effect 4−79650
- AlSi silumins, modified and unmodified, spatial distrib. of eutectic silicon *(German, English)* 4−49720
- Al$_{10}$V, Einstein solid, elec. resist. calcs. 4−60770
- Au-Al couples, diffusion form. of intermetallic cpds. using evap. Al films *(Japanese)* 4−45502
- Be-Al(38 wt.%), mech. props., temp. and strain rate depend. 4−64575
- Cd-Al-Sn, liquid eutectic, atomic distrib. *(Russian)* 4−56598
- CeAl$_3$, dense Kondo system, singlet ground state form. at low temp., specific heat meas. 4−49158
- CeAl$_3$, transition to mag. state without mag. scatt. 4−60960
- Ce$_{1-x}$La$_x$Al$_3$, Kond sideband effects in Seebeck coefficient 4−79332
- Co-Al, dil., core and cond. electron polarization fields at impurity ^{57}Fe nucleus, Mossbauer obs. 4−64286
- Co-Fe-Ni-Al, mag. props., effect of heat treatment and mag. tempering 4−64239
- Co-Fe-Ni-Al-Ti, annealed, titanium effect on β and β_2 phase props. 4−61441
- Co-Ni-Al-Cu-Ti, nonmetallic inclusions influence on solidification behaviour 4−64559
- CoAl, ^{27}Al Knight shift and mag. susceptibility 78-1100K *(Russian)* 4−79618
- Co$_{1+x}$Al$_{1-x}$, $x<5\times10^{-3}$, specific heat meas. at $T\simeq10K$, rel. to Kondo effect *(French)* 4−79498
- CrAl$_7$, n.m.r., mag. susceptibility and sp. ht. obs., antiferromag. to paramag. transition 4−64278
- Cu-Al, eutectoid, isothermal and isovelocity pearlite growth kinetics 4−49657
- Cu-Al, grain boundary sliding meas. 4−82850
- Cu-Al, interaction with UO$_2$, eff. of Zr addition 4−43651
- Cu-Al, internally oxidized, Al$_2$O$_3$ particle struct. obs. 4−49733
- Cu-Al, Morse potential appl. 4−44617
- γ-Cu-Al, slip in intermediate phases 4−67795
- α-Cu-Al, surface stress distrib. due to group of edge dislocations on oblique glide plane, theory 4−52762
- α-Cu-Al, surface stress distrib. due to array of 60° dislocations on oblique glide plane, theory 4−52763
- Cu-Al and Cu-Al-Zn, time law interpret. of growth of β grain size and martensite plates 4−79898
- Cu-Al bronze containing Fe particles, dynamic recovery and recrystn. 4−49734
- Cu-Al FCC alloys, hot extrusion texture determ. by neutron spectroscopy 4−53783
- Cu-Al:Co liquid alloy, impurity susceptibility 4−45094
- Cu-Al-Co alloys, influence of vacancies on nucleation of new phase *(Russian)* 4−73297
- Cu-Al-Fe aluminium bronze, cavitation at grain and phase boundaries during superplastic flow 4−45652
- Cu-Al-Ni, (14.5% Al, 1.6% Ni), emission of sound during thermoelastic martensitic reaction 4−57729
- Cu-Al-Ni, single interphase martensitic transform. 4−45513
- Cu-Al-Ni, stress-induced acicular β_1' martensite obs. 4−79970
- Cu-Al-Ni, stress-induced acicular γ' martensite obs. 4−79971
- Cu-Al-Ni, struct. depend. of superelasticity 4−76426
- Cu-Al-Ni thermoelastic martensite, morphology and crystallography using phenomenological theory 4−49676
- Cu-Al-Ni thermoelastic martensite, with Cu$_3$Ti type ordered struct., twinning 4−49677
- Cu-Al-Zr, ageing mechanism *(Russian)* 4−49682
- Cu-Al(Fe), dilute, mag. susceptibility meas. 4−45102
- Cu-Al(10 at.%), partial dislocation structs., electron microscope obs. 4−82878
- Cu-Al(10%), cold-worked, lattice thermal cond., 0.5-4K 4−44640
- Cu-Al(3 wt.%) single crysts., friction stress on individual dislocations 4−49728
- Cu-Mn-Al, Heusler alloys, effect of antiphase boundaries on mag. props. 4−45142
- Cu-Mn-Al alloys, magnetisation and coercive force *(Japanese)* 4−45150
- Cu$_2$Mn$_{0.9}$Al$_{0.81}$ Heusler alloy, β phase decomp. on heat treatment, precip. phenomena *(French)* 4−45531
- ErAl$_2$, cubic, mag. struct., neutron diffr. obs. 4−49181
- Fe-Al, ^{27}Al Knight shift and mag. susceptibility, 78-1100K *(Russian)* 4−79618
- Fe-Al, antiphase domain struct. during annealing, electron microscope obs. 4−53678
- Fe-Al, application of X-ray diffuse scattering to the calculation of the equilibrium diagram 4−63896
- Fe-Al, Fe plasma bunches interaction with Al surfaces, alloy form. *(Russian)* 4−53635
- Fe-Al, hydrogen diffusion parameters *(Russian)* 4−53719
- Fe-Al, ordering kinetics 4−49678
- Fe-Al (3.25 wt%), cold rolled, grain growth modes, with and without dopants 4−70511
- Fe-Al$_2$O$_3$ dispersion alloy, recrystallisation, grain size effect 4−67810
- Fe-Al-N, neutron irradiation effects, internal friction and torsion tests 4−76464
- Fe-Al(40 at.%), recovery of irrad. produced point defects, 40K *(French)* 4−76450
- Fe-Al(40 wt.%), recovery of point defects produced by cold working *(French)* 4−80042
- Fe-Ni-Al, tensile fracture rel. to microstruct. 4−45571
- Ga-Al-As, semiconducting, ternary melting diag., thermodynamic calc. 4−48738
- Hf-Al-M, (M=group VIII metal), ternary Laves phases 4−63891
- LaAl$_2$:Gd, mag. glass system, sp. ht. meas. in temp. range 0.55 to 10K 4−53234
- La$_3$Al(Ce), Kondo superconductor, mag. impurity effects on supercond. props. 4−76009
- (La$_{0.9936}$Ce$_{0.0064}$)Al$_2$, sp. ht. meas., evidence for intermediate temp. supercond. 4−49119

aluminium alloys continued
- $(La_{1-x}Ce_x)Al_2$, supercond. normal cond. transition, obs. below transition temp. 4−57195
- LiAl, cryst. energy, order-disorder transition temp. calc. 4−60587
- $LuAl_2$, Seebeck coeff. meas., 4-300K 4−82392
- $LuAl_3$, Seebeck coeff. meas., 4-300K 4−82392
- Mg-Al, stress role in stress corrosion cracking 4−49754
- Mg-Al, superconducting transition temp., Mg content depend. 4−53172
- Mg-Al and Mg-Al-Mn, phase comp. influence on corrosion behaviour *(Russian)* 4−45714
- Mg-Al-Zn-Mn, aged, precipitate morphology and orientation relationships 4−64542
- Mg-Li-Al, $\alpha+\beta$ type, stability of mech. props. rel. to thermal and thermomech. treatment *(Russian)* 4−53743
- Nb-Al-Ge, metallography and supercond. 4−49109
- Nb-Al-Zr, phase diagram and supercond. *(Russian)* 4−79437
- $Nb_3(Al,Ge)$, A15 type, long range order behaviour 4−45528
- $Nb_3(Al,Ge)$, depression of supercond. transition temp. after neutron irrad. 4−60907
- Nb_3Al, depression of supercond. transition temp. after neutron irrad. 4−60907
- Nb_3Al, low temp. heat capacity meas., martensitic transform. obs. 4−57728
- Nb_3Al, superconducting film, transition temp. and crit. current density, annealing effects 4−72902
- $Nb_3(Al\text{-}Ge)$, A15 supercond. with high T_c, lattice instability and mag. susceptibility *(Russian)* 4−82837
- $Nb_3Al_{0.8}Ge_{0.2}$, strong-coupling saturation of T_c 4−57200
- $Nb_3Al_{1-x}Ge_x$, n.m.r. of ^{27}Al and ^{93}Nb *(Russian)* 4−70232
- Nb−Al−Ge bulk samples, current carrying capacities in steady mag. fields 4−79451
- $NdAl_2$, high field magnetization, cryst. field theory 4−73000
- $NdAl_2$, mag. excitons, dispersion relations 4−70172
- (Ni,Cu)Al, β-phase, rigid band model approach to electron transport props. 4−67197
- Ni-Al, dil., core and cond. electron polarization fields at impurity ^{57}Fe nucleus, Mossbauer obs. 4−64286
- Ni-Al, high-angle grain boundaries, annealing of dislocations, hot-stage electron microscopy meas. 4−82862
- Ni-Al, void form. during ion irrad., simulation of neutron damage 4−43668
- Ni-Al, with modulated struct., aged, recovery in hardness *(Russian)* 4−80017
- Ni-Al (14 at.%), state of coherent precip. plastic deform. *(Russian)* 4−67780
- Ni-Al and Ni-Cr-Al, coarsening of γ' precipitates at large vol. fractions 4−61358
- Ni-Al(6.3 at.%), ordering energy depend. on interatomic spacing *(Russian)* 4−53648
- Ni-Al(6.38 wt.%), ageing effect on microstruct. and tensile props. 4−45704
- Ni-Cr-Al system, metallographic analysis of γ' phase *(German)* 4−49717
- Ni-Cr-Ti-Al, brazed in vacuo with Pd-Ni, microstruct. obs. with hot stage microscope *(German, English)* 4−64561
- Ni-Cr(20 wt.%)(−Co(35 wt.%))-Al(4 wt.%) alloy, containing γ' particles, high temp. steady state creep, mech. *(Japanese)* 4−45627
- Ni-Cu-Al, paramag. props. investigation 4−79497
- $Ni\text{-}Ni_3Al\text{-}Ni_3Ta$, ternary eutectic, directionally solidified composites, mechanical props. 4−70568
- NiAl, ^{27}Al Knight shift and mag. susceptibility, 78-1100K *(Russian)* 4−79618
- NiAl coatings, effects of diffusion on Al depletion and degradation 4−61418
- NiAl-Fe,, dil., mag. impurity states, mag. props. and n.m.r. obs. 4−64188
- Ni_3Al, cold worked, anomalous recovery effects during isothermal annealing 4−76503
- Ni_3Al, thermal expansion near ferromag. crit. conc., low temp. 4−72579
- $Ni_3Al\text{-}Ni_3Nb$ eutectic, structural defects and Ni diffusion *(Russian)* 4−49640
- $(NiAl)_{100-c}Fe_c$, isomer shifts of Fe, Mossbauer effect 4−79650
- $Ni_3(Fe_{0.76}Al_{0.24})$, antiphase domain thickness distrib., calc. from X-ray data *(French)* 4−76442
- $Ni_{1-x}Mo_xAl$, heat capacity, metastable phase precip., 400-900K, lattice disordering *(Russian)* 4−45535
- Np-Al system, cryst. struct. of intermediate phases 4−69750
- $NpAl_3$, magnetisation, hyperfine field, ferromag. order 4−64211
- $PrAl_3$, cryst. elec. field influence on sp. ht. and resistivity 4−67194
- $ScAl_{2(3)}$, Knight shift, contact and orbital contribs., 78-300K *(Russian)* 4−49247
- $TbAl_2$, elastic constants by ultrasonic measurements 4−49764
- $TbAl_2$, magnetocrystalline anisotropy in single crystals 4−45129
- Ti-Al, α and $\alpha+\beta$ type, flow stress thermal component determ. in strain rate cycling tests *(Japanese)* 4−61428
- Ti-Al, hydrogen embrittlement role in stress corrosion cracking 4−49753
- Ti-Al single crysts., crit. resolved shear stress for basal slip 4−53768
- Ti-Al-Fe and Ti-Al-Cr-Fe, heat treatment and mech. props. 4−73331
- Ti-Al-Mo-V, stress corrosion cracking in chloride containing liq. environment 4−61422
- Ti-Al-Mo-V, stress corrosion cracking, effect of H_2 4−82328
- Ti-Al-V, crack closure in fatigue 4−67816
- Ti-Al-V, crack growth, cyclic freq. and corrosive environment effects 4−50115
- Ti-Al-V, fatigue crack growth, compressive overload effects 4−50104
- Ti-Al-V, fatigue crack growth, stress ratio influence, test procedure 4−57798
- Ti-Al-V, fatigue crack growth rates in air and vacuum environments 4−82909
- Ti-Al-V, fatigue crack propagation, secondary microcracks 4−45593
- Ti-Al-V, fatigue strength improvement by microstruct. control 4−61424
- Ti-Al-V, fracture and cyclic flaw growth, effect of combined modes loading 4−50117

aluminium alloys continued
- Ti-Al-V, fretting fatigue, normal load effects 4−49842
- Ti-Al-V, fretting fatigue damage, metallographic analysis 4−49843
- Ti-Al-V, phase transforms. and effects on hardness during soln. treatment and ageing 4−67757
- Ti-Al-V, sustained load subcritical flaw growth characts. 4−50116
- Ti-Al-V, TA6V, microstruct. characts. as function of thermomech. treatments in $\alpha+\beta$ region *(French)* 4−49710
- Ti-Al-V fatigue crack growth delay, room temperature 4−67835
- Ti-Al-V plate, heat treatment and microstruct. effects on tensile and fracture props. 4−49849
- Ti-Al-V stress corrosion cracking in NaCl aqueous soln., obs. 4−53749
- Ti-Al-V-Sn, TA6V6E2, microstruct. influence on mech. props. *(French)* 4−49796
- Ti-Al-V-Sn-Zr, TA6V6E2-Zr, transforms. during continuous cooling *(French)* 4−49666
- Ti-Al-Zr-W-Si, creep resist. and embrittlement 4−64551
- Ti-Al(0.87 at.%), Schmid's law failure for prismatic slip 4−53767
- Ti-Al(7.4 at.%), grain size effect on strength 4−80046
- Ti-Al(8 wt.%), surface slip topography rel. to stress corrosion cracking 4−61411
- Ti-Mn-Al, with elevated oxygen content, struct. and mech. props. 4−76480
- Ti-Zr-Al, with high oxygen content, mech. props. and thermal stability 4−76486
- TiAl, ordered, deform. substruct. 4−79937
- TiAl, ordered, second order transition, influence of Nb *(Russian)* 4−79903
- UAl_2 precipitate distribution, adjusted U fuel bars, neutron irradiation effect on swelling of α-U 4−81626
- V-Al, electronic states and supercond. props., comp. effects 4−64152
- V-Al, nucl. spin-lattice relax. time and Knight shift meas. 4−79622
- $YbAl_2$, Seebeck coeff. meas., 4-300K 4−82392
- $YbAl_2$, valency of Yb, elec. resist., mag. susceptibility, and Mossbauer obs. *(French)* 4−61074
- $YbAl_3$, Seebeck coeff. meas., 4-300K 4−82392
- Zn-Al, eutectic, room temp. superplasticity *(German)* 4−73335
- Zn-Al, eutectoid, enthalpy of transform. and interfacial enthalpy 4−53643
- Zn-Al, eutectoid, ternary addition effects on transform. and microstruct. superplastic deform. 4−45496
- Zn-Al, eutectoid reaction control 4−49646
- Zn-Al, liq., density meas. 4−64523
- Zn-Al, superplastic, stretch forming *(Japanese)* 4−45727
- Zn-Al, tensile instability following yield drop 4−49814
- Zn-Al eutectoid, superplastic, relax. behaviour *(French)* 4−49797
- Zn-Al-Cu, uniaxially stressed, X-ray elastic consts. *(German)* 4−53779
- Zn-Al(0.16 at.%), intergranular failure role of solutes, isothermal and thermal cycling creep 4−82896
- Zr-Al-M, (M=group VIII metal), ternary Laves phases 4−63891
- Zr_3Al, corrosion by CO_2 and CO_2-water vapour mixture 4−72000
- Zr_3Al-based alloys, oxidation process in CO_2 and CO_2-water vapour mixtures 4−82951

aluminium compounds
- *see also aluminium alloys; ruby*
- abrasive grinding, chemical bonding of Al_2O_3 to Ni 4−67889
- alumina, solid and powder, impulse generation induced by pulsed electron beam 4−63839
- aluminates and alumino-silicates, growth by vapour-flux process 4−79873
- aluminophosphate glasses, fluorine effect on microstruct., γ-irrad. induced e.p.r. line intensities 4−67423
- aluminosilicate glass, quantum chem. analysis of structural units 4−60413
- andulusite:Fe^{3+}, e.s.r. rel. to microwave maser applic. *(Russian)* 4−53294
- borosilicate glass fibre, contact angle of wetting by polyethylene 4−49928
- corundum, deformational aftereffect arising from diffusional creep *(Russian)* 4−69849
- corundum with TiO_2 solid soln., disordering model 4−53088
- epidote, $Ca_2Al_2(Fe, Al)Si_3O_{12}(OH)$, ^{27}Al n.m.r. obs. 4−79606
- $Ga_{1-x}Al_xAs\text{-}GaAs$, double heterojunction laser, optically induced defect nature 4−77683
- oxide, weakly absorbing thin films, opt. const., theoret. determ. 4−64358
- pyrophyllite characts. w.r.t. use as high press. medium 4−54857
- sapphire, single cryst., thermally stimulated conductance radiation dosimeter, dose response 4−80769
- sapphire, thermal expansion, 20-800°C, precision high-temp. X-ray determ. 4−60629
- $Al\text{-}Al_2O_3$, composite material, density and mechanical props. 4−82970
- $Al\text{-}Al_2O_3\text{-}Al$, electron emission, energy distrib. 4−49089
- $Al\text{-}Al_2O_3\text{-}Al$, m.i.m. system, VA characts., relation of leakage and emission currents 4−70079
- $Al\text{-}Al_2O_3\text{-}Sn$ tunnel junction, current-voltage characts. 4−75969
- AlAs, energy gaps from photoluminesc. spectra 4−48909
- AlAs, free exciton impurity interaction, optical absorpt. obs., wavelength modulation technique 4−79764
- $AlBr_3$, elec. field gradient tensor and n.q.r. freq. calcs. 4−82632
- Al_2Br_6/Al_2Cl_6 eutectic mixtures, corrosion resistance of low-alloyed steels *(Russian)* 4−45706
- $AlBr_3(Cl_3)(I_3)$ vapours, i.r. absorpt. spectra, vibr. freqs. 4−69489
- $AlCl_3$, bond angle determ. 4−56054
- $AlCl_3$, effect on growth of {101} faces of $NH_4H_2PO_4$ from aq. soln. 4−75467
- AlD_4, bond orbital anal. of deuteron quadrupole coupling consts. 4−66380
- AlF, gas, electronic spectra, 3800-11000 Å, rot. anal. 4−60057
- AlF, mol., electronic struct., Hartree-Fock calcs. 4−74960
- AlF_2^-, AlF_4^-, heats of form., electron affinities determ., effusion-mass spectrometric method 4−78507
- AlF_3 film, dielect. props. and cond. 4−53154
- AlF_6^{x-}, X-ray electron spectra, valency levels *(Russian)* 4−45371
- $Al_{1-x}Ga_xAs$, lattice reflection spectra calc. by modified random-element-isodisplacement model 4−61157

aluminium compounds continued
$Al_xGa_{1-x}As$, electron beam pumped laser, parameters in visible spectrum 4–81339
$Al_xGa_{1-x}As$, electroreflectance, impurity inclusions influence, comp. depend. *(Russian)* 4–67604
$Al_xGa_{1-x}As$, liq. phase epitaxy on GaP *(Russian)* 4–45439
$Al_xGa_{1-x}As$, optical orientation of spins of free and bound electrons 4–79793
$Al_xGa_{1-x}As$, p-n junctions from mol. beam epitaxial layers 4–57163
$Al_xGa_{1-x}As$ heterojunction electroluminescent diode, operating life, rel. to lasing props. 4–73191
$Al_xGa_{1-x}As$:Ge, electron diffusion length, comp. depend. 4–60810
$Al_xGa_{1-x}As$:Ge, Sn epitaxial layer, elec. and optical props. rel. to semicond. lasers 4–57095
p-$Al_xGa_{1-x}As$:Ge-n-$Al_yGa_{1-y}As$:Te, heterojunction l.e.d., electrolum. kinetics 4–76319
$Al_xGa_{1-x}As$:Si l.e.d., electrolum. spectra in transition range between direct and indirect band struct. 4–67662
$Al_xGa_{1-x}As$/GaAs double heterostructure laser material, dark-line degradation sites, etching and microscopy obs. 4–51606
$Al_xGa_{1-x}As$-$Al_yGa_{1-y}As$, p-n heterojunction, on GaAs substrate, $(y>x)$, electrolum. characts. 4–49468
$Al_xGa_{1-x}As$-GaAs, DH laser material, fluorescence deterioration after microscopic damage 4–57591
$Al_xGa_{1-x}As$-GaAs-$Al_xGa_{1-x}As$, thin heterostruct., quantum states of trapped carriers 4–79407
$Al_xGa_{(1-x)}As$, substrate, SiO_2 thin film deposition, and Auger anal. 4–57720
$Al_xGa_{1-x}P$, epitaxially grown, donor-acceptor pair and bound exciton recomb. 4–73179
$Al_xGa_{1-x}P$ solid solns., epitaxial film, forbidden band width determ. from photoluminesc. spectra 4–67657
$Al_xGa_{1-x}Sb$, growth of film by liquid phase epitaxy with temp. gradient 4–45481
AlH, virial partitioning of charge distributions and properties of diatomic hydrides 4–74952
$Al_xIn_{1-x}Sb$ alloys, preparation, electroreflectance spectra 4–76272
AlN, cryst., AO pots. of Al and N determ. 4–69983
AlN, electroluminescence, technology and applications *(Czech)* 4–64439
AlN, film, props. rel. to solid-state device appls. 4–45463
AlN, obs. of elec. cond. with temp., 700-1000 degrees C 4–48973
AlN, polycryst., optical props. meas. between 0.10 and 25 μ 4–45260
AlN, positron lifetime spectra, temp. depend. 4–48647
AlN, supercond. obs. in bistable resist. devices, 1.5-2.5K 4–57221
AlN, thermal expansion, 20-800°C, precision high-temp. X-ray determ. 4–60629
AlN encapsulation dielectric on ion-implanted GaAs 4–53616
AlN epitaxial layers, on corundum, vapour deposition, epitaxial relations and piezoelec. coupling 4–49565
AlN:Mn, cathodic luminesc. *(Russian)* 4–45367
AlN:O, luminesc. of O impurity centres 4–79776
$Al(NO_3)_3.9H_2O:F^{3+}$, Mossbauer effect h.f.s. variation with direction of applied magnetic field 4–49271
AlO, dissociation energy from equilibria in flames *(German)* 4–52241
AlO, ground and excited states, MC SCF calcs. 4–74942
Al_2O, ab initio versus CNDO potential surface calcs., mol. struct. 4–52053
Al_2O, i.r. absorpt. spectral investig. rel. to impurities in matrix 4–43847
Al_2O, mol. struct., electron diffr. investig. 4–69447
Al_2O glass content, 15 wt. % Na_2O; also CaO and MgO, Tb^{3+} activated luminesc. 4–70344
$Al_2O:{}^{18}O$, matrix-isolated, i.r. spectra, isotope effects, diffusion anal., dimerisation investig. 4–69487
γ-Al_2O_3, adsorpt. of H_2S, methanethiol, ethanethiol, dimethyl sulphide investig., heats of adsorpt. determ. 4–52987
Al_2O_3, adsorption on W, field electron emission changes, decomposition products 4–64482
Al_2O_3, Al_2O_3:Fe, paramag. hole centre characterisation, optical and e.p.r. absorpt. meas. 4–70329
Al_2O_3, alumina, acoustic emission meas. during crack propag. 4–67912
Al_2O_3, alumina, adsorption of benzene molecules, entropy and mobility 4–52982
Al_2O_3, alumina, amorphous vacuum deposited films, thickness depend. of strength *(Russian)* 4–53740
Al_2O_3, alumina, delayed failure and ageing in water and physiological media 4–61482
Al_2O_3, alumina, dispersion in Cu single crysts., effect on fatigue hardening 4–53671
Al_2O_3, alumina, hot pressed, annealing effect on fracture toughness, strength and microstruct. 4–49891
Al_2O_3, alumina, humidity sensors, practical considerations *(French)* 4–51181
Al_2O_3, alumina, metastable, crystn. in presence of V_2O_5 4–64601
Al_2O_3, alumina, physical density meas. by optical method 4–59013
β-Al_2O_3, alumina, polycryst., Na ion cond. mechanism *(Japanese)* 4–69936
Al_2O_3, alumina, pore growth during initial sintering stages 4–53818
Al_2O_3, alumina, powder spheroidisation, powder flow rate meas. 4–80149
Al_2O_3, alumina, powders, repeated pressing effect on sintering *(Japanese)* 4–49917
Al_2O_3, alumina, sintered bodies, microcrack form., stress intensity factor and healing processes *(German)* 4–45731
Al_2O_3, alumina, sliding friction behaviour, chemomech. control 4–61489
β-Al_2O_3, alumina, strength and fracture mechanisms 4–61499
Al_2O_3, alumina, suspension, flowing along horizontal duct following vertical riser, press. distrib. 4–44150
Al_2O_3, alumina, with NiO and ZnO additives, high temp. mech. props., conc. and grain size depend. *(German)* 4–49878
β-Al_2O_3, alumina electrolyte material, dislocation behaviour 4–61492
Al_2O_3, alumina whiskers, tensile fragmentation obs. 4–60715
Al_2O_3, aluminia, cyclohexane adsorption, weak interaction 4–56972

aluminium compounds continued
Al_2O_3, anodic film, environmental pH, impedance, porosity 4–44806
Al_2O_3, anodic-spark-deposited coatings, polymorphic phases 4–64611
Al_2O_3, calcination preparation of high purity oxide *(French)* 4–45756
Al_2O_3, cationotropic, adsorpt. of methyl alcohol, toluene, H_2O and acetic acid, mag. study 4–69957
Al_2O_3, chemisorption of phenol and hydroquinone, obs. using inelastic electron tunnelling spectroscopy 4–72636
γAl_2O_3, chlorinated hydrocarbon, heat of absorpt. on porous γ-alumina 4–64722
Al_2O_3, corundum, direct determ. of Na by flame photometry using arc and flame source 4–62597
α-Al_2O_3, corundum, enthalpy, heat of fusion and m.p. rel. to calorimetric standards 4–63902
Al_2O_3, corundum, etching of surfaces with molten V_2O_5 4–64609
Al_2O_3, corundum, fibrous mullite single crystal incorporation, thermal shock resist. 4–49906
Al_2O_3, corundum, high temp. creep, pure bending 4–57761
Al_2O_3, corundum, i.r. absorpt., 77-2075K *(French)* 4–73111
Al_2O_3, corundum, orientation of single crysts., laser appl. *(Russian)* 4–66795
Al_2O_3, corundum, single-phase components, joint form. during solid-phase welding 4–49903
Al_2O_3, corundum powder-filled epoxy resin composite, thermal cond., 2-300K 4–53835
Al_2O_3, cryst. and amorphous, soft X-ray spectra, obs. of Al 2p level 4–49492
α-Al_2O_3, e.p.r. and spin-lattice relaxation of Mo^{3+} ions 4–82614
Al_2O_3, effect of Cs vapour on insulating props. 4–49887
Al_2O_3, elec. cond., obs. of ionic to electronic cond. transition 4–49047
Al_2O_3, F-centres, calc. of energy level values 4–48950
Al_2O_3, fatigue fracture under static and cyclic loading, 25-359°C 4–73357
Al_2O_3, film, on Al, oxygen content, X-ray emission obs. 4–72660
Al_2O_3, fracture energy, grain size depend. meas. discrepancy 4–45752
Al_2O_3, fracture surface examination by Auger spectroscopy 4–67921
Al_2O_3, grain boundary phenomena, interpret. concepts 4–53809
Al_2O_3, grown on high temp. alloys, electronic and ionic cond. 4–48865
Al_2O_3, growth and desorption of layers of tungsten cryst. planes, FEM 4–69962
Al_2O_3, high alumina refractories research 4–70551
Al_2O_3, high speed sliding wear 4–53820
Al_2O_3, high temp. thermophys. props., calibration materials 4–77046
Al_2O_3, high-density damage by low-energy H^+ ions, rel. to use as first-wall material in CTR 4–69316
Al_2O_3, In electrode effect on tunnel barrier 4–72872
Al_2O_3, in m.i.m. struct., tunnel currents, barrier height temp. depend. 4–45020
Al_2O_3, kinetics of polymorphous transformations 4–75629
Al_2O_3, leucosapphire, thermochemical dissolution, anisotropy 4–44500
Al_2O_3, liq.-solid interface profile during Czochralski growth 4–78938
Al_2O_3, low energy electron attenuation by photoelectron spectroscopy 4–79084
Al_2O_3, low-energy electron attenuation, X-ray photoelectron obs. 4–57669
Al_2O_3, Lucalox, SEM fractographic obs. rel. to testing temp. and grain size 4–67922
Al_2O_3, mass transport equation for diffusional creep, 1200-1600 degrees C 4–49884
Al_2O_3, microspheres, zirconium carballoy coating 4–69297
Al_2O_3, notched beam test, fracture energy 4–73340
Al_2O_3, phonon self-energy adjustment to fit i.r. reflectivity spectra 4–66998
α-Al_2O_3, phonon spectrum, mixed photon-surface phonon excitations theory 4–82231
α-Al_2O_3, photodesorption of NO, product kinetic energy determ. by time-of-flight method *(Russian)* 4–63991
Al_2O_3, plasma deposition conditions effect on physicochem. props. 4–44802
γ-Al_2O_3, porous pellets, diffusion of He-N_2-CH_4 gas mixt., models 4–44153
Al_2O_3, prebreakdown electrolum. stimulated by active centres of sorption nature *(Russian)* 4–73197
Al_2O_3, sapphire, adhesion of Mo films and wetting by molten metals 4–80045
Al_2O_3, sapphire, c-axis filaments, yielding and flow behaviour 4–49895
Al_2O_3, sapphire, h.f. breakdown, Fokker-Planck formulation 4–53372
Al_2O_3, sapphire, rod strengthening by BaO 4–45745
Al_2O_3, sapphire, stress-induced birefr., interferometric null meas. method 4–65450
Al_2O_3, sapphire, surface hardening assoc. with machining 4–64610
Al_2O_3, sapphire, surface vibrs., i.r. refl. spectra *(Russian)* 4–69954
Al_2O_3, sapphire filaments, room temp. fracture strength depend. on strain rate 4–80068
Al_2O_3, sapphire filaments, room temp. fracture strength, strain rate depend. 4–80069
Al_2O_3, sintered, additives, influence on microstruct. 4–53807
Al_2O_3, sintering effect of NiO, ZnO additives 4–82960
Al_2O_3, sintering kinetics, effect of iron oxide 4–45744
β-Al_2O_3, solid electrolyte membrane, applic. in thermoelectric device 4–75905
Al_2O_3, solid soln. softening by $MgO.TiO_2$ 4–45750
Al_2O_3, steel refining of non metallic inclusion *(Russian)* 4–70451
Al_2O_3, thermolum. dosimetry materials, simultaneous TL and TSEE meas. 4–53588
Al_2O_3, thin layer on Ta, field emission, FEM investigation *(Bulgarian)* 4–82792
Al_2O_3, thin sputtered film, electron beam induced cond. 4–82505

aluminium compounds continued
- Al_2O_3, vaporisation, crystal morphological changes 4−56873
- γ-Al_2O_3, with added iron oxide, i.r. absorpt. spectra obs. *(Russian)* 4−53457
- β-Al_2O_3, X-ray diffraction obs. 4−66879
- Al_2O_3 adsorption on Mo, effect on electron field emission 4−61277
- Al_2O_3 crystal, paramag., resonant scattering of thermal phonons 4−60576
- Al_2O_3 crystals, α and γ forms, charact. freqs. of AlO_n groups *(Russian)* 4−45314
- α-Al_2O_3 crystals, structural-morphological characteristics of volatilisation 4−52887
- Al_2O_3 film, gate insulator for CdS m.i.s. struct., evaluation 4−82490
- Al_2O_3 film, photoemission in Ne and Ne-Ar mixture, obs. 4−57665
- Al_2O_3 films with amorphous semiconductors, fabrication 4−49581
- Al_2O_3 fluidized bed, horizontal effective thermal cond. under steady-state conditions 4−53925
- Al_2O_3 in iron, oxygen potential measurement *(Russian)* 4−70450
- Al_2O_3 particles, in internally oxidized Cu-Al alloy, struct. determ. 4−49733
- Al_2O_3 powders, adsorpt. of ^{85}Kr investig. *(French)* 4−56968
- Al_2O_3 thin films, struct., electron diffr. obs. 4−69969
- β-Al_2O_3:Ag(Na), i.r. spectra, super ionic cond. 4−57545
- Al_2O_3:Ce cathodic luminophors with short after-emission, photolum. *(Russian)* 4−79800
- Al_2O_3:Co, obs. on defect struct. and mobility 4−49886
- $Al_2O_3:Cr^{3+}$, ruby, first nearest neighbour Cr^{3+} pairs, absorpt. and emission spectra obs. 4−57585
- γ-$Al_2O_3:Fe_2O_3$, solid soln., e.p.r. spectra obs. 4−61028
- $Al_2O_3:Ni^{3+}$, Jahn-Teller orbital doublet study 4−70204
- $Al_2O_3:Ni^{3+}$, paramag. reson. spectra, Jahn-Teller multimode model 4−73023
- Al_2O_3:Ta, chem. vap. deposition, elec. cond. 4−45465
- α-$Al_2O_3:Ti^{3+}$, zero phonon transitions and interacting Jahn-Teller phonon energies determ. 4−49429
- α-$Al_2O_3:V^{3+}$, absorpt. spectrum analysis, cryst. field parameters *(French)* 4−61192
- Al_2O_3/M-Ti melt, M=Cu, Au, intermediate phase formation on adhesion and wetting 4−67930
- Al_2O_3-$(Nb,Ta)_2O_5$-$(K,Li,Na,Cs)_2$, (Pb,Ba)O, glass form. 4−63764
- Al_2O_3-amorphous Si interface, density of states 4−72869
- β-Al_2O_3-BaO(La_2O_3, K_2O):Eu, Mn, fluoresc., emission and excitation spectra 4−61212
- β-Al_2O_3-BaO(La_2O_3, K_2O):Eu, Mn, phosphor depreciation under u.v. irrad. 4−61213
- Al_2O_3-BeO system melts, surface tension and density 4−70538
- Al_2O_3-Cr_2O_3-P_2O_5 system, subsolidus phase diagram 4−61488
- α-Al_2O_3-Fe_2O_3, Mossbauer spectrum, temp. depend. of chemical shift and quadrupole splitting 4−57444
- Al_2O_3-Li_2O-$nSiO_2$, glasses, ceramics, sp. ht., 1.5-6K, struct. depend. 4−60621
- Al_2O_3-MgO-Cr_2O_3, alumina substrate, surface props. 4−57757
- Al_2O_3-MgO(NiO) obs. on aliovalent cation diffusion 4−48788
- β-Al_2O_3-Na_2O, conducting cation organisation, X-ray scatt. *(French)* 4−44509
- Al_2O_3-Na_2O, high press. cryst. growth, edge-defined film-fed growth technique 4−45428
- β-Al_2O_3-Na_2O, intergrowth of crystal structures 4−73343
- β-Al_2O_3-Na_2O ionic conductivity and electrochem. polarisation obs. 4−52931
- Al_2O_3-NiO system, decomp. of nonstoichiometric spinel, periodic antiphase struct. of intermediate phase 4−56858
- Al_2O_3-SiO_2-MgO-CeO_2-TiO_2, glasses, effect of heat treatment during crystn., phase transitions 4−44475
- Al_2O_3-SiO_2-MgO-TiO_2 system, liquation in 4-system glass 4−69726
- Al_2O_3-SiO_2-Na_2O, mordenite, adsorpt. of N_2, thermal entropy determ., eq. of state 4−67104
- Al_2O_3-SiO_2-Si, use of bias stress on m.i.s. capacitors for i.g.f.e.t. characterisation 4−57173
- Al_2O_3-TiO_2-SiO_2 system, solid solubility of TiO_2 in mullite 4−64613
- Al_2O_3-W system, structure of thin films, electron diffraction obs. 4−69969
- α-Al_2O_e, sapphire, single cryst. growth by chem. vapour deposition *(Japanese)* 4−79868
- $Al(OH)_3$, and anodic oxide films, deuterated, n.m.r. investig. of structs., hydrogen-bonding 4−61041
- $2Al_2O_3.SiO_2$, mullite, Czochralski growth 4−57687
- $Al_2O_3.2SiO_2.2H_2O$, kaolinite, adsorpt. of H_2O and organic vapours, elastic moduli determ. 4−67103
- AlP, energy gaps from photoluminesc. spectra 4−48909
- $Al_2(SO_4)_3.18H_2O$ alumogen, crystallographic data *(French)* 4−75487
- AlSb, impurity radiative recomb., 4.2K 4−82747
- p-AlSb, lattice thermal cond. investigation at low temp. 4−67010
- AlSb, second harmonic generation using CO_2 laser beam 4−77712
- AlSb, single cryst., effects of voltage pulses on surface *(Russian)* 4−70057
- Al_2SiO_5 crystals, α and γ forms. charact. freqs. of AlO_n groups *(Russian)* 4−45314
- $Al_2SiO_5:Fe^{3+}$ spin lattice relaxation time, pulsed saturation of paramag. reson. line *(Russian)* 4−67436
- $Al_2(WO_4)_3$, cryst. struct. redeterm. 4−63797
- $2Alx_3 \rightleftharpoons Al_2X_6$ (X=Cl, Br or I), variable temp. He I photoelectron spectra 4−52256
- Au-Al_2O_3-Au, Cole-Cole diag. develop. rel. to time *(French)* 4−67288
- BaO-Al_2O_3-SiO_3, lattice constants, anisotropic thermal expansion coeff. *(German)* 4−44684
- Bao-Al_2O_3-SiO_2 system cpds., anisotropic thermal expansion and solid soln. obs. *(German)* 4−52911
- $CsAl(SO_4)_2.12H_2O:{}^{53}Cr^{3+}$, ENDOR, at 4.2K and 9.4 GHz 4−79636
- $CuAlS_2$-ZnS, solid soln., cell dimens., elec. props. 4−44915
- $CuAlSe_x$-ZnS, solid soln., cell dimens., elec. props. 4−44915
- $(Fe, Al)_2O_3$ cryst. precip. from borate melts, lattice parameters and Neel temp. *(Japanese)* 4−70410
- Fe_2O_3/Al_2O_3, solid solution, e.p.r. anal. *(German)* 4−45183
- n-GaAlAs, ohmic contact technique 4−45441
- GaAlAs-GaAs-GaAl-As, resonant tunnelling obs., quality depend. 4−67271

aluminium compounds continued
- $Ga_{1-x}Al_xAs$, laser, dark line defect growth 4−81327
- $Ga_{1-x}Al_xAs$, liq. phase epitaxy on GaAs with mech. surface corrugations, SEM obs. 4−61290
- n-$Ga_{1-x}Al_xAs$, photocond., 140-420K 4−60830
- $Ga_xAl_{1-x}As$, normal freezing, closed form eqn. 4−72560
- GaAlAsP, heteroepitaxial layers, dislocation elimination 4−45436
- GaAlAsP heteroepitaxial layer on GaAs substrate, dislocation elimination by controlled interfacial misfits 4−49602
- GaAs-$Al_xGa_{1-x}As$ double heterostruct., optical props. obs. for GaAs layer 4−53549
- GaAs-AlAs superlattice, high field domain generation, tunnelling 4−70027
- GaAs-$Ga_{1-x}Al_xAs$, laser, current depend. on carrier lifetimes 4−59428
- GaAs-$Ga_{1-x}Al_xAs$ double heterostructure laser diode, with output power >80 mW, continuous operation over 2500 hr 4−74507
- $GaAs_xGa_{1-x}As$ injection laser, doping effect on degradation 4−65919
- LiCoAl ferrite, ferromag. reson., elastic stress depend. *(Russian)* 4−57381
- Li_2O-Al_2O_3-SiO_2 partially crystallized glass, boundary layer existence 4−44481
- Li_2O-Al_2O_3-SiO_2 system glasses, water content influence on crystn. and spherulite growth *(French)* 4−78929
- Li_2O-Al_2O_3-$2SiO_2$, Li ion source for cyclotron external injection 4−80978
- $MgAl_2O_4$-Al_2O_3 system, liquidus-solidus determ. 4−53816
- MgO-Al_2O_3-Fe_2O_3 system, nonstoichiometric ferrites, phase comp. 4−67896
- MgO.Al_2O_3, prep. and sintering 4−82961
- MgO.3.5 Al_2O_3 single crystals, precipitation, electron microscope obs. 4−48766
- MgO.3.5 Al_2O_3 spinel, nonstoichiometric, precip. strengthening and effects 4−73356
- $Mn_3Al_xR_{2-x}Ge_3O_{12}$, (R=Cr or Fe), i.r. spectra 4−49366
- NaF-AlF_3 mixture, enthalpy of mixing, isothermal and drop calorimetry 4−56884
- Na_2O-Al_2O_3-SiO_2 glasses, stress-optical coeff. rel. to comp. 4−45266
- Na_2O-K_2O-CaO-MgO-Al_2O_3-SiO_2 system, subsolidus struct. 4−67021
- Nb-Al_2O_3 codeposited films, prep. and props. 4−70088
- P_2O_5-Al_2O_3-MeO:MnO, (Me=Be, Mg, Ca, Sr, Ba), glass, absorpt. spectra and e.s.r., depend. on Mn conc. 4−70326
- P_2O_5-Al_2O_3-MgO:MnO, glass, fluoresc. and thermoluminesc., depend. on Mn conc. and temp. 4−70338
- $RbAl(SO_4)_2.12H_2O:{}^{53}Cr^{3+}$, ENDOR, at 4.2K and 9.4 GHz 4−79636
- SiO_2-Al_2O_3 glasses, rapid crystn. phenomena 4−53804
- SiO_2-B_2O_3-Na_2O-Al_2O_3 glass, comp. fluctuation kinetics 4−63767
- $SnAl_{0.5}Mo_5S_6$, superconductor, d.c. and pulsed fields, 600 kG upper critical field meas. 4−82520
- $SrO.(6-x)Fe_2O_3.xAl_2O_3$ solid soln. cryst., cryst. growth and characteriz. *(Japanese)* 4−49575
- Y-type zeolites, γ-irrad., e.s.r. study of trapped H ats., exchanged cation effects 4−79598
- Y_2O_3-Al_2O_3 pseudo-binary system, phase stability 4−48737

a.m. (modulation) *see amplitude modulation*

ambient temperature *see temperature*

americium
- atom, Auger satellite energy shifts 4−63349
- Am-Be neutron source, calibration by manganese sulphate bath method 4−51139
- Am-Be neutron spectrum, iteration method for calc. 4−62519
- ^{241}Am, terrestrial, in situ meas. by Ge(Li) spectrometer and FIDLER, comparison 4−46825
- ^{241}Am deposition and removal rate from liver 4−83343
- $CeO_2:{}^{243}Am^{4+}$, e.p.r. determ. of $^{243}Am^{4+}$ g-value 4−53297

americium compounds
- AmO_2, coherent neutron scatt. amplitude of ^{243}Am 4−69755
- AmO_2, thermal expansion, room temp. to 1000°C 4−60628

ammeters
- distorted a.c. voltage/current/power, multirange meter *(German)* 4−46758
- highly sensitive, interfering currents in supercond. applic. 4−74095
- microammeter testing, 0.03 to 300 μA 4−51112

ammonia
- adsorption on Ge (111) and (100) surfaces, LEED obs. 4−72631
- amorphous cubic frosts, reflectance at 77K in 1400-3000A range 4−49319
- anharmonicity, local-mode anal. of XH-stretching overtone spectra 4−48020
- catalytic decomposition by W, total press. variation determ. of reaction rates 4−76598
- chemisorption on Mo, K-LL Auger spectra 4−73225
- dark dust clouds, NH_3 27.7 GHz line obs. 4−54573
- gas laser, optically pumped, far i.r., transverse modes 4−51556
- glow and h.f. discharges, electrical characteristics comparison 4−52645
- i.r. spectra, absorpt. strengths of $\nu_1+\nu_2$ and $\nu_2+\nu_3$ bands, vibr.-rot. interactions 4−52159
- i.r.-microwave double resonance, inversion of microwave line J=9, K=6, M=9 4−60065
- Jupiter's clouds, radioastronomical meas. of NH_3 content 4−62044
- K-shell electron energy loss spectra, H_3O energy level calcs. 4−63463
- laser, waveguide, optically pumped far i.r. and mm wave 4−74512
- laser pulses coherent reshaping in NH_3 resonant absorber 4−74078
- liquid, dynamics determ. from cold neutron scatt. 4−72422
- liquid, high press. pulse radiolysis, solvated electron yield, spectra and press. depend. 4−68027
- liquid, pulse radiolysis, solvated electron yield meas., dielec. props. 4−54047
- liquid, pulse radiolysis, transient u.v. absorpt. spectrum determ., solvated electron investig. 4−70609
- liquid, subcooled boiling heat transfer, forced convection 4−79147
- luminescence, Hg-photosensitized 4−73412
- Martian atmosphere photolysis of CO-NH_3 mixtures 4−50499

ammonia continued
molecular electrostatic potential, multipole expansions 4−56323
molecular orbitals, ESE formalism, comparison with ab initio results 4−52028
molecular properties, anal. of approx. ab initio treatments 4−69452
molecule, classical microwave and i.r. pressure broadening theory 4−43880
molecule, dissoc. excitation by electron impact investig., u.v. emission spectra meas. 4−75036
molecule, electron momentum distrib. in N-H bond, valence-bond wavefunction calc. 4−81760
molecule, electron scattering cross section calcs. for high energies using CNDO wavefunctions 4−52272
molecule, isotopic series, sum rules for vibr. spectra 4−47967
molecule, rot. bands, appl. of vacuum u.v. spectroscopy with continuum source 4−42797
molecule, rot. relaxation, distorted wave approx. 4−74966
molecule, second virial coeff. eqns. force const. for BBD potential 4−69539
molecule, self and diatomic mol. collision induced rot. transition rate, calc. 4−48144
molecule, sextic centrifugal distortion const. 4−72146
molecule, vert. ionisation pots., perturbation calcs. using double-zeta basis sets 4−78512
nucleation rate using Fisher's droplet model 4−82264
pollutant, remote detection with laser heterodyne radiometer 4−71135
positron annihilation in gaseous and liq. phase, lifetime spectra meas., mechanism 4−76618
radiation chemistry of gaseous state, NBS report 4−83032
reaction with GaP, form. of GaN or GaP:N 4−45444
solution containing $Cu(NO_3)_2$, e.s.r. of Cu^{2+}, 195-300K 4−73015
solvated electron, volume expansion in ammonia compared with water investig., CNDO/2 calc. 4−50216
Stark patterns in ν_4 vibr.-rot. band, use of PbTe laser source 4−60060
transport and equilibrium props., mol. quadrupole moment, third virial coeff. 4−52334
u.s. wave propagation, force parameters and energy produced calcs. 4−60145
Venus atmosphere, Venus-8 probe meas., cloud struct. 4−58259
Venus atmosphere NH_3 chemistry, mixing ratios 4−70930
vibration-rotation spectra, very high resolution, interpretation near 6000 cm^{-1} *(French)* 4−52158
Ag/AgCl reference electrode in liquid NH_3, potential determ. 4−73437
$Ar-NH_3$ mixtures, PVT relations at h.p., compressibility factors 4−56344
Cd_2 fluorescence in inert gas and NH_3 matrices 4−67629
$K-NH_3$, solid soln., elec. cond., time depend. 4−72767
N_2-NH_3 mixtures, PVT relations at h.p., compressibility factors 4−56344
$ND_3-{}^7Li$, solution conc. fluctuation in non metal to metal transition range, neutron scatt. 4−75440
$ND_3^+ + ND_3$, ion-mol. reaction, thermal energy rate consts. 4−53970
NH_2-radicals, electron impact form., e.s.r., ion cyclotron resonance, emission spectroscopy investig. 4−52267
NH_3-metal solution, electron condensation in system of polarons or fluctuons *(Russian)* 4−72738
NH_3 + alkene positive ion, proton transfer reaction rate consts. 4−64703
NH_3 + alkyne positive ion, proton transfer reaction rate consts. 4−64703
NH_3 + Ar collisions, ammonia intermol. pot. determ. from differential cross sections 4−63501
$NH_3 + H_2(NH_2)(H_2O)(CO)(N_2)(N_2O)$, proton transfer reaction rate consts. 4−64703
$NH_3 + Na^+(Ne^+)(Ne^{2+})(F^+)(O^+)(N^+)$, K-vacancy productiion, inelastic energy loss 4−72098
NH_3 + OH reaction, rate consts. meas. rel. to temp. 4−50140
NH_3^{++} ion, ionisation pots. determ. by double charge transfer spectroscopy, electronic states calc. 4−60106
$NH_3.H_2O$, molecules in molecules theory applic. to hydrogen bonding interaction 4−56109
$Na-NH_3$, $Na-NH_3-NaI$ solutions, optical absorpt. spectra investig., rel. to solvated electrons 4−45939
$Na-NH_3$, solid soln., elec. cond., time depend. 4−72767
$Na-NH_3$ solution, high-temp. nonequilib. supercond. hypothesis *(Russian)* 4−72928
$TaS_2:NH_3$, intercalation complex, proton relax. times meas., two-dimens. mod. diffusion model 4−61058
ammonia clocks *see atomic clocks*
ammonium compounds
acetate, high press. phase transitions 4−63911
ammonium oxalate crystal, harmonic generation *(Russian)* 4−51626
ammonium-nickel Tutton salt:Mn^{2+}, single cryst., e.p.r. 4−70206
diammonium vanadyl oxalate dihydrate, cryst. struct. determ. by X-ray anal. 4−60489
formate, high press. phase transitions 4−63911
halide: In, Tl, Sn, photoluminesc., activator exciton bands *(Russian)* 4−73157
halides, polymorphic transformations, three particle interactions *(Russian)* 4−60610
lithium ammonium tartrate, potential field acting on H, calc. 4−66853
long wavelength u.v. up-conversion to 200-235 nm band 4−51625
perchlorate, influence of anisotropy on thermal expansion 4−67055
d-tartrate, ^{13}C chem. shielding tensor 4−57393
$[Ni(NH_3)_6]Cl_2(Br_2)(I_2)$ crystals, rotational jumps of NH_3 groups, i.r. band contour meas. 4−79709
trans-$(Co(NH_3)_4Br_2)Br(Cl)$, n.m.r. obs. of mol. motion 4−53334
ND_4Br, dynamical critical phenomena investig. by neutron scatt. 4−63916
ND_4Cl, neutron scatt. meas. of order-disorder transition as function of temp. and press. 4−75612
$ND_4D(ClCH_2COO)_2$, ferroelec. transition Raman and i.r. studies 4−82671
$(ND_4)_2GeF_6$, polycryst., hindered rot., n.m.r. 4−79620
ND_4NO_3, phases III, IV and V, struct., laser Raman spectra 4−79153

ammonium compounds continued
ND_4ReO_4, external lattice vibr. modes calc. 4−48714
NH_4 radical, excitation and ionisation energies using core analogies 4−63463
NH_4^+, force fields, FSGO calcs. 4−52043
NH_4^+, hydrogen atom affinity, mol. ionisation energy distrib., mass spectra 4−48108
$NH_4Al(SO_4)_2.12H_2O$, ^{14}N n.m.r., coupling const., antishielding factor 4−45207
$(NH_4)_2BeF_2$, thermo-optical and dielec. props. near ferroelec. T_c 4−82679
$(NH_4)_2BeF_4$, ferroelectric, hydrostatic press. effects on phase transitions 4−64352
NH_4Br, barrier to rotation for NH_4^+ in disordered and ordered phases 4−47916
NH_4Br, CsCl to NaCl type transform., orientation relations 4−56882
NH_4Br, i.r. absorpt. bands, temp. depend., one, two-phonon vibr. 4−49351
NH_4Br, NH_4^+ ion reorientation, 373K, neutron quasielastic scatt. obs. 4−66841
NH_4Br, n.m.r. investigation of order-disorder phase transition 4−45194
NH_4Br, phase transforms., Raman scatt. temp. and press. depend. 4−79715
NH_4Br, u.s. attenuation meas. at lambda transition 4−44643
NH_4Br slow neutron scattering form factor using one dimensional rotor model 4−82122
$(NH_4)_2Cd_2(SO_4)_3$, ferroelectric, vibration spectra, NH_4^+ ion hindered rotation 4−49341
NH_4Cl, barrier to rotation for NH_4^+ in disordered and ordered phases 4−47916
NH_4Cl, CsCl to NaCl type transform., orientation relations 4−56882
NH_4Cl, order-disorder transition press. and temp. depend., Raman scatt. obs. 4−53414
NH_4Cl, polarised Raman spectrum, NH stretch region 4−67569
NH_4Cl, slow neutron scattering form factor using one dimensional rotor model 4−82122
NH_4Cl aqueous solns., surface layer thermodynamics 4−83036
$NH_4Cl:{}^{63}Cu^{2+}$, anomalous behaviour in the e.p.r. spectrum 4−67439
$NH_4Cl:Fe^{3+}$, electronic absorpt. spectra of ion 4−64404
$NH_4Cl:Tl$, absorpt., excitation and fluoresc. spectra 4−73178
$(NH_4)Cl_{1-x}Br_x$, mixed cryst., lattice modes obs. by far i.r. and Raman spectroscopy 4−57536
$(NH_4)Cl_{1-x}Br_x$, tetragonal phase, Raman spectra, obs. of acoustical peaks 4−49353
NH_4ClO_4, fast neutron, gamma-ray and combined radiation effects on thermal decomp. 4−57855
NH_4ClO_4, struct. and decomposition 4−52722
NH_4ClO_4 crystals, cond. proton mobility rel. to charge transfer, thermal decomposition 4−72588
$(NH_4)_2Co(SO_4)_2.6H_2O:Cu^{2+}$, e.s.r., spin-lattice relaxation 4−67443
$(NH_4)_3CrF_6$, protons and fluorine n.m.r. line widths and second moments *(Russian)* 4−73034
$(NH_4)_2Cu(H_2O)_6(SO_4)_2$, copper Tutton's salt, anisotropic mag. susceptibilities, meas. using Faraday method 4−64192
NH_4F-InF_3 system phases, lattice parameters *(French)* 4−44513
$(NH_4)_2FeCl_5.H_2O$, laser Raman spectra, vibr. assignments 4−64376
$NH_4H_2AsO_4$, and deuterate, antiferroelectric phase transitions, mag. reson. obs. 4−61116
$NH_4H_2AsO_4$, antiferroelectric, Raman scatt. obs. 4−53413
$NH_4H_2AsO_4$, γ-irradiation, $HAsO_3^-$ radical ENDOR obs., H bond antiferroelectricity depend. 4−61064
$NH_4H_2AsO_4$, theory of antiferroelectric phase transition 4−79681
$NH_4H(ClCH_2COO)_2$, ferroelec. transition, Raman and i.r. studies 4−82671
$NH_4H_2PO_4$, charge transfer mechanism, proton donor impurities 4−60799
$NH_4H_2PO_4$, cryst., ferroelec., n.m.r. study of high temp. struct. phase transitions 4−53379
$NH_4H_2PO_4$, photoelasticity temp. depend., u.s. light diffr. 4−61132
$NH_4H_2PO_4$, protonic cond. meas. 4−56905
$NH_4H_2PO_4$, vacuum u.v. reflection spectra obs. 4−76267
$NH_4H_2PO_4$, vibrating cryst., neutron diffr. 4−61110
$NH_4H_2PO_4$, vibrating cryst., X-ray diffr. 4−82230
$NH_4H_2PO_4$, whisker cryst., mech. props., dislocation struct. influence *(Russian)* 4−72664
$NH_4H_2PO_4$ crystals, growth kinetics of {101} faces, presence of ionic species 4−75467
$NH_4H_2PO_4:(NH_4)_2Cr_2O_7$, dielectric and electrooptic props. 4−45272
$NH_4H_2PO_4:K_2SeO_4$, e.s.r. of radiation damage centres, 90 to 350K 4−76152
$(NH_4)_4H_2P_4O_{13}$, unit-cell parameters and space groups determ. 4−56678
NH_4HSO_4, ferroelectric, i.r. absorption vibration spectra, ordering effects, ferroelectric transition 4−49342
$(NH_4)_3H(SO_4)_2$, antiferroelectric, i.r. absorption vibration spectra, ordering effects, ferroelectric transition 4−49342
$NH_4H_3(SeO_3)_2$, neutron diffr., H bonding 4−82138
$NH_4HgCl_3.H_2O$, cryst., mol. struct. determ., X-ray diffr. meas. 4−56668
NH_4I, CsCl to NaCl type transform., orientation relations 4−56882
NH_4I, phase transitions and elasticity-density relations 4−67034
NH_4I, slow neutron scattering form factor using one dimensional rotor model 4−82122
NH_4IO_3, cryst., Raman spectra, lattice dynamics investig. 4−57507
NH_4IO_3, cryst., vibrational spectra of IO_3^- ion 4−45296
$(NH_4)_{0.1}K_{0.9}Cl$, coherent pot. approx., calc. of local phonon modes 4−52841
$(NH_4)_2Mg(MoO_4)_2.2H_2O$, crystal structure *(French)* 4−69772
NH_4MnF_3, growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4−70402
NH_4NO_3, phases III, IV and V, struct., laser Raman spectra 4−79153
NH_4NO_3, X-ray diffuse scatt. exam. of polyorientational disorder 4−75609
$NH_4NO_3:K,Cs$, thermal transformations, rot. disorder 4−69905
NH_4NO_4, powder and melt, Raman spectra obs. of librational modes 4−82700
$NH_4NbO(SO_4)_2$, cryst. struct. 4−82149

ammonium compounds continued
- $(NH_4)_2Ni(SO_4)_2.6H_2O$ Patterson function, peak sharpening by regularization 4−52661
- NH_3OHClO_4, hindered rot., neutron diffr. 4−48546
- $(NH_4)_5P_3O_{10}.2H_2O$, $(NH_4)_5P_3O_{10}.H_2O$, unit-cell parameters and space groups determ. 4−56678
- $(NH_4)_6P_4O_{13}.2H_2O$, unit-cell parameters and space groups determ. 4−56678
- $(NH_4)_2PdCl_6$, n.m.r. relaxation investig. of ammonium reorientation 4−73040
- $(NH_4)_2PtCl_6$, n.m.r. relaxation investig. of ammonium reorientation 4−73040
- NH_4ReO_4, external lattice vibr. modes calc. 4−48714
- $(NH_4)_2RuCl_6$, n.m.r. relaxation investig. of ammonium reorientation 4−73040
- NH_4SO_4, conductivity of doped crystals, charged carrier mobilities 4−63941
- $(NH_4)_2SO_4$, aerosol layer in stratosphere, origin 4−61748
- $(NH_4)_2SO_4$, Brillouin scatt. in paraelec. phase near T_c *(French)* 4−67562
- $(NH_4)_2SO_4$, charge transfer mechanism, proton donor impurities 4−60799
- $(NH_4)_2SO_4$, far i.r. spectra in para- and ferroelectric phases *(French)* 4−79723
- $(NH_4)_2SO_4$, ferroelectric, vibration spectra, $NH_4{}^+$ ion hindered rotation 4−49341
- $(NH_4)_2SO_4$, photoelasticity temp. depend., u.s. light diffr. 4−61132
- $(NH_4)_2SO_4$, pseudoproper ferroelec., far i.r. transmission and refl. 4−70291
- $(NH_4)_2SO_4$-graphite, removal by rain in shallow air flow 4−61780
- $(NH_4)_2Sb_xSn_{1-x}Cl_6$, electron and Mossbauer spectra, packing and nearest neighbour model 4−49273
- $(NH_4)_2SnCl_6$, cryst. struct., rel. to cryst. field effect in n.q.r. and vibr. spectra 4−52730
- β-NH_4UF_5, cryst. growth, struct. investig. 4−66866
- $(NH_4)_3VS_4$, reson. Raman effect of $VS_4{}^{3-}$ 4−57548
- $(NH_4)_2Zn_3Fe_2(CN)_{12}$, ^1H motion, n.m.r. obs. 4−48797
- $(NH_4)_6.Mo_7O_{24}.4H_2O:[MoO_6]^{7-}$ radical, e.s.r. study 4−53311
- $Nh_4H_2PO_4$, conductivity of doped crystals, charged carrier mobility 4−63941
- $Rb_{1-x}(NH_4)_xH_2PO_4$, $NH_4{}^+$ reorientation, proton spin-lattice relax. 4−76227

amorphous semiconductors
- asymmetric switching and memory characteristics 4−57149
- binary alloy, two band model, coherent pot. approx. 4−44825
- chalcogen, high energy photoemission, band struct. 4−82791
- chalcogenide, glass form., cond. 4−82416
- chalcogenide, powder system, IV characteristics, uncompensated carrier conc. depend. 4−48994
- chalcogenide compounds, configurational entropies 4−75635
- chalcogenide film, growth and elec. props. 4−75988
- chalcogenide films with polymeric coatings, switching threshold reduction 4−53129
- chalcogenide glass, small angle X-ray scatt., absence of voids 4−69794
- chalcogenide glass, struct. and electronic props., 3-D model 4−82349
- chalcogenide glass, X-ray photoelectron spectra, binding energy 4−82118
- chalcogenide glass switches, obs. of current channels in film devices 4−53131
- chalcogenide glass/Si heterojunction, on-state characts. 4−79405
- chalcogenide glassy semicond., elec. instabilities of mixed electronic and thermal origin, theory 4−44973
- chalcogenide materials applic. as reversible media in holography 4−80926
- chalcogenide melts, viscosity meas. 250-1000°C *(German)* 4−52924
- chalcogenide threshold switch, filament props. 4−60886
- chalcogenides vitreous semiconductors, expt. review 4−79268
- conduction mechanism, semiclassical model, monoenergetic localized states, mobility calc. 4−79339
- conference, Garmisch-Partenkirchen, Germany (Sep. 1973) 4−72665
- current-voltage characteristics, effect of one carrier injection 4−53104
- dielectric-constant study, immersion method 4−68736
- electrical conductivity contactless l.f. meas. distinguishing between inhomogeneous and homogeneous samples 4−57093
- electronic spectrum using polycryst. model 4−79265
- exciton optics, interzone absorption process *(Russian)* 4−61174
- exponential photocond. edge, spectral response 4−67245
- film, amorphous-polycryst. transition, influence on elec. cond. and optical density 4−60709
- film, vap. deposition, mass spectra 4−75744
- glass, Mn silicate, elec. cond. rel. to comp. 4−49023
- glass transition temperature, rel. to optical gap, connectedness 4−82117
- hopping a.c. conductivity, numerical calc. 4−79357
- hopping conduction, calc. method 4−79359
- hopping conduction, d.c. model calc. 4−79354
- hopping conduction, Debye a.c. type, model depend. 4−79356
- hopping conduction, percolation theory 4−79355
- hopping conduction, random impedance network 4−75865
- hopping conduction, variable range, temp. depend. 4−67215
- II-VI, amorphous and cryst. films, densities of valence states, photoelectron obs. 4−60742
- III-V, amorphous and cryst. films, densities of valence states, photoelectron obs. 4−60742
- III-V semiconductors, electronic density of states, short-range disorder model 4−67148
- localised band tail and extended states conduction 4−75851
- localised states, review 4−75767
- melanins, isolated from biological systems, threshold switch 4−68487
- narrow trap bands, photocond., temp. depend. 4−75917
- new effects in small particles 4−49024
- photocurrent, blocking contacts, switching mechanism 4−82461
- photodoping, with Ag, model 4−45454

amorphous semiconductors continued
- Polk-Turnbull model, struct. scatt. props., electron microscopy 4−75455
- prototype structures, review 4−75453
- radiation sensitivity rel. to device technology, review 4−69822
- relaxation case, ohmic behaviour, threshold switching 4−79358
- relaxed continuous random network models, struct. characts. 4−60412
- structural characterisation, review 4−75454
- substrate for Al_2O_3 films, fabrication 4−49581
- switching, critical-field, as bulk electronic effect 4−60835
- tetrahedral, transport props. 4−79360
- tetrahedrally coordinated, struct. modelling 4−75451
- thin barrier layers, I/V characts. *(German)* 4−79422
- thin film heterojunctions, I-V characts. 4−49064
- threshold switching, equations 4−70053
- transformation light induced, amorphous to cryst. 4−62855
- transport processes and localization, review 4−64071
- transport theory, review 4−75850
- valence states density, photoemission data 4−82790
- violanthrene-iodine complexes, Meyer-Neldel rule, hopping conduction 4−67211
- As, film, electronic props., temp. depend. 4−82503
- As-S, film, photographic effects, anomalous temp. depend. 4−82775
- As-S-Te-Ge-Si systems, a.c. Hall mobility and cond. 4−75902
- As-S(Se), glasses, conductivity, dielec. props. 4−75866
- As-Se, glass, i.r. absorption, comp. depend. 4−45295
- As-Se alloys, elec. cond. and thermopower, comp. depend. 4−75868
- As-Se-S-Ge, amorphous film, photoexpansion, thermal contraction 4−75728
- As-Te, amorphous, structural and thermal properties, compositional dependence 4−66829
- As-Te, As-Te-I, annealed glass, devitrification, elec. cond. meas. 4−64083
- As-Te-Se system, binary glasses, elec. and optical props. 4−79345
- $As_{0.15}Ge_{0.13}Te_{0.73}$, glass, visual effects of switching 4−75929
- As_2S_3, amorphous, temp. and field depend. of optical absorption edge 4−45317
- As_2S_3, As_2Se_3, glassy films, struct., elec. cond. 4−82342
- As_2S_3, film, light enhanced vaporisation 4−82268
- As_2S_3, internal stress, obs. by i.r. crossed nichols 4−82221
- As_2S_3, vitreous, temp. depend. of absorpt. edge, electron-phonon interactions 4−64398
- As_2S_3 films, prep. method effect on vibr. spectra 4−45283
- As_2S_3-As_2Se_3, film formation, sequence of substitution in sublattices 4−67130
- As_2S_3-As_2Se_3 glasses, multiphonon absorption, mol. model 4−73122
- As_2S_3-CdI_2, evaporated layer, hole drift mobility 4−75855
- $As_2(Se,Te)_3$ glasses, Hall effect, small polaron model 4−75903
- As_2Se_3, As_2S_3, As_2Te_3, local struct. determ., EXAFS 4−82116
- As_2Se_3, As_2Se_3, glass i.r. and microwave cond. 4−82448
- As_2Se_3, carrier recomb., photocond. obs. 4−70051
- As_2Se_3, glassy, dielec.-const. study, immersion method 4−68736
- As_2Se_3, photocond., hopping model 4−79384
- As_2Se_3, prep. method effect on vibr. spectra 4−45283
- As_2Se_3, thermally stimulated depolarisation meas. 4−57464
- As_2Se_3 films, X-ray diffr. investigation of struct. 4−44469
- As_2Se_3-CdO, glass, photocond., conc. depend., struct. effect 4−44960
- $As_2Se_3Mn_x$ and $As_{30}Te_{48}Ge_{10}Si_{12}$ glasses, prep., elec. cond. at high temps. 4−70055
- $As_2Se_3(S_3,Te_3)$, photoluminesc., 0.4-1.8 eV 4−45355
- $As_2Se_3(S_3)$, photoluminescence, mechanism 4−73177
- As_2SeTe_2, extrinsic electroabsorption, 0.47-0.9 eV 4−61179
- $As_2(Se_{1/3}Te_{2/3})_3$, localized states, carrier transport mechanism, glassy bulk, sputtered film 4−64009
- $As_2(Se_{1-x}Te_x)_3$, vireous, crystn. mechanism 4−60418
- $As_2(Se_{1-x}Te_x)_3$, vitreous, crystn. study by radial distrib. functions method 4−60419
- $(1-x)As_2Se_3.xSb_2Se_3$, thermodynamic and kinetic study 4−44482
- AsTe, film, switching, computer simulation and obs. 4−82504
- As_2Te_3, effect of O on optical props. in weak absorpt. region 4−67624
- As_2Te_3, glass, gaps and localised states 4−75768
- As_2Te_3, localised band tail and extended states cond. 4−75867
- As_2Te_3-As_2Se_3, glass, elec. breakdown reversibility conditions 4−73070
- As_xTe_{1-x}, glasses, glass forming ability and elec. props. 4−78927
- $(As_{0.4}Te_{0.6})_{100-x}Ge_x$ glass, elec. and thermodynamic props., stepwise comp. depend. 4−75457
- AsTeSe system, binary mol. struct. evidence 4−63763
- B, elec. cond., thermopower, and i.r. refl. and absorpt. 4−49020
- B, film, electrothermal switching model 4−67295
- Bi_xGe_{1-x} film, fabrication, struct. and elec. props. 4−53162
- Bi_xGe_{1-x} film, optical spectra and photocond. 4−53163
- C, nonmetal-to-metal transition obs. 4−57150
- $CdGeAs_2$, glassy, impurity diffusion, temp. depend. and activation energy 4−56913
- $CdGeAs_2$, glassy, impurity diffusion, temps. near onset of crystn. 4−56914
- CdSe, compressed powder, V-I characts. 4−44917
- Cu-Sb-S-I, photomodulation absorpt., i.r. region *(Russian)* 4−79736
- FeO-P_2O_5 glasses, a.c. cond. 4−72766
- GaAs, conduction in disordered layers produced by ion implantation 4−57092
- GaAs, structure investigation, comparison with amorphous Ge 4−82115
- GaSb, band struct., Kohn variational method 4−69976
- Ge, amorphization during ion bombardment, electron diffr. obs. 4−48657
- Ge, amorphous film, ideal random network 4−75987
- Ge, amorphous film, struct., ordering, elec. cond. 4−75745
- Ge, amorphous film, substrate specific voids 4−75743
- Ge, amorphous film, transport props., press. and temp. depends. 4−79423
- Ge, dielec. props., obs. on untreated, heat treated, and n irradiated samples 4−57183

amorphous semiconductors continued
Ge, electrolytic amorphous film, growth etching behaviour,optical and electron microscope obs. 4−82337
Ge, pseudogap struct., cond. meas. 4−79269
Ge, pure and alloy films, resistivity, tunnelling 4−60887
Ge, relaxed continuous random network models 4−44471
α-Ge, sputtered film, i.r. vibr. spectra meas., disorder effects 4−45388
Ge, struct., clathrate model 4−75456
Ge, structure factor for random stacking sequence 4−56616
Ge, structure investigation, comparison with amorphous GaAs 4−82115
Ge, tetrahedrally bonded, approach to incoherent limit in high Q inelastic neutron scatt. 4−52663
Ge, thermoelec. power, prep. conditions depend. 4−79374
Ge, u.v. reflectance spectra, oxidation effect 4−48863
Ge film, defects and crystn., resist. obs. during annealing 4−75731
Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61309
Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61310
Ge-glasses, chalcogenide and tetrahedral struct. 4−82120
Ge-Se, film, growth and elec. props. 4−75988
Ge-Se, Raman spectra obs. at room temp. 4−49343
Ge-Se(Te) system melts, absolute thermo-e.m.f., comp. and temp. depend. 4−60819
GeS_x, struct. and glass forming regions 4−82119
GeSe, between Al electrodes, relax. processes, model 4−67272
GeSe, far i.r. absorp., h.f. and l.f. dielec. consts. detn. 4−45289
GeSe, $GeSe_2$, local struct. determ., ESAFS 4−82116
$Ge(Se_{1/3}Te_{2/3})_2$, localized states, carrier transport mechanism, glassy bulk, sputtered film 4−64009
GeTe, atomic bonding, electron spectroscopy 4−44470
GeTe, energy band tailing, localisation of states 4−76269
$Ge_{15}Te_{80}As_5$ glasses, surface nucleated crystn. 4−60416
$GeXTe_{1-x}$, amorphous film, photocond., temp. depend. 4−75916
In-Se, film, growth and elec. props. 4−75988
InAs, band struct., Kohn variational method 4−69976
InSb films, and liquid, X-ray and electron diffr. exam. of short-range struct. 4−44468
InSe, film, short-range order, X-ray anal. 4−53015
InTe, film, short-range order, X-ray anal. 4−53015
Mg-Bi alloy film, d.c. and a.c. cond. and optical transmission 4−49092
Mo-GeSe-Mo sandwiches, obs. of blocking contacts, temp. depend. of conductance and capacitance meas. 4−53146
PbS-GeS-GeS_2, glass form., struct. and props. 4−75461
Sb film, hopping cond. meas., 30 to 160K 4−60888
Sb-Se glass, splat cooled, memory switching 4−75931
$Sb_{1-x}Te_x$, film, optical and transport props. 4−44824
Se, amorphous, electroabsorption investigation 4−45318
Se, anomalous photoconductivity, book 4−60831
Se, carrier lifetime change in glass transition region 4−57106
Se, creep compliance 4−79093
Se, electrical conductivity, conduction activation energy, heat treatment effect 4−57090
Se, electronic band struct. calc. 4−44845
Se, far i.r. optical absorption meas. 4−76250
Se, film, electronic struct. determ. by photoemission 4−44846
Se, film, laser light irradiation, reversible phase transformations 4−62859
Se, film, photocrystn. by light or electrons 4−75737
Se, film, polaron conduction and optical absorption 4−49097
Se, high-field mobility 4−70031
Se, impurities effect on charge transport 4−75989
Se, liq. and amorphous, hole transport mechanism 4−75885
Se, origin of anomalous photocond. 4−75925
Se, struct., mol. dynamic computer expt. 4−75450
Se, structural nature of amorphous phase, photoemission meas. 4−75452
Se, thin film, amorphous, polarised memory switching 4−64144
Se, vitreous, bulk and films, struct. ageing 4−75462
Se amorphous, very pure, crystallization under compression, conductivity obs. *(German)* 4−52888
Se film, crystn. in cylindrical morphology 4−75732
Se layer, deep trapping levels rel. to struct. 4−44863
Se layer, photoinduced discharge characts. 4−72818
Se-As, vitreous alloy film, electron energy losses, dielec. const. determ. 4−64324
$Se_{0.99}Ge_{0.01}$, far i.r. optical absorption meas. 4−76250
Si, amorphisation influence on ion implanted B distrib. 4−73271
Si, amorphization during ion bombardment electron diffr. obs. 4−48657
Si, amorphous CBS struct. model, comparison with X-ray and electron scatt. data 4−56617
Si, amorphous film, deposition conditions effect on props. 4−76407
Si, due to ion implantation, Raman spectra, vibr. props. 4−57541
Si, film, electrothermal switching model 4−67295
Si, film, field induced conductance change, band struct. 4−64143
Si, localized states, m.o.s. obs. 4−72869
a-Si, photocond., temp. depend., mechanism 4−79379
Si, prep. conditions effect on props. 4−79888
α-Si, sputtered film, i.r. vibr. spectra meas., disorder effects 4−45388
Si, struct., clathrate model 4−75456
Si, structure factor for random stacking sequence 4−56616
Si, thermoelec. power, prep. conditions depend. 4−79374
Si/Ag, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61309
Si/Ag, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61310
Si-As-Te, glasses, i.r. spectra, struct. anal. 4−79722
Si-Te-As, photocond. and trapping parameters 4−75918
SiC, film, Raman spectra, homonuclear bonding 4−73121
Si_2Se_3, cryst. and amorphous, photoemission energy distrib. curves, band struct. investig. 4−64480
SnS-GeS-GeS_2, glass formation, struct. and props. 4−75461
Te, comparison of Mossbauer spectra for amorphous and crystalline films 4−76202
Te, electronic band struct. calc. 4−44845

amorphous semiconductors continued
Te, film, electronic struct. determ. by photoemission 4−44846
Te, valence band X-ray photoemission spectrum 4−53571
Te structural nature of amorphous phase, photoemission meas. 4−75452
TiO_2, adsorpt. of O_2, kinetics investig. by vibr. condenser method *(French)* 4−44761
TiS_2, dichalcogenide, band struct. from muffin tin approx. 4−53043
$TiSe_2$, dichalcogenide, band struct. from muffin tin approx. 4−53043
$TlAsS(Te)_2$, cryst., glassy and liquid states, thermal cond. meas. 4−79200
$Tl_2SeAs_2Te_3$, glass, i.r. and microwave cond. 4−82448
$Tl_2SeAs_2Te_3$, vitreous, cond., contactless l.f. meas. distinguishing between inhomogeneous and homogeneous samples 4−57093
ZnTe film, frequency depend. of a.c. conductivity, hopping type conduction model 4−44927

amorphous state
see also vitreous state
alloy, structure, review 4−49631
antiferromagnet, misfit scatt. considerations and treatment in CPA-RPA theory 4−57228
coherent potential approximation, Anderson model 4−60719
dimensionally stable anodes, conducting oxide, morphological props. 4−50174
disordered networks, anisotropic elec. cond. investig., effective medium theory 4−70002
electronic spectrum using polycryst. model 4−79265
electronic structure, self consistent cluster theory 4−72677
ferromagnetic alloy, spin-excitation spectrum and resistivity minima 4−48963
ferromagnetic amorphous chain, spin wave mode distrib. 4−67384
ferromagnetic resonance, spin wave model 4−70218
ferromagnets, CPA-RPA treatment of fluctuating bond anisotropy 4−49136
foil, multiple scatt. of MeV charged particles, Monte Carlo simulation 4−67685
hard spheres aggregate, computer model anal. 4−56618
Heisenberg ferro and antiferromagnets, disordered, distribution of magnon modes 4−57243
Heisenberg ferromagnet, coherent potential approx. at zero temp. 4−49146
Heisenberg ferromagnet, spin wave spectrum 4−67383
hopping conduction in amorphous system, calc. for finite array of N random points 4−53097
insulator, cryst. and amorphous, a.c. photocond. and dark cond. meas. 4−44961
insulators, radiation sensitivity rel. to device technology, review 4−69822
ion bombardment as analysis tool 4−75549
magnet, magnetisation and sp. ht. 4−70153
magnetic materials, exact inequalities, thermodynamic props. 4−79477
metallic alloys, hard spheres aggregate model 4−56618
metallic film, mag. bubble dynamics 4−60998
metallic glasses, fracture topography 4−61420
metallic glasses, plasticity and strength 4−53769
metallic glasses, strength and fracture characts., temp. depend. 4−61400
methylcyclohexane glass, γ-irradiated, trapped electron e.s.r. 4−76139
3-methylhexane glass, γ-irradiated, trapped electron e.s.r. 4−76139
3-methylpentane glass, γ-irradiated, trapped electron e.s.r. 4−76139
Monte-Carlo model, atomic and mol. arrangements 4−44484
optical spectra, exciton absorption, Franz-Keldysh effect 4−70317
photoconductivity, stochastic hopping model 4−79384
PMMA, amorphous glassy polymer, molecule model for yield and flow 4−82978
PMMA, fillers effect on temp. transitions *(Russian)* 4−53897
polymer, linear, glass transition theory 4−48520
polymer, two-phase, low-temperature thermal conductivity meas. 4−82294
polypropylene fibre, methyl methacrylate-grafted, thermal props. *(Japanese)* 4−50015
polystyrene, fillers effect on temp. transitions *(Russian)* 4−53897
rare earth-transition metal alloys, struct. effect on mag. props. 4−63762
relaxed continuous random network models 4−44471
rubber, struct. investig. by X-ray diffr. *(Russian)* 4−48529
structural studied using pulsed neutron source 4−56589
tetrahedral coordination, systematic generation of random networks 4−75449
tetrahedrally coordinated solid, density of states, ring topology 4−67145
transition elements, structure, choice of basic seed cluster 4−78924
Al-Ge, metastable phases 4−73284
Al_2O_3, alumina, vacuum deposited films, thickness depend. of strength *(Russian)* 4−53740
Al_2O_3, core transitions from Al 2p level, soft X-ray spectra obs. 4−49492
As, continuous random network model with threefold coordination 4−56621
As-S, film, photodepression, struct. change 4−75729
As_2S_3, cryst. and amorphous states, n.q.r. investig., spin-lattice relax. meas. 4−64284
Au-Fe(60%), film, amorphous struct. above room temp., resist and struct. obs. 4−72661
Bi films, substrate material, impurities, stability *(Russian)* 4−67128
C, amorphous film, memory switching 4−75983
C, film, adsorbed-atom capture zones of Cu 4−79235
Co film, scanning electron diffraction study 4−79247
Co-P alloys, amorphous, mag. props. 4−60978
CuCl film, local atomic arrangement, electron diffr. obs. 4−75738
Dy_2O_3 film, in m.i.m. struct., s.c.l. cond. 4−53155
EuO, powder, ferromagnetic, nuclear spin-lattice relax. time determ. 4−73044
Fe_2O_3, hydrous, ageing and roasting, effect on adsorption rate of CO-O_2 4−70581
FeSi, $FeSi_{2.33}$, film, electron diffr. struct. anal. *(Russian)* 4−57006

amorphous state continued
FeSi$_2$, DTA and phase transitions obs. 4−78925
Ga, film, elec. and supercond. props. 4−45040
GdCo, magnetic bubble domain material anisotropy factor affected by local heating 4−64236
Gd$_{1-x}$Co$_x$ film, r.f. sputtered, perpendicular anisotropy 4−57330
Ge$_3$N$_4$, dielec. film, growth from GeH$_4$+N$_2$H$_4$, 300-700°C, physicochem. props., struct. 4−49586
Ho-Co(Fe) alloys, amorphous films, differences in T$_c$ of amorphous, cryst. states, mechanism 4−76128
Mg-Bi alloy, core excitons, absorpt. obs., 40-200 eV 4−79810
Mg-Sb alloy, soft X-ray absorpt. thresholds, many electron theory, comparison with expt. 4−79811
MnO-P$_2$O$_5$ glass, amorphous antiferromag., magnetisation as function of temp. and mag. field 4−57320
Na$_2$O.Li$_2$O.B$_2$O$_3$.Fe$_2$O$_3$ glass system, Mossbauer effect obs. of struct. and mag. props. 4−67497
Nb$_2$O$_3$, film, nonlinear high-field cond. mechanisms 4−75993
Pd$_{80-x}$Co$_x$Si$_{20}$, elec. resist., low temp. minimum 4−70009
Pd$_{80-x}$Co$_x$Si$_{20}$, mag. props., effect of Co conc. 4−70182
Sb, photoelectron energy distrib. 4−57667
Sb$_2$S$_3$ amorphous layer comp. and elec. props. 4−49091
Se, particle growth in flowing inert gases, electron microscope and diffr. obs. 4−49562
Se film, sputtered, supermol. formations 4−69967
Se-Bi film, heterogeneity and dielectric props. obs. 4−76209
Se-Bi(-As), film, permittivity, freq. and heat treatment depends. 4−67514
SiO-BaO, film, in m.i.m. struct., electron emission 4−61279
SiO$_2$, film, catalyzed crystallization, P diffusion 4−75730
SiO$_2$, low temp. sp. ht., lattice vibr. model 4−69920
SiO$_2$ film, amorphous, trap ionisation by electron impact, effect of Na centres 4−60891
SiO$_2$ layers, TSEE glow curves, correl. between short range order defects and electron trap spectra 4−49548
SnO$_2$, film deposition, sputtered or anodized 4−44805
TbFe$_2$, amorphous, anomalous small-angle magnetic scatt. 4−70154
Ti-Cu(Fe)(Ni) alloys, amorphous phase and metastable solid soln. form. *(Russian)* 4−45536
TlCl film, local atomic arrangement, electron diffr. obs. 4−75738
UO$_2$ film, crystn., electron diffr. obs. 4−53018
V film, supercond. props. *(Russian)* 4−76006
YFe$_2$, amorphous, anomalous small-angle magnetic scatt. 4−70154
Zr-Cu(Fe)(Ni) alloys, amorphous phase and metastable solid soln. form. *(Russian)* 4−45536
Zr$_{0.4}$Cu$_{0.6-x}$Fe$_x$, spin fluctuations and spin-spin interactions, susceptibility and resist. obs. 4−64185
ZrO$_2$, dehydrated amorphous, crystn. and transforms., Raman scatt. obs. 4−49897

amplification
see also acoustic wave amplification; amplifiers
convective, in jet noise 4−44071
laser pulse, in electron beam controlled pulsed discharge 4−65893
magnetospheric u.l.f. wave stimulated amplification by injection of plasma clouds and particle beams 4−70805
mass spectrometer, correl. type, sensitivity depend. *(Bulgarian)* 4−81030
microscopy, optical scanning, OTF enhancement scheme 4−65446
m.i.s.i.m. structures, electron flow 4−70077
parametric four-photon-oscillator, amplification considering pump wave depletion *(German)* 4−55511
CO$_2$ laser, excitation and gain calcs. 4−59389
He-Ne laser, cone-shaped discharge tube, power increase 4−69052

amplification measurement *see gain measurement*

amplifiers
see also amplification; d.c. amplifiers; differential amplifiers; operational amplifiers; preamplifiers; pulse amplifiers; ring lasers; wideband amplifiers
biomedical, with f.e.t. input and input capacity compensation facility 4−51198
low-noise amplifier for resistance noise thermometer operating at 4-300K 4−42750
phase-sensitive, wide range, phase meas. applic. *(Bulgarian)* 4−81077

amplifying *see amplification*

amplitude limiting circuits *see limiters*

amplitude modulation
demonstration for students using two oscillators and a speaker 4−54784
high frequency a.m. signal, time-intensity trading functions, auditory system 4−80715
i.r. spectrometer, modulator for IPO-12 attachment 4−65433
mass spectra oscillograph monitoring, amplitude modulation of brilliance *(Slovak)* 4−81029
semiconductor, radiation modulation using Gunn effect, appl. for laser beams 4−82689

amplitude selectors *see limiters*

analogue computer applications
see also simulation
field ion microscope simulation, field distrib., ion trajectories 4−65541
Fourier transforms by analogue computer, educational paper 4−54780
gas-solid interaction, analogue computer programs *(German)* 4−44756
neutron spectrometers, analog signal processing 4−55099
reflected seismic wave data, parabolic summation on analogue computers *(Russian)* 4−57944
teaching aids using analogue computer generated displays 4−58727

analogue computer circuits
see also differentiating circuits; function generators; integrating circuits; operational amplifiers
membrane model, Hodgkin-Huxley type, using f.e.t.s 4−83299

analogue computer methods
heat exchanger serial solution 4−62427
nuclear reactor fuel temperature profiles simulation *(Russian)* 4−47797

analogue computers
see also analogue-digital conversion; digital-analogue conversion
coherent, symbol recognition, holography application *(German)* 4−46682

analogue-digital conversion
see also comparators (circuits); digital-analogue conversion
CAMAC single crate controller and A/D interface module for tandem Van de Graaff accelerator 4−46777
charge meter, integrating, for radiographic units 4−46448
dead-time decrease in convertors for nuclear instrumentation *(Russian)* 4−46869
distorted a.c. voltage/current/power, multirange meter *(German)* 4−46758
integrator, low-drift printing, type applic. 4−81064
linear, accurate, temp. independent, stable dock frequency 4−68732
phonocardiograms digital analysis 4−58970
photoneutron research, data sorting and processing system 4−55061
voltage-frequency convertor, use of two operational amplifiers *(Czech)* 4−54993

analogue-digital convertors *see analogue-digital conversion*

analytical chemistry *see chemical analysis*

anaphoresis *see electrophoresis*

AND gates *see logic gates*

anechoic chambers
improvements to small free field listening room 4−80792
loudness summation beween tones from two loudspeakers 4−80790
measuring techniques *(German)* 4−65305

anelasticity
see also creep; damping; internal friction
creep, anelastic strain contribs. 4−53698
deformable solid, mech. energy dissipation during thermal diffusion processes 4−48707
ice, theory of relax. in disordered cubic and hexagonal crystals 4−44601
isotropic materials, u.s. reson. pulse technique for small specimens meas. at high temp. 4−42717
material uniformity and inhomogeneity in anelastic bodies 4−63855
metallic glasses, mech. characts. 4−76453
porcelain, firing temp. effect on elastic and anelastic consts. *(French)* 4−80062
steel, heat resistant, damping characts. under uniform tension-compression, effect of temp. 4−49826
stress waves, propagation in anelastic multi-layer body 4−49986
Al, anelasticity during plastic deformation of single crysts. *(German)* 4−73333
Cu, anelasticity during plastic deformation of single crysts. *(German)* 4−73333
Mo, dislocation relaxation peaks in single crysts. 4−61360
Ti alloys, damping properties w.r.t. microstruct. 4−49827
Zn-Al eutectoid, superplastic, relax. behaviour *(French)* 4−49797
Zr, cold worked, low temp. relax. processes 4−45622

anemometers
acoustic Doppler shift system 4−50399
conical hot film, flow direction depend. of results 4−55171
Doppler laser system, for turbulence meas. in fluids *(French)* 4−51244
dropsonde for vertical wind measurements in thunderstorms 4−70840
hot film, arterial blood flow velocity measurements, in horses 4−50745
hot wire, const. temp., static calibration 4−81098
hot wire, for vel. fields downstream from four-bladed helix *(French)* 4−42968
hot wire response to sound pressure 4−68855
hot-plate, flow rate of dust-laden gas meas. 4−81109
hot-wire, effect of fluid property variations on response 4−51241
hot-wire, for low velocity gas flow meas. *(Hungarian)* 4−46976
hot-wire, free convection flow, effect of interfaces 4−75080
hot-wire, spectrum of rotor noise caused by atm. turbulence 4−77004
hot-wire coil probe for high-speed flows 4−46973
laser, filter bank signal processor application 4−77329
laser, meas. of vel. var. behind shock wave, dust particle accel. in shock tube 4−72325
laser, supersonic free jet investigation 4−74191
laser, trailing vortices in water, meas. 4−72286
laser anemometer turbulent flow measurements, biasing correction 4−42975
laser-Doppler, flow rate of fluids meas. 4−51238
laser-Doppler meter *(German)* 4−46701
linearized constant-temperature, for vel. meas. at extremely low wind speed 4−50395
measurement of temperature-velocity fluctuations in turbulent boundary layer 4−69575
propeller anemometer response to turbulent flow, mean wind vector perpendicular to rotation axis 4−68277
'sodar', wind velocity meas. influence of atmospheric acoustic wave refraction *(French)* 4−76758
Taylor vortices, meas., very restricted spaces *(French)* 4−43995
thermoanemometer wire sensor, freq. characts. *(Russian)* 4−81103
transducers, film and hot-wire, calibration in supersonic turbulent flow *(Russian)* 4−60202
vortex rings in air obs., laminar and turbulent 4−75111
vortices shedding mode, transition, separation point *(Japanese)* 4−63547

angle measurement *see angular measurement*

angular correlation techniques
annihilation photons, exptl. resolution of apparatus 4−46800
g-factor meas. effect of finite time resolution on time differential directional correlation 4−46799
gamma-gamma meas. with 1 1Ge(Li)-3NaI(Tl) detector system 4−62516
ionospheric reflected radiowave arrival angle distrib. under vertical and inclined sounding, theory and expt. 4−73581
PAC, polarisation directional meas. technique 4−74115
PAC, zero field, paramag. relax. effects *(French)* 4−45211
perturbations of time-independent interactions, formulation of theory, $\gamma\gamma$ experiments 4−62514

angular correlation techniques continued
- perturbed angular correlation and multiple lifetime expts., data analysis method 4−77168
- Cu, annihilation photons, ang. correl. tails 4−69979
- ^{64}Cu annihilation radiation, automatic corrections for deadtime effects and lineshape changes 4−62515
- KCl, coloured, positron annihilation 4−69804

angular measurement
- *see also angular velocity measurement*
- atomic angular distributons, influence of apparatus geometry on differential cross-sections 4−69434
- automatic, optical interference method, anal. 4−73981
- diagram tacheometer, circle reading stabilisation 4−46111
- heterodyne laser interferometer with acousto-optical modulator 4−80907
- interferometer, Michelson modified folded type, design for angular meas. 4−65449
- oblique cuts 4−46561
- photoelectric autocollimator sensitivity and stability tests 4−77067
- photoelectric azimuthal polarimeter 4−51017
- wedge angle, semiconductor, Nomarski interferometry 4−42701
- X-ray film, device for glancing angle determ. *(German)* 4−52657

angular momentum
- classical relativistic, behaviour in Minkowski space 4−65772
- Earth-Moon system, angular momentum rel. to gravitational constant 4−55340
- e.m. energy absorption and emission, angular momentum transferred 4−65717
- mixing, in rotating liquid-filled cylinder 4−63548
- rigid body, ang. momentum w.r.t. moving points, teaching method 4−58688
- spiral galaxy angular momentum per unit mass 4−65217
- stars in late stages of evolution, angular momentum exchange 4−54461
- torque on cylinder in magnetic and thermal fields, conservation of momentum 4−63514

angular momentum theory
- *see also quantum theory; Regge poles and trajectories*
- boson operator representation, operators, eigenfunctions and coherent states 4−68923
- classical relativistic spin theory, generalised constraints, mass spectra 4−71391
- coherent states, comp., Clebsch-Gordan coeffs. 4−74374
- coupled boson representation in calc. of two-dimensional harmonic oscillator matrix elements 4−74373
- coupling coefficients, calc. procedure *(Russian)* 4−65752
- equivalent angular momentum operators for second quantised operators 4−43146
- extended 3j coefficients of SU(2) and SU(1,1), function symmetries 4−81392
- Faddeev's three-body equations for spinless particles 4−43147
- generalised 6j-coefficients and their symmetries 4−81395
- light-quark hadron spectroscopy, exptl. and angular momentum systematics 4−59580
- many electron atoms, J^2,S^2 4−78323
- muonic atom, highly excited, energy levels 4−78384
- nuclear momentum operator anal. reln. to transition operator boson 4−55747
- one-particle tensor operator reduced motion elements evaluation for jj-coupling configs., computer program 4−55304
- reduction of electromagnetic fields, non-zero mass system 4−77759
- relativistic, Kerr congruence 4−47176
- three-body problem, elimination of coordinate singularity at equilateral triangle config. 4−81223
- wave functions, angular-momentum adapted, and reduced transition density matrices 4−55311
- Wigner's D-functions, summation theorems *(Russian)* 4−77520

angular velocity measurement
- No entries

animal communication *see biocommunications*

anisotropy, magnetic *see magnetic anisotropy*

anisotropy, magnetocrystalline *see magnetic anisotropy*

annealing
- *see also work hardening*
- α-brass, quenched, annealing of secondary defects 4−73299
- 2Cr-1Mo pressure vessel steel, before and after neutron irradiation 4−79989
- elastoplastic solids, annealing model 4−59190
- electric furnace for studying inert gas liberation kinetics 4−80851
- F-centre thermal annealing, heavily γ-irrad. alkali metal halide crystals, thermoluminescence 4−67668
- garnet, hard bubble suppression by inert atm. annealing 4−64247
- garnet film, hard bubble suppression, N_2 annealing 4−70189
- glass, ultrasonically assisted stabilization and thermal treatment effects on refr. index 4−61125
- glass production, annealing programme rel. to possibilities and limits for increase in mechanical strength 4−76550
- graphite, obs. of anelastic relax. by point defects in neutron irradiated samples 4−56808
- magnetic amorphous bubble domain film 4−45155
- metal, quenched-in nonuniform vacancies, annealing kinetics 4−76448
- metal and alloy thin films, strength props. 4−49823
- metal tip, conical, profile changes on simultaneous evap. and surface diffusion *(French)* 4−44755
- metals and alloys, texture development during annealing *(Russian)* 4−73291
- mineral fission track age corrections rel. to geological annealing 4−80250
- m.o.s. capacitors, u.v. light illum. 4−70074
- m.o.s. structure, electron irrad., thermal annealing behaviour 4−49077
- Permalloy, mag. annealing of single crysts., expt. *(Russian)* 4−67389
- Permalloy, quenched single crysts., annealing effect on rolling induced anisotropy *(Russian)* 4−49187
- poly(decamethylene oxide), rel. to polymorphism 4−75464
- polyethylene, chain defects effect on thermal behaviour 4−61545

annealing continued
- polyethylene, heat treated, lamellar struct., deform effect, l.f. Raman spectrum 4−79721
- polyethylene terephthalate, stretched, thermal shrinkage and glass transition *(Japanese)* 4−80107
- polymer, crystalline, crystn. and annealing at h.p., review *(Russian)* 4−50027
- polypyromellitimide, cold-drawn, thermal shrinkage *(Japanese)* 4−80108
- powder, polycryst., magnetoelec., susceptibility following annealing 4−76059
- quartz, effect on impurity water 4−52780
- quartz glass, elec. cond. and depend. on heat treatment 4−44913
- steel, austenitic stainless, high-angle grain boundaries, annealing of dislocations 4−82862
- steel, carburization annealing, diffusion problem 4−67842
- steel, deep-drawing type, earing 4−82871
- steel, high C and high Ni, cementite orientation during martensite carbide disintegration *(Russian)* 4−73293
- steel, low-alloy, intercryst. stress corrosion cracking *(German)* 4−45579
- steel, low-C, oriented nucleation 4−82872
- steel, mild, deform. processes during cracking due to static and pulsating tensile stresses *(German)* 4−53705
- steel, Ni-Mo-Cr type, temp. and holding time at stress relieving effects on internal stresses and mech. props. *(German)* 4−67812
- steel, softening of cold worked austenitic phase and subsequent martensitic transform. *(Russian)* 4−82832
- steel, stainless, boron-containing, irrad., swelling mechanism 4−43663
- steel, surface layer hardening by laser irrad., heat treatment conditions depend. *(Russian)* 4−79982
- steel, tool type, ductility increase on annealing at 630°C 4−76493
- texture development in recrystn., review 4−70466
- Ag, dispersion strengthened with MgO, stability and elec. cond. *(Russian)* 4−49782
- Ag, single cryst. rod., oxygen annealing for low elec. resist. 4−70491
- Ag-Ni system as model two-phase alloy for recrystn. behaviour 4−79966
- Al, annealing deformed, neutron irradiation effect on structural changes *(Russian)* 4−53774
- Al, dislocation loop nucleation and growth 4−56754
- Al, dislocation structure form. during deform. *(German)* 4−53694
- Al, elongated and annealed, mutual annihilation of dislocations, obs. *(Japanese)* 4−49692
- Al, grain size control 4−70465
- Al, He bubble formation, coalescence 4−70498
- Al, quenched, effect on electrical resistivity 4−57076
- Al, tempered, photostimulated exoelectronic emission in annealing process *(Russian)* 4−73237
- Al, X-ray topographic study of isothermally and thermal cyclic annealed specimens 4−67785
- Al alloys, dynamically strain ageable, annealing characteristics 4−73324
- Al and alloys, spectral emission intensity rel. to cold plastic deform. *(French)* 4−64595
- Al-Cu (4 wt.%) alloy, neutron irrad. effects on precip. 4−76443
- Al-Mg, high-angle grain boundaries, annealing of dislocations 4−82862
- Al-Pb (5 wt.%) alloy, obs. of annealing of liquid Pb inclusions in Al matrix 4−70493
- Al-Pt solid soln., non-equil. phase behaviour 4−49651
- Al-Si alloy, dil., effect of annealing temp. on clustering processes 4−67800
- Al_2O_3, alumina, hot pressed, effect on fracture toughness, strength and microstruct. 4−49891
- As-Te, As-Te-I, devitrification effect, elec. cond. meas. 4−64083
- As_2Se_3-Sb_2Se_3, amorphous alloy, effect on relax. processes 4−44482
- Au, electron bombardment induced defects, substruct. of stage III annealing *(Russian)* 4−48650
- Au film, evaporated, annealing behaviour 373-873K, electron diffr. obs. 4−53017
- Au on KCl (100), coalescence by intercrystallite collisions *(French)* 4−67139
- Au-Al couples, diffusion form. of intermetallic cpds. using evap. Al films *(Japanese)* 4−45502
- Au-Fe (60%), amorphous state above room temp., resist. and struct. obs. 4−72661
- B_2O_3-CaO glass:Fe^{3+}, heat-treated, ^{57}Fe Mossbauer and X-ray photoelectron spectra meas. 4−73054
- $BaSO_4$:Sm(Eu), thermoluminesc. mechanism determ. 4−82761
- Be layers, modified with Al, high temp. supercond. stabilisation *(Russian)* 4−70096
- BeO, irrad. and nonirrad., surface relief changes on annealing 4−48819
- C, pyrolytic, highly oriented, high-temp. neutron irrad. effects 4−74792
- C, pyrolytic, thermally induced struct. modifications rel. to deposition temp. 4−81620
- CaF_2, γ-irrad., colouring kinetics and annealing 4−53482
- n-CdS, electron irrad. damage, isothermal Hall effect obs. 4−44564
- p-CdTe, electron irrad., defect annealing behaviour 4−60755
- CdTe, heat treatment effects, surf. cond., lattice ordering ion implantation studies 4−45479
- CdTe, ion implantation, lattice disorder and elec. activity 4−79886
- $CeO_2 + U_3O_8$, high-temp. reactions in air and in hydrogen, composition of resultant *(Czech)* 4−43649
- Co-W alloy, quenching and annealing effect on magnetic state *(Russian)* 4−79546
- Cr-HfC alloys, quenched and annealed, phase diagram *(Russian)* 4−82833
- Cr-Y(Gd)(Sm), dil., deformed, struct. changes *(Russian)* 4−67773
- Cr-ZrC alloy, quenched and annealed, phase diagram *(Russian)* 4−82833
- Cu, effect on thermal neutron irrad. induced changes in elastic consts. 4−79071
- Cu, explosive loading, effect on Young's modulus, internal friction 4−82934

annealing continued
- Cu, neutron irrad., defect clustering in annealing stage, anomalous X-ray transmission obs. 4−52788
- Cu, recrystallisation, nucleation mech., effect of plastic deformation and annealing *(German)* 4−67794
- Cu, ultrahigh-purity, thermal cond., effect of annealing in oxygen of low partial press. *(German)* 4−53080
- Cu bicrystal, annealing twins, faceting and grain boundary pinning 4−49705
- Cu-Au alloys, formation and growth of Cu_3Au_{II} in deformed matrix 4−61365
- Cu-Ge(5 at.%), ang. distrib. of annihilation photons, recovery by annealing 4−72488
- Cu-Ni-Mn bondable fatigue gauge, elec. resist. changes during fatigue 4−80050
- Cu-Ti(5 wt.%) alloy, hardness recovery anomalies *(Russian)* 4−49793
- Cu_2O, high temperature, microstructural changes 4−73254
- Cu_2S-Sb_2S_3 system, investigation at 320-400°C 4−67033
- Dy thin sheet, secondary recrystallisation, magnetisation obs. at 4.2K and 77K 4−79540
- Fe second phase form. at microvoids and gas atom entrap. in fusion react. wall 4−78244
- Fe:^{151}Gd, Mossbauer spectra of ^{151}Eu, lattice location, internal oxidation 4−73056
- Fe-Al alloy, antiphase domain struct. during annealing, electron microscope obs. 4−53678
- Fe-Al alloys, ordering kinetics 4−49678
- Fe-C alloys, heavily compressed, recrystn. nucleation and texture development 4−82869
- Fe-Co-V (2.5 to 3.0 wt.%) alloy, phase equilib., annealing, microstruct. 4−70441
- Fe-Co-V alloy, heat treatment influence on microstruct. 4−79940
- Fe-Co-V alloys, mag. and mech. props. correl. with microstruct. 4−80014
- Fe-Mn, Fe-Ni and Fe-Mn-Ni, surface segregation behaviour of Mn and Ni 4−53669
- Fe-Ti alloys, nitrided, struct. changes during annealing 4−53680
- Fe_2O_3/Al_2O_3 solid solution, e.p.r. anal. *(German)* 4−45183
- GaAs, (111) annealed surfaces, AES obs. of As vacancies 4−67690
- GaAs, electron beam induced defects, elec. props. meas. *(Russian)* 4−67721
- GaAs, ion implanted, lattice expansion, annealing, X-ray obs. 4−76400
- GaAs:Cd, impurity diffusion during annealing, capture by vacancies 4−75648
- GaAs:Te 70 keV ion implantation, photoluminescence and He ion channelling obs. 4−49610
- GaAs:Zn, effect on Hall effect meas., surface carrier conc. 4−44939
- $GaAs_{1-x}P_x$:N, ion implanted, photolum. 4−53497
- β-Ga_2O_3, neutron irrad., defect annealing 4−69832
- GaP, effect on photoluminesc., Hall effect 4−49012
- GaP, ion implanted, optical props. after annealing at 600°C 4−61307
- n-Ge, annealing of electron radiation induced defects, 360K, impurity effects 4−82201
- n- Ge, electron bombardment, recovery spectra of electrical cond. at 77K 4−64123
- n-Ge, group V doped, low temp. recovery of irrad. defects, annealing investig. 4−63841
- Ge, intrinsic, quenched, elec. resistivity obs. 4−52754
- Ge, single crystal, effect of preliminary thermocyclic treatment *(Russian)* 4−44545
- p-Ge converted by electron irrad., transformation of simple defects at 200K 4−69801
- Ge film, amorphous, defects and crystn., resist. obs. during annealing 4−75731
- n-Ge:P(As)(Sb)(Bi), γ-irrad., acceptor levels, annealing obs. 4−60761
- Ge:Sb(Ga), dislocation motion, surmounting of local obstacles *(Russian)* 4−79042
- Ge-nitride, oxide and oxynitride films formed by ion implantation 4−76396
- Ge-Si heteroepitaxial system, struct. perfection 4−67125
- $Ge_{15}Te_{80}As_5$ glasses, surface nucleated crystn. 4−60416
- HgSe, annealing effect on nature of donor defects 4−56735
- InAs, Ge^+, Si^+ ion implantation, donor and acceptor levels, annealing effects 4−75816
- InSb, plastically deformed, neutron-irrad. defects, annealing 4−56781
- KCl, KCl:Ag, V_k centres effect on positron annihilation at 77K 4−56774
- KCl, thermal annealing kinetics, luminesc., decay of F' centre, 80 to 300K 4−82739
- KCl-OH^- system, annealing induced effect on paraelectric reson. spectrum 4−49283
- $KMgF_3$ effect on dislocation struct. 4−52776
- La_2Te_3-La_2Se_3 system, synthesis and X-ray phase anal. 4−48735
- LiF, dislocation density change during annealing under load 4−60508
- LiF, effect on H-centre dislocation pinning 4−44600
- LiF thermoluminescence plaques, use without furnace annealing 4−46497
- LiF:Mg, precipitation kinetics at low annealing temps., thermal cond. meas. 4−67049
- $LiNbO_3$, kinetics of colour changes during radiation and annealing *(Russian)* 4−52756
- $LiNbO_3$:Fe, control of Fe^{2+} concentration 4−56764
- MgO, neutron irradiated, X-ray diffr. profiles, charges on annealing 4−82205
- Mn-Cu alloys, fine struct. characterised by high damping capacity *(Russian)* 4−73277
- MnBi films, prep. by vacuum evap. and annealing diffusion process analysis 4−76384
- Mo, deformed, temp. and e.m. radiation influence on elec. resist. *(Russian)* 4−79327
- Mo, deformed annealed single crysts., substruct. obs. *(Russian)* 4−79943
- Mo, neutron bombard., radiation defects, kinetics of annealing *(Russian)* 4−66940

annealing continued
- Mo, resist. recovery, stage III and IV annealing mechanisms 4−79959
- Mo, resist. recovery, stage III and IV annealing mechanisms 4−79960
- Mo, vacuum-melted, annealing temp. and addition effects on struct. and mech. props. *(Russian)* 4−45709
- Mo alloy prep. by cooperative mag. reduction of tetrachlorides *(Russian)* 4−45715
- Mo strip with monocryst. polygonized struct. 4−49836
- Mo-Zr-C alloys, effect of Ni, structure and props. on annealing *(Russian)* 4−80020
- NaCl, cryst., colour centres *(Russian)* 4−75523
- NaCl, investigation, from proton backscatter and channelling *(Russian)* 4−82306
- Na_2O-$3SiO_2$ glass, Na diffusion, anomalous effects of water 4−53813
- $NaPO_3$-ZnO melts, effect on luminesc. and e.p.r. spectra *(Russian)* 4−57594
- Nb, cold rolled, recovery of mech. props. *(French)* 4−49748
- Nb, electron irrad., intrinsic stage III annealing 4−66938
- Nb-Ti(Zr), supercond., small mag. fields, crit. current density 4−72909
- Nb-Zr, constitutional equilib., obs. using supercond. temp. transition 4−57726
- Nb_3Al film, annealing influence on supercond. transition temp. 4−72902
- Nb_xO, x=2,6, segregation, properties and microstructure 4−67044
- $Nd_xLa_{1-x}P_5O_{14}$, growth for laser action, characterization 4−49555
- Ni, high-angle grain boundaries, annealing of dislocations 4−82862
- Ni, struct. changes during alternate thermocyclical working and annealing *(Russian)* 4−82914
- Ni hardening under shock waves, softening during subsequent annealing *(Russian)* 4−76459
- Ni-Al, high-angle grain boundaries, annealing of dislocations, hot-stage electron microscopy meas. 4−82862
- Ni-Co (25%) alloy, ordering in deform. and annealing, transform. characts. *(Russian)* 4−79904
- Ni-Co alloy, effect of mag. transform. on stacking fault energies *(Russian)* 4−79947
- Ni-Cr alloys, elec. resist. recovery, excess defect conc. and short-range order form. *(Russian)* 4−73290
- Ni_3Al, cold worked, anomalous recovery effects during isothermal annealing 4−76503
- Ni_3Mn, Curie point, ordering, annealing techniques 4−82559
- Ni_3Mn, superparamag. Curie point, changes during atomic ordering 4−64203
- Pb, electron-irrad. at 1.5K, isochronal annealing 4−79064
- PbS, air-annealing change in dislocation distribution and hardness 4−79041
- PbTe, bulk and thin film thermodynamics, defect props., struct. correl. with elec. props. 4−79249
- Pd-H system, stability, plastic deform. influence, resist. meas. *(Russian)* 4−53677
- Pd-Si contact, effect on struct. and elec. props. *(Russian)* 4−60675
- Pt resistance thermometer annealing for stability *(Russian)* 4−80849
- Pt-Fe, diffusion, evaporation, thermodynamic properties 4−70470
- Se and Se-Te glasses, DTA *(French)* 4−63765
- Si, amorphous, prep. conditions effect on props. 4−79888
- Si, effect on minority carrier lifetime and m.o.s. dielec. breakdown 4−57174
- n-Si, electron scatt. due to plastic deformation *(Russian)* 4−72780
- Si, film, effect on P, B ion implantation 4−45437
- Si, high temp. ion irrad., annealing of defects 4−72501
- Si, implantation damage, Raman spectra 4−57541
- Si, ion-implanted, defect generation, role of sequential annealing, oxidation and diffusion 4−61308
- Si, p-n junction, P, As and B implanted, annealing props. 4−76394
- Si wafer, annealing effect in loop defect generation 4−82818
- Si:As, effect on doping profile and mobility 4−64503
- Si:B, high-dose implanted rel. to incomplete activation 4−61312
- Si:B, isothermal annealing effect on sheet resist. 4−76404
- Si:Li, implanted, annealing effects on doping profile 4−57718
- Si:P, He^+ irradiated, isochronal annealing meas. to detect conductivity changes 4−82822
- Si:P, polycrystn. film, effect on resist. 4−45027
- n-Si:P, resistivity, following thermal neutron irradiation, isochronous annealing 4−75860
- Si:P^+, effect on radiation damage during ion implantation 4−73268
- Si-Ge heteroepitaxial system, struct. perfection 4−67125
- SiC, polytypic transitions, effect of annealing and doping with B and N 4−53657
- $SmCo_5$, microstruct. changes caused by O_2, sinter-annealing and thermal ageing 4−64549
- $Sr_{1-x}Ca_xCl_2$, colour centres, e.p.r. spectrum effect 4−57378
- SrF_2:CeO_2, radiation coloured, thermodiscoloration 4−73143
- Ta, deformed at 4K, resist. recovery, isochronal annealing curves 4−76506
- Ta, electron irrad., intrinsic stage III annealing 4−66938
- Ta-N system, modulated structure 4−76429
- β-Ti alloy, ductility increase by thermomech. treatment *(Russian)* 4−53713
- Ti-Al-Fe and Ti-Al-Cr-Fe alloys, heat treatment and mech. props. 4−73331
- Ti-Al-V alloy, kinetics of annealing , hardness and resist. obs. *(French)* 4−76470
- Ti-Al-V alloy TA6V, microstruct. characts. as function of thermomech. treatments in $\alpha+\beta$ region *(French)* 4−49710
- Ti-Nb alloy, Zr and Fe alloying effect on struct. and resist. *(Russian)* 4−49639
- TiO film, on NaCl cleavage plane, struct., electron diffr. obs. 4−57008
- V, defect recovery, low energy electron irrad. 4−72490
- V, neutron irrad. at low temp., deform. characts. 4−76507
- V, neutron irradiated, oxygen Snoek damping and abnormal peak after annealing 4−81633
- V alloys second phase form. at microvoids and gas atom entrap. in fusion react. wall 4−78244
- V:O, neutron irrad. effects, interstitial trapping 4−43681
- V-H(D) systems, isotope effect on H(D) mobility 4−75647

annealing continued
$Y_{2.6}Sm_{0.4}Ga_{1.2}Fe_{3.8}O_{12}$, growth induced anisotropy, annealing effect, temp. depend. 4−76101
Zn, quenching effects and vacancy characteristics 4−63827
Zn bulk crystals, dislocation annealing and oxidation, X-ray topographic obs. 4−70467
$ZnCr_2Se_4$, effect on elec. props. 4−60793
ZnSe-Ge(100) heteroepitaxial system, struct. perfection, annealing, electron microscopy 4−67126
Zr, cold worked, low temp. relax. processes 4−45622
ZrO_2:Y_2O_3, hardening during high temp. creep *(Russian)* 4−53792

anodes
dimensionally stable anodes, conducting oxide, morphological props. 4−50174
field ionization and field desorption mass spectrometry device, automatic activation 4−77278
microsecond vacuum arc, anode surface radiance 4−78842

anodes, electrochemical *see electrochemical electrodes*

anodic machining *see electrolytic machining*

anolytes *see electrolytes*

anomalous skin effect
metal, e.m. field generation near cyclotron resonance *(Russian)* 4−82447
metal, sum rules for surface impedance 4−49030
metallic surface scattering of conduction electrons, correction to current density *(Russian)* 4−82469
metallic thin slab, cyclotron phase reson. variational calc. for anomalous skin effect regime 4−44955
plasma, convective ion-sound mode mechanism 4−44250
thin films, Umklapp surface scatter process 4−53137
Cu, single cryst., 35 GHz, at room temp. 4−64108
Cu, single crystal at 35 GHz at room temperature, obs. 4−44953
Cu, surface resist. of single crystal in mm. wave region at room temp. 4−75935

antenna arrays
see also antenna phased arrays; directional couplers
e.m. wave scattering by many gyrotropic cylinders of different kinds 4−68997
multi-element, oblique incidence e.m. wave diffraction *(Russian)* 4−77600
Stanford 5 element array, signal processing techniques 4−62249
very large array configs. for rapidly varying source obs. 4−62244

antenna lobe patterns *see antenna radiation patterns*

antenna patterns *see antenna radiation patterns*

antenna phased arrays
optical data processor, for r.f. information 4−65235

antenna radiation patterns
antenna beamwidth, determination using extraterrestrial sources 4−46345
aperture antennas, geometric diffraction theory, finite ground planes 4−43233
cavity-backed slot radiator for leaky microwave oven door 4−65268
diode in plasma, electron temp., and density estimation 4−44389
dipole antennas, for electron plasma wave, transmitting and receiving patterns 4−69618
flanged parallel plate waveguide, radiation into anisotropic plasma 4−66694
gain fluctuations due to radiowave propagation through turbulent atmosphere 4−46043
helical antenna, radiation fields in compressible electron plasma 4−48393
magnetoplasma, e.m. field radiated by alternating electric dipole antenna 4−48400
open-ended circular cylindrical waveguide in plasma column with central conductor 4−52556
plasma antenna system, open ended coaxial line, calcs. 4−63639
quarter plane, diffraction, exact general soln., special cases 4−43235
radioastronomical synthesis data interpolation, effect of ringlobes 4−62245
slot antenna, moving magnetoplasma layer, Doppler effect 4−44186
t.w. multi-turn circular loop, radiation characts. in compressible electron plasma 4−48394

antenna theory
apertures in conducting plane, field distribution 4−43234
edge diffraction at curved screens 4−47285
flanged parallel plate waveguide, radiation into anisotropic plasma 4−66694
frame antenna near linear current carrying conductor, e.m.f. determ. *(Russian)* 4−51123
gain fluctuations due to radiowave propagation through turbulent atmosphere 4−46043
magnetoactive plasma, circular antenna imput impedance, calcs. *(Russian)* 4−63645
magnetoactive plasma, frame antenna radiation resistance, calc. *(Russian)* 4−63646
multi-element array, oblique incidence e.m. wave diffraction *(Russian)* 4−77600
nonlinearly loaded wire, time-domain scattering 4−59339
reactional torque of radiating electric currents 4−71464
temperature distribution meas., polarised microwave emission, matrix approx. 4−46096

antennas
see also antenna radiation patterns; dipole antennas; directive antennas; microwave antennas; radar antennas; receiving antennas; reflector antennas; scanning antennas
cylindrical, immersed in warm isotropic plasma, e.m. wave propag., sheath effects 4−48397
gain and resolution effects of phase fluctuations due to tropospheric turbulence 4−80368
in plasma, electrical charact. 4−69621
resonant linear antenna as probe for electrical properties of geological media 4−68265
short dipole impedance in warm magnetoplasma rel. to ionospheric radiation resistance 4−44193
spherical, immersed in warm isotropic plasma, e.m. wave propag., sheath effects 4−48397

antibaryons *see baryons*

antiferroelectric materials
see also antiferroelectricity; ferroelectric materials
copper formate tetrahydrate, dimer models for antiferroelectric transition 4−57480
orthophosphate type, proton ordering, theory *(Russian)* 4−73091
$Bi_{0.7}La_{0.3}(Fe_{0.986}Mn_{0.014})O_3$, obs. of magnetoelectric effect 4−49011
$CdHfO_3$, growth from melt, dielec. and optical props. *(Russian)* 4−53381
$CsH_3(SeO_3)2$, p.m.r., H bonding, phase transition 4−70222
$NH_4H_2AsO_4$, and deuterate, antiferroelectric phase transitions, mag. reson. obs. 4−61116
$NH_4H_2AsO_4$, antiferroelectric, Raman scatt. obs. 4−53413
$NH_4H_2AsO_4$, γ-irradiation, $HAsO_3^-$ radical ENDOR obs., H bond antiferroelectricity depend. 4−61064
$NH_4H_2AsO_4$, theory of antiferroelectric phase transition 4−79681
$NaNO_2$, Brillouin scatt., Neel and Curie temp. regions 4−45288
$NaNbO_3$, birefringence rel. to struct. 4−70277
$NaNbO_3$, cation displacements, octahedral tilts, X-ray differnce refl. 4−69764
$Pb(ZnW)_{1/2}O_3$, paraelectric-antiferroelectric transition temp., press. depend. 4−73083
$PbZrO_3$, temp. depend. of elec. quadrupole interaction 4−76228

antiferroelectricity
see also antiferroelectric materials; ferroelectricity
copper formate tetrahydrate, proton spin-lattice relax. at antiferroelectric transition 4−61059
Ising model, pure dipole interaction 4−61123
phase transitions, optically distinguishable states, pot. appl. 4−62871
rock salt type crystal, interband vibronic interaction theory 4−70261
secondary ferroics, symm. 4−73084
spinel compounds, hidden phys. props. 4−70270
KH_2AsO_4, transverse susceptibility investigation 4−64354
KH_2PO_4, transverse susceptibility investigation 4−64354
$NH_4H_2AsO_4$, γ-irradiation, $HAsO_3^-$ radical ENDOR obs., H bond antiferroelectricity depend. 4−61064
$NH_4H_2AsO_4$, theory of antiferroelectric phase transition 4−79681
$NaH_3(SeO_3)_2$, γ-irrad., ordering in monoclinic γ-phase formed below T_c 4−49313

antiferromagnetic properties of substances
see also antiferromagnetism
actinide compounds, electron delocalisation model 4−57249
alkali hyperoxides, sp.ht., magnetization and susceptibility obs. *(German)* 4−49178
alkaline earth-rare earth mixed ferrites *(French)* 4−60951
asbestos, low temperature magnetic properties 4−82554
copper acetate-pyrazine, linear chain cpd., interdimer exchange 4−53283
Heisenberg paramagnet, second order Green function theory, mag. props. 4−53196
Invar, high field susceptibility, temp. depend. rel. to low temp. antiferromag. phase 4−72954
Invar, unidirectional anisotropy below 50K, coexistence of antiferromag. and ferromag. phases *(Russian)* 4−79534
lunar glass spherules, magnetic susceptibility of antiferromagnetic inclusions 4−46188
metal, spin wave dispersion in mag. field 4−76099
rare earth compounds, RVO_3, T_n, susceptibility 4−79501
rare earth germanomolybdates and germanotungstates, flux growth, mag. and crystallographic characteriz. 4−61287
semiconductors, magnetic with narrow bands, spin polaron theory 4−75826
thermal conductivity, ionizing radiation effects, defect model, antiferromag. single cryst. 4−44715
trimethyl ammonium manganese bromide, n.m.r., susceptibility, magnetisation 4−64213
uniaxial magnet, press. effect on magnetoacoustic reson. *(Russian)* 4−76135
Au_2Mn, antiferromag. spiral and ferromag. phases, sp. ht., 0.3-4K 4−53233
$Ba(Fe_xGa_{1-x})_2O_4$, critical concentration for para- to antiferromagnetic arrangement *(French)* 4−53240
$Ba_{0.4}Sr_{1.6}Zn_2Y$ ferrite, antiferromag. order, mag. struct. 4−76095
$Bi_{0.7}La_{0.3}(Fe_{0.986}Mn_{0.014})O_3$, obs. of magnetoelectric effect 4−49011
$(C_2H_5NH_3)_2CuCl_4$, susceptibility, spin wave theory, crit. behaviour 4−60965
$(CH_3)_4NMnCl_3$, proton spin-lattice relax. time meas. at low temp. 4−67483
$(Ce,Mg)NO_3$, dipolar heat capacity, 1K 4−82560
CeBi, single crystals, magnetic props., 2-30K 4−70181
$Ce_2Mg_3(NO_3)_{12}$, parallel susceptibility at zero temp., antiferromag. ground state 4−70146
$Ce_2Mg_3(NO_3)_{12}$, zero temp. parallel susceptibility 4−64193
CeS, mag. ordering, neutron diffr. obs. 4−57287
$CoBr_2.6H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4−61043
$CoBr_2.6H_2O$, susceptibility, spin wave theory, crit. behaviour 4−60965
$CoBr_2.6[(1-x)H_2O, xD_2O]$, deuteron quadrupole reson., low temp. antiferromag. struct. *(French)* 4−76184
$CoCO_3$, mag. birefringence, domain struct. obs. 4−79550
$CoCO_3$, mag. birefringence *(Russian)* 4−79706
$CoCl_3((CH_3)_3NH).2H_2O$, metamagnetism, spin arrangements and magnetisation state, n.m.r. obs. 4−57291
$CoCl_2.2H_2O$, metamagnetic behaviour determ. by neutron diffraction 4−53244
$CoCl_2.6H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4−61043
$CoCl_2.6H_2O$, mag. phase boundaries, spin wave renormalization 4−64205
$CoCs_3Cl_5(Br_5)$, mag. struct., Luttinger-Tisza calc. 4−45122
CoF_2, circular and mag. circular dichroism meas. 4−57567
CoF_2, Heisenberg antiferromagnet, two-magnon Raman scatt. using model Hamiltonian 4−45290
$Co(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
CoO, exchange interaction between orbitally degenerate Co^{2+} ions 4−49164
CoO, mag. anisotropy from exchange interaction and struct. 4−49188

antiferromagnetic properties of substances continued
CoO, neutron diffr. obs., 0.35-4.2K 4−72975
CoO, positron annihilation meas. 4−67365
CoO, transition effect on optical absorption edge 4−79749
CoS_2-NiS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
$CoSb_2O_6$, susceptibility, 4-1000K, Neel pt. *(French)* 4−45096
Cr, antiferromag.-paramag. transitions, spin density wave harmonics 4−64207
Cr, antiferromagnetic-paramagnetic transition, first order, role of harmonics 4−72968
Cr, heat capacity, high pressure, nr. Neel transition 4−49171
Cr, neutron microscopy, spin density wave domains, single crystals 4−70170
Cr, rare earth metal additions influence *(Russian)* 4−79515
Cr, static strain wave, simple itinerant electron model 4−79486
Cr, X-ray Debye temp., anomaly near Neel point 4−57269
Cr-Co nonferromag. dil. alloys, Invar and Elinvar characts. *(Japanese)* 4−61012
Cr-Fe alloy, mag. ordering, press. effects obs. 4−70151
$CrAl_7$, n.m.r., susceptibility and sp. ht. obs., antiferromag. to paramag. transition 4−64278
$CrAs_{1-x}Sb_x$, helimagnetism investigation, neutron diffraction meas. 4−64221
Cr_2O_3, $^4A_2 \rightarrow {}^2E$ optical exciton absorpt. spectrum, spin-rotation effect 4−49385
Cr_2O_3, positron annihilation meas. 4−67365
Cr_2O_3, R-line intensity, temp. depend., calc. 4−64374
$Cr_2Te_2S_x$, mag. props. investigation between 80 and 800K 4−45108
$Cr_2Te_2Se_x$, mag. props. investigation between 80 and 800K 4−45108
$CsCoCl_3$, mag. struct. obs. at 4.2K by neutron diffraction 4−57289
$CsCoCl_3.2D_2O$, magnetic phase diagram, tricritical point 4−79517
$CsFeBr_3$, structure and magnetic properties 4−72956
$CsFeF_4$, layer antiferromagnet, sublattice magnetisation, Mossbauer obs. 4−64241
$CsMnF_3$, dynamic susceptibility, spin wave excitation *(Russian)* 4−82620
$CsMnF_3$, electron and nucl. spin wave propag. *(Russian)* 4−72982
$CsMnF_3$, mag. birefringence *(Russian)* 4−79706
$CsNiF_3$, mag. phase diagram determ. by neutron diffraction 4−45116
Cu complex, dichlorobis (pyridine) Cu(II) static susceptibility meas. combined with heat capacity and e.s.r. obs. 4−53219
Cu complex, linear chain copper acetate-pyrazine interdimer exchange 4−53283
$CuCl_22NC_5H_2$, proton spin-lattice relax. time meas. at low temp. 4−67483
$CuCl_2.2H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4−61043
CuF_2, mag. and cryst. struct. 4−82569
$Cu_{1/2}Ga_{1/2}Cr_2S_4$, method for indexing neutron powder diffraction peaks 4−56588
Cu(I) complex, $CuCl_2 \times 2(NC_5H_5)$, zero point effects in susceptibility obs. 4−76064
Cu(II) complex, $[Cu_3(C_6H_5$-$N_2O)_3(OH)]SO_4.10.5H_2O$, Dzialoshinski interaction *(Russian)* 4−76072
$Cu(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
$CuWO_4$ small-dimens. antiferromag., mag. dilution effect on crit. temp. *(Russian)* 4−72971
Dy, magnetoresistance and field-induced phase transitions in the helical antiferromagnetic state 4−45112
DyAl garnet, time reversed antiferromag. states, magneto-optical rot., magnetisation depend. 4−64361
$DyFe_{0.998}Fe_{0.002}O_3$, spin reorientation transitions, mag. props. and n.m.r. *(Russian)* 4−70157
Dy_2O_3, Mossbauer study, relaxation, anisotropy, site depend. 4−70236
Dy_2O_2S, Dy_2O_2Se, mag. struct. determ. by neutron diffraction at 1.5K 4−57294
$DyPO_4$, Ising antiferromagnet, Mossbauer spectra, relax., anisotropy and site depend. 4−70236
DyS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4−76082
DyS, phase transition, susceptibility meas., tetragonal distortion 4−64206
DySb, Mossbauer spectra, DySb, effective field at ^{161}Dy nuclei, anomalous temp. depend. *(Russian)* 4−67501
$DyVO_4$, antiferromag. paramag. phase transition spectroscopic investigation 4−76078
Er, anisotropic exchange interaction, conical magnetic phase 4−64197
Er_2O_3, critical sp. ht. and 3-D Ising model 4−79516
ErS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4−76082
ErS, phase transition, susceptibility meas., tetragonal distortion 4−64206
EuTe, antiferromag. reson. line width, temp. and freq. depend. 4−61036
$EuVO_3$, mag. susceptibility meas., paramag. to antiferromag. transition 4−57264
Fe complex, iron(III)iodobisdithiocarbamate, mag. interactions 4−53222
Fe diluted with 3d transition elements, ferromag., antiferromag. exchange interactions 4−76067
Fe-Al alloys, ^{27}Al Knight shift and mag. susceptibility, 78-1100K *(Russian)* 4−79618
$FeBO_3$, antiferromag. reson., temp. depend., 4.2-350K *(Russian)* 4−70220
$FeBO_3$, mag. domain props., Faraday effect obs. 4−64238
$FeBO_3$, Raman scatt. by two-magnon excitations 4−64373
Fe_3BO_6, pure and doped, spin configs. and reorientation anal. 4−76094
$FeCl_3$, antiferromag., spin structure and phases, Mossbauer obs., 1.47-300K 4−45217
$FeCl_3$, two dimensional, intercalation in graphite, magnetic properties 4−64306
FeF_2, circular and mag. circular dichroism meas. 4−57567
FeF_2, heat capacity near antiferromag. transition 4−64218

antiferromagnetic properties of substances continued
FeF_2, Heisenberg antiferromagnet, two-magnon Raman scatt. using model Hamiltonian 4−45290
FeF_2, magnon and phonon interactions, external mag. field effects, theory 4−57296
$FeGeO_3$, evidence for spin-reorientation type phase transition 4−57282
Fe_xMn_{1-x}, itinerant-electron antiferromagnetism, theory 4−76048
$Fe(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
$Fe_{0.63}Ni_{0.37}$ antiferromagnetic, structure at liquid He temp. 4−49182
γ-$Fe_{5o}(Ni_xMn_{1-x})_{50}$, mag. phase diag. determ. by Mossbauer technique 4−53238
Fe_2O_3, haematite, birefringence of polarised Mossbauer gamma quanta *(Russian)* 4−82648
α-Fe_2O_3, haematite, form. from amorphous iron hydroxide, Mossbauer obs. 4−61069
α-Fe_2O_3, hematite, phase states in mag. field 4−76087
Fe_xO $(0.99 \leqslant x \leqslant 1)$, antiferromag. semicond., critical resist. 4−79519
$Fe(Pd_xPt_{1-x})$ alloy, mag. props., ferrimag.-ferromag. transition, Curie and Neel temps. 4−57273
FeRh, FeRhPd(Ir) ordered alloys, magnetisation, 4.2K, 0-370 kOe 4−79326
$FeS_{1+\delta}$, Neel temp., press. effects 4−67367
FeS_2-CoS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
Fe_2Te_3, high field magnetisation experiments 4−45225
Fe_2Te_3, magnetisation and supercond. Mossbauer and Meissner effects 4−82639
Fe_2TiO_4, giant magnetostriction, elastic consts., and anisotropy const., theory 4−45159
$GaMn_3C$, Mossbauer effect of ^{57}Fe, antiferro-ferromag. transition *(French)* 4−61080
Gd-Y (6-64 at.% Gd), magnetisation and microwave reson., mag. struct. 4−45099
Gd-Y alloy, mag. transition temp., press. effect 4−57272
$GdCrO_3$, moments below 100K and sp. ht. below 10K 4−76079
$GdCu_2$, antiferromagnetic-ferromagnetic transition, mag. props and indirect exchange 4−79520
GdSb, sp. ht. and resistivity above T_n 4−67368
^3He, solid, review on mag. data 4−56944
^3He, solid, specific heat meas. below 25 mk 4−56943
Ho, Hall coefficient anisotropy of single crysts. above Neel pt. *(Russian)* 4−60778
Ho, Hall effect anomalous in single crysts. in helicoidal mag. ordering region *(Russian)* 4−79337
Ho, u.s. attenuation, 10 to 70 MHz 4−45164
Ho with ^{111}Cd impurities, temp. depend. of mag. hyperfine field 4−76201
$HoAsO_4$, paramagnetic-antiferromagnetic transition, specific heat and spectroscopic meas. 4−82564
$HoPO_4$, magnetoelec. susceptibility meas. simple two sublattice Ising antiferromag. model 4−72955
HoSb, sp. ht. and resistivity above T_n 4−67368
HoSb, tricriticality, sp. ht. and resist. calc. in terms of mol. field model 4−67369
$InMCrS_4$, M=Fe, Co, Ni, Neel temp. determ., mag. susceptibility meas. 4−76083
K_2CoF_4, two dimensional Ising antiferromag., critical behaviour, neutron scatt. obs. 4−53231
$KCuF_3$, ^{19}F n.m.r., above T_n, line width temp. depend. 4−57400
$KCuF_3$, sp. ht. anomaly obs. at T_n 4−49169
$KFeCL_3$, neutron diffraction investigation of mag. struct. 4−64223
$KFeCl_3$, relax. effects and evidence for one-dimensional ordering using Mossbauer spectroscopy 4−76203
$KMn_{1-x}CoF_3$, exciton-magnon transitions in absorption spectra 4−70322
$KMnF_3$, neutron scatt. investigation of mag. excitations 4−79528
$KMnF_3$, spin reorientation in low temp. phase, antiferomag. reson. anal. 4−76084
K_2MnF_4, antiferromagnet, mag. circular dichroism of $^4A_1$, ^4E region 4−57558
K_2MnF_4, e.s.r., exchange narrowing 4−49217
K_2MnF_4, planar antiferromagnet, mag. transition, ^{19}F n.m.r. obs. 4−57278
$KNiF_3$, hydrostatic press. effect on Neel temp. 4−49170
K_2NiF_4, planar antiferromagnet, n.m.r. linewidth divergence 4−61044
K_2NiF_4, selfconsistently renormalized spin wave approximation 4−45124
$La_2Fe_2S_5$, neutron diffraction obs. of mag. struct. *(French)* 4−49185
$LaVO_3$, mag. sp. ht., 50-298K 4−79523
$MgMnO_4$-$MgAl_2O_4$, X-ray diffraction, electrical cond., mag. susceptibility and Seebeck coeff. meas. 4−82409
Mn-Ir alloy, γ-phase, crystallographic and mag. transitions obs. 4−45109
Mn-Ir alloy, γ-phase, neutron diffr. study 4−45119
Mn-Ni-Fe Elinvar-type alloy characts. 4−79567
Mn-Pd, cryst. and mag. struct., neutron diffr. obs. 4−70162
$MnCO_3$, dynamic susceptibility, spin wave excitation *(Russian)* 4−82620
$MnCO_3$, mag. birefringence *(Russian)* 4−79706
$MnCl_2.4H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4−61043
$MnCl_2.4H_2O$, mag. phase boundaries, spin wave renormalization 4−64205
MnF_2, ^{19}F n.m.r. obs. of domains and domain related inhomogeneous broadening, below T_n 4−76110
MnF_2, antiferromagnet, mag. circular dichroism of $^1A_1$, ^4E region 4−57558
MnF_2, antiferromagnet, magnetostriction meas. 4−82596
MnF_2, circular and mag. circular dichroism meas. 4−57567
MnF_2, critical point anomalies in zero-field relax. rates 4−73013
MnF_2, Heisenberg model, spin-phonon interactions, spin-wave spectrum 4−72938
MnF_2, Heisenberg model, spin-phonon interactions, phonon spectrum and spin-lattice relax. 4−72939
MnF_2, mag. field depend. of nuclear mag. relax. 4−76181

antiferromagnetic properties of substances continued
- MnF_2, neutron depolarisation for $T \sim t_n$ and $T \ll T_n$ *(Russian)* 4−72973
- MnF_2, spin wave width at intermediate temp. 4−64227
- MnF_2:Er, ordering effect on $Mn^{2+} \rightarrow Er^{3+}$ fluorescent energy, transfer 4−45354
- Mn_2F_5, synthesis and characterization *(French)* 4−48570
- $Mn^{125}I_2$:^{125}Te, antiferromag., Mossbauer studies of Te electronic state, quadruple coupling determ. 4−76194
- $Mn(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
- MnO, transition effect on optical absorption edge 4−79749
- MnO-P_2O_5 glass, amorphous antiferromag., magnetisation as function of temp. and mag. field 4−57320
- α-MnO_2, Neel temp., susceptibility meas. 4−45430
- Mn_3Pt, antiferromagnetic-antiferromagnetic transitions, model 4−72967
- α-MnS, transition effect on optical absorption edge 4−79749
- MnTe, positron annihilation meas. 4−67365
- $MnTe_2$, transport coeffs., Neel point anomaly 4−57285
- Mn_3TeO_6, antiferromagnetism, e.s.r. and susceptibility meas. 4−57271
- $MnTiO_3$, neutron scatt. exam. of anisotropic spin correlations 4−76086
- MnX_2L_2, X=Cl, Br, L=pyrazole, pyridine, linear-chain antiferromagnetism 4−64176
- β-Mn alloys, impurity mag. moments and ordering, n.m.r. obs. 4−67464
- α-Mn alloys, impurity sites and mag. moments, n.m.r. obs. 4−64269
- α-$NaFeO_2$, ordering scheme, exchange interactions 4−60963
- $NdCrTiO_5$, magnetoelectric cpd. with 2 sets of mag. sublattices, mag. props. 4−67378
- NdS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4−76082
- NdS, phase transition, susceptibility meas., tetragonal distortion 4−64206
- NdS(Se)(Te), mag. ordering, neutron diffr. obs. 4−57287
- $NdVO_3$, mag. susceptibility meas., paramag. to antiferromag. transition 4−57264
- Ni-Pt, spin coupling, variation with chem. order 4−70144
- $(Ni\ en_3)\ (NO_3)_2$, zero-field susceptibility rel. to temp. determ., mag. transition investig. 4−49167
- $NiCO_3$, phase transitions, 4.2-80K *(Russian)* 4−67374
- $Ni_xCd_{1-x}(NH_3)_2.Ni(CN)_4.2C_6H_6$, by sp. ht. meas. 4−76076
- $NiCl_2$/graphite lamellar cpd., disordered, phase transitions *(Russian)* 4−70160
- $NiCl_2(Br_2)$, reflectivity spectra, band struct. 4−67605
- $NiCl_2.6H_2O$, exchange constants determ. 4−79504
- $Ni_{0.9}Cu_{0.1}S_2$, neutron diffraction, exam. of mag. struct. and antiferromagnetism 4−79525
- NiF_2, weak ferromag., magnetisation meas. 4−79551
- $Ni_xMn_{1-x}Cl_2$, low temp. heat capacity, comp. depend. *(Russian)* 4−72974
- $Ni(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
- NiO, intensity behaviour of exchange reflections in LEED 4−76069
- NiO, order induced birefringence, crit. behaviour 4−60959
- NiO, T-wall domains, obs., differential interf.-contrast microscopy 4−72999
- NiO (111) platelet, with growth twins, antiferromag. domain structures 4−53254
- NiO-ZnO(CuO) solid solns., struct. and antiferromag. props., influence on reactivity 4−72969
- NiS, itinerant-electron antiferromagnet, mag. susceptibility and neutron scatt. obs. 4−53202
- NiS_2:Co, phase diagram, semicond. and metal phases 4−75933
- NiS_2-CuS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
- $NiSb_2O_6$, susceptibility, 4-1000 K, Neel pt. *(French)* 4−45096
- $NiWO_4$, spin wave spectrum, features resulting from low cryst. symm. 4−79530
- NpAs, NpP, NpSb, obs. of mag. struct. and ordering temps. 4−64224
- $NpPd_3$, magnetisation, Mossbauer and susceptibility meas., 1.5 to 300K 4−67359
- α-O_2, solid, crystal structure and antiferromagnetism anal. using spin-dependent intermolecular potential 4−67325
- $Pb(Fe_{0.5}Nb_{0.5})O_3$, ferroelec. antiferromagnet, magnetoresist. 4−53111
- Pd, magnetic form factor, 4.2K 4−70163
- $(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, low field susceptibility, temp. depend. in region of ordering temp. 4−64190
- PdMnTe Cl_b type intermetallic, crystallographic and mag. characts. 4−48543
- Pr-Ce, obs. of Kondo resist., temp. range 1.3-300K 4−44888
- PrAg, antiferromag. coupling of ferromag. (110) planes 4−49183
- PrO_2, amplitudes and cross sections for slow neutron scatt. by Pr *(Russian)* 4−79527
- $PuPd_3$, magnetisation, Mossbauer and susceptibility meas., 1.5 to 300K 4−67359
- Rb_2CoF_4, two dimensional Ising antiferromag., critical behaviour, neutron scatt. obs. 4−53231
- $RbFeBr_3$, linear chain, coupling and hyperfine parameters 4−64293
- $RbMnF_3$, antiferromag. susceptibility meas., evidence for temp. depend. of exchange constant 4−76063
- $RbMnF_3$, departure from universal behaviour, specific heat data 4−57240
- $RbMnF_3$, nuclear relaxation of ^{19}F 4−82629
- $RbMnF_3$, temp. and mag. field depend. of u.s. antiferromag. reson. near T_n 4−67456
- $RbMnF_3$:^{87}Rb, nuclear spin-lattice relax. meas., 27 to 500K 4−57416
- $RbMnF_4$, sp. ht. at transition 4−45113
- Sc-Gd alloy, dil., low temp. sp.ht. 4−64202
- $SmFe_{1-x}Al_xO_3$, mag. anomaly, compensation pt., induced moments 4−79502
- $SrMnO_3$, cubic perovskite type, magnetic structure 4−72976
- $TbIn_3$ polycryst. sample, neutron diffr. study 4−76090
- TbSe, mag. ordering, neutron diffr. obs. 4−57287

antiferromagnetic properties of substances continued
- $Th(Co_xFe_{1-x})_5$, intermetallic compounds, cryst. and mag. struct. 4−70167
- $TmCrO_3$, meas. of weak ferromag. moments, antiferromag. exchange and cryst. field splittings 4−76105
- $UAs_{1-x}S_x$ system antiferromag. and ferromag. props. with varying comp., 4.2 to 200K, magnetisation meas., 4.2 to 200K 4−79543
- $UC_{1-x}N_x$, solid solutions, magnetic properties 4−70165
- $UCrO_4$, magnetoelectric cpd. with 2 sets of mag. sunlattices, mag. props. 4−67378
- UCu_5, mag. struct., U mag. moment, neutron diffr. 4−57293
- UCu_5, susceptibility meas., transition temp. 4−64191
- UGa_3, neutron diffr., ordering determ., mag. moment 4−57292
- UP-USe, magnetic transitions, neutron diffr. 4−76081
- UP(As), mag. susceptibility as function of temp. 4−76062
- VF_2, helical magnet, mag. props. investigation by Green's function method 4−76061
- VF_4, antiferromag., mag. ordering obs. by mag. susceptibility and n.m.r. obs. 4−57283
- V_2O_3, positron annihilation meas. 4−67365
- V_4O_7, metallic and insulating, microscopic mag. props., ^{51}V n.m.r. obs. 4−45193
- V_7O_{13}, metallic, microscopic mag. props., ^{51}V n.m.r. determ. 4−45193
- Y-Ce-H, proton spin-lattice relax. 4−79628
- $YFeO_3$, Mossbauer effect, weak ferromagnetism 4−79522
- $YFeO_3$ alteration of antiferromagnetic order, Mossbauer study, $T \approx T_n$, 0 to 30 kOe *(Russian)* 4−82567
- $YMnO_3$, mag. struct. obs. 4−49184
- YVO_3, phase transition near 80K *(Russian)* 4−70159

antiferromagnetic resonance
- linewidth calc. for antiferromag. with easy-plane anisotropy, contrib. of magnon scatt. processes 4−57384
- magnon-phonon interactions influence on antiferromag. reson. linewidth 4−76167
- CoF_2, reson. freq. depend. on mag. field *(Russian)* 4−67460
- EuTe, temp. and freq. depend. of line width 4−61036
- $FeBO_3$, temp. depend., 4.2-350K *(Russian)* 4−70220
- Fe_2O_3, hematite, field induced transition effect 4−60961
- $KMnF_3$, spin reorientation in low temp. phase, antiferomag. reson. anal. 4−76084
- $RbMnF_3$, temp. and mag. field depend. of u.s. antiferromag. reson. near T_n 4−67456

antiferromagnetism
- *see also antiferromagnetic properties of substances; exchange interactions (electron); metamagnetism*
- amorphous antiferromagnet, misfit scatt. considerations and treatment in CPA-RPA theory 4−57228
- bicritical and tetracritical points, renormalisation group calcs. 4−79518
- charge transfer molecular solid, electron correl. 4−48890
- crystal field effect on freezing of orbital angular momentum 4−53189
- dielectric, two-dimensional, theory of two-exciton states 4−72736
- domain switching, magnetoelec. effect as simple obs. method 4−76108
- doped semiconductor, amorphous antiferromagnetism, cluster approach 4−64195
- easy-axis antiferromagnet, quadrupole impurity centre props. 4−79507
- e.s.r. spectrum calc. for Ising model with nearest neighbour antiferromag. coupling 4−79578
- f.c.c. type II substances, order parameter fluctuations near transitions *(French)* 4−76073
- frequency moments for two-spin light scatt. 4−53450
- Heisenberg antiferromagnet, cubic, two-magnon Raman scatt. in ordered region 4−57538
- Heisenberg antiferromagnet, divergent transport coeffs. at critical points, renormalization-group calcs. 4−51498
- Heisenberg antiferromagnet, Green's function anal. of paramagnetic phase 4−67335
- Heisenberg antiferromagnet, linear, two-magnon bound states 4−76034
- Heisenberg antiferromagnet, spin-phonon interactions, phonon spectrum and spin-lattice relax. 4−72939
- Heisenberg antiferromagnet, spin-phonon interactions, spin-wave spectrum 4−72938
- Heisenberg isotropic antiferromagnet, spin waves above Neel point 4−64180
- Heisenberg linear chain, susceptibility singular terms 4−45097
- Heisenberg magnets, ferromag. and antiferromag. coupling, dynamics props. 4−57234
- Heisenberg model, deformed, impurity states, variational calc. 4−76033
- Heisenberg model, disordered, distribution of magnon modes 4−57243
- Heisenberg model, mag. order, Pade, random-phase and mol. field approxs. 4−60934
- Heisenberg model, substitutionally disordered, coherent potential approx. application 4−67336
- Heisenberg-Ising ring, $\Delta \geqslant 1$, finite temp. excitations and thermodynamics 4−67338
- Hubbard model, disordered mag. insulator, proof of existence of band tails 4−57251
- Hubbard model, half-filled-band, single-particle spectrum, ground state antiferromag. character 4−82547
- Hubbard model, phase separation instability 4−79489
- Hubbard model, single band, stability of itinerant ferromagnetism versus antiferromagnetism 4−70135
- Hubbard model, strong correlations, theory based on generalized Hartree-Fock scheme 4−72949
- Hubbard model, two-band, thermodynamics 4−75753
- in insulator, correlation effect 4−49150
- in insulator, Slater's split-band theory rel. to Anderson's superexchange theory 4−49149
- internal stresses, existence in perfect sinusoidal antiferromagnets and helimagnets 4−76130
- Ising antiferromagnet, metamagnetic transition, mol. field approx. 4−45081

antiferromagnetism continued
  Ising model, correlation function in mol. field approx. and sum rule 4−49142
  Ising model critical field, magnetisation process, with first, second-neighbour interactions 4−67331
  Ising system, two dimensional triangular lattice, four cell approximation, critical surface determination 4−81246
  itinerant electron, impurity effect on transition temp. 4−60957
  itinerant electron model, effect of spin fluctuations 4−57244
  itinerant model, proximity effect 4−64181
  itinerant-electron antiferromagnetism of alloys, theory 4−76048
  LEED theory, intensity behaviour of exchange reflections 4−76069
  magnetic cluster substances, weakly interacting, phase transition behaviour, magnetic cooling appl. 4−67377
  magnetoelectric susceptibility, reciprocity relations 4−45103
  magnetostriction, forced, in cubic ferro-, ferri- and antiferromagnets, field depend. 4−67413
  metal, nuclear spin-lattice relax. rates investigation 4−67484
  Mott insulators, Hubbard model, small hopping probability, quasiparticle energy calc. 4−79487
  nonresonance absorption of sound in uniaxial antiferromagnets in strong mag. fields 4−76133
  nuclear spins and domain walls, coupled oscills. 4−79612
  one-magnon scattering of light, temp. depend. 4−74531
  parametric excitation of wave pairs in magnets with easy plane type anisotropy *(Russian)* 4−72981
  parametrically excited spin systems, stationary states *(Russian)* 4−82573
  phase transitions, instability of antiferromag. phase 4−79513
  powder, polycryst., magnetoelec., susceptibility following annealing 4−76059
  secondary ferroics, symm. 4−73084
  sound absorption in spin flop field region, domain wall motion effects *(Russian)* 4−70193
  spherical model and infinite-spin-dimensionality limit 4−45071
  spin dynamics, near magnetic bicritical points, antiferromagnetic-paramagnetic critical lines 4−82563
  spin flop, supersolid, bicritical and tetracritical points 4−57275
  spin wave damping, contrib. of magnon-phonon interactions, relax. processes 4−70174
  spin wave damping coefficients, single-quantum neutron scatt. 4−76098
  spin wave parametric excitation, nonlinear theory *(Russian)* 4−82574
  spin wave spectrum, effect of one-ion anisotropy 4−79529
  spin wave width at intermediate temp. 4−64227
  spin waves in helical single-band antiferromagnet 4−82571
  spiral spin antiferromagnet, method for indexing neutron powder diffraction peaks 4−56588
  square Ising spin lattice, critical surface renormalisation transforms 4−81248
  thin non-uniform films, domain wall movement *(Russian)* 4−67393
  TMMC, Green function decoupling, optical props. 4−45301
  transition metal compound, antiferromagnetism and insulator-metal transition in two-band Hubbard model 4−79306
  uniaxial, low temp. field induced phase transitions calcs. 4−60954
  uniaxial antiferromagnet, spin dynamics near tricritical point 4−76080
  uniaxial $S=1$ antiferromagnet, statistical mech., exchange interactions, Green function technique 4−82556
  CaF_2, ^{19}F nuclear antiferromagnetic state, susceptibility meas. 4−72958
  $CsCuCl_3$, antiferromag. piezoelectric, electromagnetooptical effect 4−57503
antihyperons *see hyperons*
antimony
  amorphous film, hopping cond. meas., 30 to 160K 4−60888
  crystal growth forms on crystallisation from eutectic type alloys 4−82802
  diffusion in liquid Ge, 930-1250°C 4−60636
  diffusion in Sn, substitutional-vacancy mechanism 4−44707
  electron states, photoelectron comparison of amorphous and cryst. samples 4−57667
  electronic structure, angular correlation of electron positron annihilation quanta, meas. 4−60732
  energy loss of N ions, 1-10 MeV, stopping power and cross section 4−72506
  film, elec. cond. quantum and classical size effects 4−57190
  film, on C substrate, growth, struct., low and high vac. 4−72654
  film, optical props., i.r. region 4−73216
  film condensation kinetics from electron micrographs 4−53014
  Gruneisen constant, using Debye temp. vs. at. vol. data 4−67006
  magnetic surface states, microwave resonances, Fermi surface 4−57153
  mass absorption coefficients for CK_α line *(Japanese)* 4−45382
  photoelectron spectra, crystalline semimetal, comparison with SnTe 4−45402
  proton-enhanced diffusion in Si, theory and expt. 4−49590
  strong e.m. wave propagation, mutual drag effects of hot carriers and phonons 4−70029
  substrate, contamination, stability of amorphous Bi films *(Russian)* 4−67128
  thermoelectric power, mag. field depend., 4.2-30K 4−60820
  twinning, effect on cond. and magnetoresist. 4−75894
  X-ray photoemission spectra, characteristic energy loss structure 4−67698
  Young's modulus, temp. depend. along different crystallographic directions 4−56799
  $Ca_5F(PO_4)_3$:Cd,Sb colour centre growth dynamics and models 4−57580
  $Ca_3(PO_4)_2.CaF_2$ based luminophor activated by Sb and Mn *(Russian)* 4−73193
  Cr_2O_3:$^{121}Sb^{5+}$, mag. hyperfine fields, Mossbauer effect *(French)* 4−73058
  Cu:Sb, intergranular internal adsorption in Cu, ductility, intercryst. fracture *(Russian)* 4−67825
  Ge:Sb, absorption edge in direct transition region 4−73145
  Ge:Sb, dislocation motion, surmounting of local obstacles *(Russian)* 4−79042
antimony continued
  Ge:Sb, far i.r. photocond., intermediate impurity conc. region 4−82450
  n-Ge:Sb, γ-irrad., acceptor levels, annealing obs. 4−60761
  Ge:Sb, impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
  n-Ge:Sb, neutron irradiated, electrical props. investigation 4−67216
  Ge:Sb, phonon cond., phonon-scatt. calcs. 4−63951
  LiD:Sb^{3+}, X-ray luminesc. *(Russian)* 4−70363
  PbTe-Sb, mag. susceptibility, impurity effect, 80-400K *(Russian)* 4−82550
  Sb I, radiative lifetimes, 1850-3000 Å 4−74826
  Sb_2Se_3, cryst., thermal activation energy, role of growth defects 4−82406
  $^{121}Sb+{}^{133}Cs$, spin exchange polarisation collision *(German)* 4−56033
  Si:P, Sb, simultaneous diffusion, doping profile 4−82826
  Si:Sb, doped by recoil-atom method, impurity and carrier distrib., and appl. in semicond. technology 4−57717
  Si:Sb, ion implanted impurity energy levels 4−69993
  n-Si:Sb, shallow donor polarisability determ. 4−61098
  Si:Sb,As ion implantation and drive-in diffusion effects 4−49609
  Sn^{5+}, in insulating ferrites, supertransferred hyperfine fields, effects of local order and ion-specific props. 4−70235
antimony alloys
  see also antimony compounds
  Heusler alloys, Mossbauer spectra, Sb and Sn hyperfine fields 4−64288
  Ag-Sb, electron transfer in melt *(Russian)* 4−70008
  As-Sb, single cryst., galvanomagnetic effects 4−49003
  Au-Sb liquid system, activity meas. *(Japanese)* 4−67762
  $AuSb_2$, forbidden spots in electron diffr. *(French)* 4−69753
  $AuSb_2$, magneto-acoustic attenuation obs. 4−82353
  Bi-Sb, cryst. growth, interface stability criteria investig. 4−63776
  Bi-Sb, hardness and creep, spherical indentation tests 4−49786
  Bi-Sb, high pressure, high-temperature behaviour 4−67024
  Bi-Sb, nonlinear band parameters investig. using Shubnikov-de Haas oscill. meas. 4−64015
  Bi-Sb, Raman spectra and X-ray diffr. meas. 4−79727
  Bi-Sb, semiconducting alloy, cyclotron waves *(Russian)* 4−82370
  Bi-Sb, semimetallic, mag. susceptibility in ultraquantum field *(Russian)* 4−64187
  Bi-Sb, single cryst. growth by Czochralski and Bridgman techniques *(Russian)* 4−45433
  Bi-Sb alloys, susceptibility and Hall effect in strong magnetic fields at 4.2K *(Russian)* 4−57265
  BiSb, semicond., mag. freezing *(Russian)* 4−70194
  BiSb alloy, gapless state transition in mag. field, galvanomag. meas. rel. to band edge motion 4−57115
  $Bi_{1-x}Sb_x$, ($0<x<0.04$), prep. of single crysts. by gradual crystn. 4−67739
  $Bi_{1-x}Sb_x$, helicon-like magnetoplasma waves obs. 4−57124
  $Bi_{1-x}Sb_x$, semiconducting, helicon wave propag. obs. 4−57122
  Bi_xSb_{1-x} evaporated layers, $0\leqslant 1-\leqslant 0.30$, absorpt. peaks, posn. and mag. rel. to comp. *(German)* 4−49374
  CoFSb, $B8_2$ type, recoilless absorpt. spectra, h.f interactions and ordering of moments 4−73057
  $(Cs,Rb)_3Sb$, photoelectron escape depth, spectral depend. *(Bulgarian)* 4−82784
  Cu-Sb, liq., comp. depend. of Hall coeffs. *(Japanese)* 4−44898
  Cu-Sb, thermodynamic props. 4−54089
  Cu-Sb and Cu-Sb-B solid solns., cold-shortness and intercryst. absorpt. of impurities *(Russian)* 4−73295
  Cu_2Sb, mag. and n.m.r. meas. 4−53322
  DySb, Mossbauer spectra, DySb, effective field at ^{161}Dy nuclei, anomalous temp. depend. *(Russian)* 4−67501
  GdSb, sp. ht. and resistivity above Neel temp. 4−67368
  Ge-Sb system alloy form. kinetics 4−70436
  HoSb, sp. ht. and resistivity above Neel temp. 4−67368
  HoSb, tricriticality, sp. ht. and resist. calc. in terms of mol. field model 4−67369
  InSb-CrSb(FeSb) eutectic alloys, directional solidification, struct. changes *(Japanese)* 4−45499
  LaSb:Ce^{3+}, Dy^{3+}, Er^{3+}, Yb^{3+}, crystalline field effects, e.p.r. obs. 4−57372
  LaSb:Gd, single crystal, resolved e.s.r. spectra, cubic crystalline field parameter meas. 4−82611
  LuSb:Er^{3+}, crystalline field effects, e.p.r. obs. 4−57372
  Mg-Sb, amorphous, core excitons, absorpt. obs., 40-200 eV 4−79810
  Mg-Sb, amorphous, soft X-ray absorpt. thresholds, many electron theory, comparison with expt. 4−79811
  Mg-Sb, liq., thermodynamic obs. using e.m.f. method with CaF_2 electrolytes 4−51879
  Mn_2Sb, Cr modified, first order phase transition, magnetic domain obs. 4−64237
  $MnSb_{1-x}Sn_x$, thin films, spin wave resonance 4−73031
  Ni-Sb, charge screening and mag. props., photoemission obs. 4−64025
  Pb-Cu-Sb, thermodynamics of intermetallides 4−50214
  Pb-Sb and Pb-Cd-Sb, substruct. development and mech. props. improvement 4−45649
  PtMnSb, hyperfine fields at nuclear sites 4−72714
  Sb-Bi(20 at.%) solid solns., liq. phase nucleation and growth during melting *(Russian)* 4−45534
  Sb-Cs-Bi, intermetallic compounds, photoemissive props., variable comp. *(Bulgarian)* 4−82785
  Sb-Se glass, splat cooled, memory switching 4−75931
  Sb-Sn(10 at.%) solid solns., liq. phase nucleation and growth during melting *(Russian)* 4−45534
  SbSeI-BiSeI solid soln., films and polycryst., photocond. and opt. props. 4−49316
  $Sb_{1-x}Te_x$, amorphous film, optical and transport props. 4−44824
  Sn-Sb, supercond. transition temp. rel. to lattice parameter 4−82516
  $Tb_xY_{1-x}Sb$, Van Vleck paramagnet, $x=0$, 0.05, 0.20 and 0.40, temp. depend. spin disorder resistivity 4−53210
antimony compounds
  see also antimony alloys
  group-V trihalides, vapour phase Raman spectra, Raman band contour anal., Coriolis and force const, thermodynamic functions 4−66437

antimony compounds continued
X-ray spectra, inner electron bonding energy *(Russian)* 4−49480
$(1-x)As_2Se_3.xSb_2Se_3$, amorphous alloy, thermodynamic and kinetic study 4−44482
$Bi_xSb_{1-x}SeI$ solid solns., elec. props. of cryst. and film specimens 4−70047
BiSe-SbTe system, phase diagram, elec. cond., thermo-e.m.f. 4−69885
Cu-Sb-S-I, vitreous, photomodulation absorpt., i.r. region *(Russian)* 4−79736
Cu_2S-Sb_2S_3 system, investigation at 320-400°C 4−67033
GeO_2-Sb_2O_3-Bi_2O_3 system glasses, depolymerisation by Bi_2O_3 4−60414
GeO_2-Sb_2O_3-KF-H_2O hydrothermal system, crystn., 400, 450, 500 and 550°C 4−48741
Na_2S-Sb_2S_3, phase composition and cryst. structure 4−69768
Sb-S-Br, glass formation region characts. 4−44473
Sb-S-I, vitrification region, elec. props. 4−44476
$SbCl_3$ and $SbBr_3$ complexes with anisole spin-lattice relaxation and molecular motion in crystal 4−61048
$SbCl_3$-alcohol system, chemical shifts of protons 4−61050
$SbCl_5$, cryst., Raman spectral studies, low temp. struct. conversion investig. *(German)* 4−73117
$SbCl_6^-$, valence force consts., Coriolis coupling, mean vibr. amplitude 4−56153
SbF, emission spectrum, bO^+-X_21 and bO^+-X_1O^+ bands, rot. and vibr. analysis 4−43830
SbF radical, near i.r. emission spectrum, charact. of electronic ground and excited states 4−48007
$Sb_2Ge_2O_7$, obtained from crystn. in GeO_2-Sb_2O_3-KF-H_2O hydrothermal system, cryst. struct. 4−48741
SbO, (2,0) band of $C^2\Delta_{3/2}-X^2\Pi_{1/2}$ subsystem, rot. struct. 4−52124
Sb_2O_3, liq., I-V characts., strong electric field effects 4−57103
SbS_4^{3-}, kinetic and pot. consts. 4−66406
Sb_2S_3, anomalous u.s. damping, ferroelec. transition 4−79690
Sb_2S_3, investigation of traps in high resistivity photoconducting materials using electron beam contact 4−75878
Sb_2S_3, single cryst., bipolar effects *(Russian)* 4−75883
Sb_2S_3 amorphous layer comp. and elec. props. 4−49091
Sb_2S_3-Sb_2Se_3-Bi_2S_3 system, phase diagram and switching effect of polycryst. phases 4−69887
SbSI, absorption coeff. and pleochroism, spectral, temp. and field depend. 4−64395
SbSI, band struct. calc. in para- and ferroelectric phases 4−44844
SbSI, cryst. and glass, photoemission 4−76367
SbSI, ferroelectric phase transitions under high press., theory 4−64347
SbSI, ferroelectric semiconductor, photoluminesc. obs. at 80K 4−67634
SbSI, ferroelectric-semiconductor, photocond. review 4−64112
SbSI, illumination influence on induced phase transition 4−57487
SbSI, impurities influence on Curie temp. 4−79691
SbSI, influence of illum. on electromechanical props. 4−64345
SbSI, interrelation between photoelectric and ferroelectric props. 4−64340
SbSI, nonequilibrium carriers effect on polarisation distrib. 4−73090
SbSI, photo-ferroelectricity effect on hysteresis loop 4−64346
SbSI, thin films, vacuum sublimation, ferroelectric transition obs. 4−82330
SbSI ferroelectric ceramics utilisation, comparison with monocrystals *(Russian)* 4−79686
SbSI film, direct allowed transitions, optical absorption coefficient, band gaps 4−76338
$SbSI_{0.35}Br_{0.65}$, repolarization, influence of illumination, electronic mechanism 4−49312
$SbSI_xBr_{1-x}$, ferroelectric semiconductor, photoluminesc. obs. at 80K 4−67634
$SbS_xSe_{1-x}I$, ferroelectric semiconductor, optical and dielectric props. 4−67563
$Sb_2S(Se)(Te)_3$, positron annihilation rel. to bonding and defects on vitrification 4−44838
Sb_2Se_3-SbI_3 system, p-T-X phase diagrams by thermal and X-ray anal. 4−44654
Sb_2Te_3, Sb_2Te_2Se, cryst. struct. refinement 4−48554
Sb_2Te_3, Sn impurity behaviour and effects on elec. props. 4−67065
Sb_2Te_3, vaporisation, heat of reaction, equilib. vapours mass spectra 4−56874
SbX_3, X=Cl, Br, I, photoelectron spectra interpret., spin-orbit interaction model including d-electrons 4−52245
Si_2Se_3, cryst. and amorphous, photoemission energy distrib. curves, band struct. investig. 4−64480
$TlSbS_2$, photoelectric and electrical props. 4−72819
antineutrinos *see neutrinos*
antineutrons *see neutrons*
antinucleons *see nucleons*
antiphase domains *see alloys; crystal microstructure; solid structure*
antiprotons *see protons*
antireflection coatings *see optical films*
aperture cards *see microforms*
API gravity *see density*
apodisation *see acoustic imaging; optical images*
apparatus *see instrumentation; instruments*
apparent porosity *see porosity*
appearance potential *see ionisation potential*
Appleton layer *see ionosphere*
appliances, domestic *see domestic appliances*
applied mechanics *see mechanics*
approximation theory
see also function approximation; interpolation; least squares approximations
Chisholm approximants reln. to critical phenomena 4−55382
coherent potential approx., averaged T-matrix approx. and Lloyd's model 4−53028
continuous periodic function approx. by partial sums of Fourier series 4−65635
line-transfer problem, exact solution in kernel approx. 4−81132
linear Fredholm eqn., improved successive approximation method 4−71485
approximation theory continued
linear stochastic differential eqns., analytic solns. by approximation and model coefficient methods 4−55197
matrix Pade approximants for scatt. amplitudes 4−65981
Pade approximants, convergence developments 4−65641
Pade approximants, convergence for totally monotonic and oscillating sequences 4−65643
Pade approximants to nuclear effective interaction 4−55748
Pade theory, two-dimensional analogue 4−55196
rational polynomial approximants defined from power series in N-variables 4−65642
scintillation parabolic wave eqn., Born and Rytov approximations compared 4−71470
Sn theory, analytical solution in spherical geometry of S_2 and S_4 equations 4−78142
superposition approximation and natural iteration calc. in cluster variation method 4−52851
apr *see acoustic paramagnetic resonance*
APT *see problem oriented languages*
arc discharges *see arcs (electric)*
arc furnaces
a.f. induction-coupled discharge furnace in Ar 4−75382
magnetic field problems of power leads *(German)* 4−43225
arc heaters *see arc furnaces*
arc lamps
ceramics, translucent ceramics as lamp envelopes 4−49902
far u.v. spectral radiance, calibration 4−51041
spectroscopic, method of stabilizing output 4−54935
Xe, increased radiance by 1500A, 150 μsec. pulsing, pulser circuit 4−46711
arc welding
CO_2, current-voltage characteristics, economy aspects *(Dutch)* 4−57753
discharge temp. meas. by high-speed cinematography 4−46601
hollow cathode, intensity control of discharge column *(Russian)* 4−52637
magnetic field, force on electrodes 4−47280
magnetic transverse fields, arc movement, electrode materials 4−47282
source-arc system stabilization, rel. to arc welding system design *(Russian)* 4−78839
spectra of initiating spark 4−48464
temperature profile meas., use of cylindrical Langmuir probe 4−66780
transfer of metal, increased by longitudinal magnetic field 4−47281
archaeology
metal detection, induced polarisation, geophysical detection method 4−68270
thermoluminescent dating of burned flint 4−55111
architectural acoustics
see also anechoic chambers; echo; noise abatement; reverberation
absorption coeff. determ., correl. and spectral density techniques 4−73929
absorption coefficient percentage error using impedance tube method, linear regression analysis 4−77033
building codes, noise prediction for dwellings 4−68574
cavity masonry walls, direct and flanking sound transmission foam filling effect 4−68573
concert hall acoustics, subjective assessment, triadic comparisons method 4−68571
concert hall transparency and spatial comparison based on reverberation time *(German)* 4−71143
databank, interactive access system 4−68572
double wall, with partition in airspace, transmission losses *(Japanese)* 4−65306
free field listening room, design and construction 4−80792
living rooms, high fidelity improvement 4−50917
loudspeakers, room boundaries influence on power output 4−80791
noise prevention, theory review 4−68582
panels, effect of constant compressive prestress 4−62352
partition acoustic transmission class determ. 4−83362
physical principles of noise-reducing elements and absorbent materials 4−83363
rectangular rooms, wave anal. of sound decay 4−76999
reverberation rooms, rotating diffuser, sampling technique effect on sound-pressure averaging 4−76998
room acoustics of auditoria, pre-construction examination, acoustic models *(Japanese)* 4−58658
school buildings in Asia, acoustical conditions 4−71142
sound absorbers, transient response calc., transmission line method 4−58645
stage enclosure configuration rel. to reverb. time, Philadelphia Academy of Music 4−58657
architecture
see also building; civil engineering
International Colour Association 2nd Congress, York (1973) 4−54883
seismic forces in building structure, effect of sliding 4−54285
arcing *see arcs (electric)*
arcing, switches *see circuit-breaking arcs*
arcs (electric)
see also arc furnaces; arc lamps; arc welding; circuit-breaking arcs
a.c. arc, residual current during extinction 4−75345
a.c. self similar arc, steady laminar flow 4−75344
annular arc accelerator, shock tube driver development, hydrogen-helium gas mixture 4−71302
arc-jet chamber vortex expts. 4−78598
burning under limited convection conditions in spectrochem. analysis 4−62586
cathodic arc in plasma at different thermodynamic conditions 4−60373
ceramic materials thermal testing applic., technique and expt. *(Bulgarian)* 4−76557
coaxial, max. temp. and flow depend. on self-mag. Lorentz forces 4−82068
conference, gas discharges, London, (Sept. 1974) 4−75343
conical discharge chamber, H and He driver gases, mech. and elec. characts. 4−71301

arcs (electric) continued
d.c., comparison of three arc sources rel. to plasma excitation, elec. parameters 4−46965
d.c., integral methods of analysis 4−82061
d.c., parallel, e.m. forces distrib. *(Russian)* 4−82049
d.c. free burning, arc temp. distrib. rel. to addition of Li_2CO_3 4−60337
d.c. free burning, temp. meas. by diffraction interference methods *(German)* 4−80906
discharge, bonding energy of evap. atoms, spectral line intensity depend. *(Russian)* 4−42964
duopigatron source, low-energy, with auxiliary gas feed, beam parameters and applications 4−55029
electroacoustic transformation, low temperature plasma *(Russian)* 4−52572
enhancement due to presence of C particles 4−82066
excitation, from hollow cathode and method for controlling arc *(Russian)* 4−52637
exploding foil, increasing circuit damping 4−54992
field emission into plasma, current density calc. *(Russian)* 4−63727
flip-flop transition between glow and arc discharges, meas. 4−56553
flowing, radiation dominated model 4−75418
four-pole discharge investigation of distrib. and migration of atoms *(Russian)* 4−44425
gas flow along electric arc in tube, heat transfer *(Russian)* 4−56378
gas heating, generalized relationship for enthalpy *(Russian)* 4−63721
glow to arc transition, review 4−48459
heat exchange in cathode spot of arc in Ar medium 4−48462
heating of film cathodes 4−44418
heterogeneous medium, l.p. arc positive column, modes of existence *(Russian)* 4−66789
high current arc in supersonic air flow 4−82062
high current arc rotating in annulus under mag. field, V-I characts. 4−44417
high current d.c. arc, uniform air flow 4−82064
high current discharges, gas flow vels., laser Doppler technique 4−62654
high pressure arc with refractory cathode 4−78847
impulse discharge channel movement in mag. field from three-dimens. split cathode at different pot. *(Russian)* 4−52648
induction arc, review 4−60341
inert gas high density plasma, elec. cond. 4−56468
interferometric observation, schlieren arrangement 4−68854
low current, electrode erosion by particle ejection 4−52639
mass transfer on opening switching contacts 4−44413
metal halide atmosphere, d.c. column, model 4−82055
microsecond vacuum arc, anode surface radiance 4−78842
nozzle geometry, high current 4−82063
plasma arc remelting of metals, N_2 absorpt. from plasma during floating electrode processes *(Russian)* 4−82886
plasma instability, d.c. plasmatron 4−78827
plasma source, cathode rod in a hydrocarbon 4−78838
platinum metals, residence times of atoms *(Russian)* 4−68848
Poiseuille plasma arc, stability in axial mag. field 4−75283
positive point/plane gap, switching surges, final arc development 4−75371
post-arc channel, gases, heat exchange, expt. 4−60175
pulsed arcs, high current discharge formation 4−75350
pulsed high pressure arc, vacuum UV emission 4−78814
refractory electrode, electrode region recovery, effect of probing current risetime 4−78840
relay break arc, identity and interactions of ions 4−52638
rotating arc electrode system use as spectrochem. source 4−62584
rotating low current arc, cathode erosion 4−82067
spark discharge between arc welding gaps, spectroscopic obs. 4−48464
spectral analysis, of rocks in mag. field 4−55135
spectrochemical excitation source, gas-stabilized arc 4−62587
spectroscopic light source, horizontal d.c. arc in mag field, appl. to In, Pb determ. 4−46963
stabilised arc characteristics rel. to gas transport properties 4−75349
stability of l.v. arc with nonequil. ionis. *(Russian)* 4−69684
stability of source-arc system, rel. to arc welding system design *(Russian)* 4−78839
steel cathode, high current free burning arc behaviour depend. 4−75351
supersonic nozzle flow, stationary high current arc meas., two zone model 4−66783
temperature profile, Langmuir probe meas., analysis error 4−66780
TIG welding arc, pot. distrib., emitting probe meas. 4−82070
transient processes in arc column *(Russian)* 4−66792
in turbulent stream, parameters calc. w.r.t. convective and radiant losses 4−60354
two-temperature model, under conditions of forced blowing of gas through plasmatron 4−69679
vacuum, cathode spot current density 4−60360
vacuum, cathode spots contraction mechanism 4−60359
vacuum, Cu cathode spot displacement due to plasma expansion 4−60350
vacuum, switching time analysis *(French)* 4−52640
vacuum, with refractory electrodes, cathode spot existence conditions *(Russian)* 4−63728
vacuum arc, cathode spot motion on Cu electrodes 4−75367
vacuum arc, interruption ability 4−82077
vacuum arc props., various electrodes *(German)* 4−78837
wall stabilised arc, imposed axial flow effect on free recovery 4−82065
wall-stabilised, electrical gradient meas. 4−82074
wall-stabilised, standard of very high temp. 4−50987
wall-stabilized viscous flow and temp. coupled distrib., Green's functions 4−66787
Ag-n%CdO contacts, statistical estimation of temperature 4−44412
Ar, electron density profile using CO_2 laser irrad., numerical anal. *(German)* 4−52623
Ar, energy exchange at anode, pressure depend. 4−75347
Ar, magnetically induced motion, anodic arc region behaviour 4−60348

arcs (electric) continued
Ar, wall stabilized arc, electrical conductivity meas. 4−44419
Ar a.c. arc, anal. and expts. 4−60374
Ar discharge, stabilizing action of rot. mag. field 4−63729
Ar Planck emission of 763.5 nm line 4−78719
Ar plasma arc, electric probe meas., ion saturation current 4−82036
Ar plasma arc, low-pressure hollow cathode, elec. and energy characteristics *(Russian)* 4−69676
C, d.c., high helium press., discharge characts. *(German)* 4−63730
C, discharge gas effects on phys. and spectrochem. processes 4−62612
C electrode, high speed temp. meas. following current interruption 4−48458
Cu, vapour arc, theoretical model, electron emission 4−56558
D_2, temp. and electron density radial distribs., spectroscopic meas. 4−75346
H cascade arc, nonequil. flow calcs. 4−56549
H_2, temp. and electron density radial distribs., spectroscopic meas. 4−75346
H_2 thermal cond. of plasma meas. 4−69647
Hg, vapour arc, theoretical model, electron emission 4−56558
I_2, sparks, discharge stages obs. with time resolved photography 4−75363
SF_6, gas, stabilized arc column, high press., voltage gradient 4−72403
SF_6, voltage gradient in low current range 4−75348
V, multiply ionised, excitation of spectra by capacitor discharges 4−59908

area measurement
No entries

argon
a.c. arc, anal. and expts. 4−60374
adiabatic and isothermal compressibility, up to 13 kbar, test of apparatus for simultaneous meas. 4−50997
adsorption by sublimated NaCl, heat, site energy distrib. 4−56973
adsorption by ZrO_2, pore struct. 4−56969
adsorption of Ar atom on Ar surface, effect of nonadditive forces 4−48841
a.f. induction-coupled discharge furnace 4−75382
Ar-ethene mixture, thermal cond. meas. 4−52327
Ar-fluorinated ethene mixtures, thermal cond. meas. 4−52327
arc, energy exchange at anode, pressure depend. 4−75347
arc, magnetically induced motion, anodic arc region behaviour 4−60348
arc, plasma profile using CO_2 laser irrad., numerical anal. *(German)* 4−52623
arc, stabilised characteristics rel. to gas transport props. 4−75349
arc discharge, stabilizing action of rot. mag. field 4−63729
arc-jet chamber vortex expts. 4−78598
atom, 1048 Å resonance radn. transport, correlation effect of absorbed and emitted freq. 4−56007
atom, collision with K^+ and Na^+, ion cyclotron resonance collision frequencies 4−78369
atom, electron elastic scatt., electron ang. distrib. 4−56036
atom, electron elastic scatt. 4−74882
atom, electron impact, energy distrib. of emitted electrons 4−78367
atom, excited states formed by α-particle irradiation, near i.r. obs. 4−81736
atom, half-life of $5d(7/2)_4$ level, delayed coincidence meas. *(Spanish)* 4−47850
atom, lifetimes of excited 2p levels, Hanle effect and double resonance meas. 4−43733
atom, liq. and high-press. gas, mol. motion neutron scattering obs. 4−63750
atom, magnetic resonance measurements optically detected, lifetimes and g-factors of excited levels *(French)* 4−51961
atom, momdentum density, Compton profile 4−72026
atom, multi step ionization relaxation behind shock wave 4−72080
atom, photoelectric cross section of valence level 4−72058
atom, photoelectron angular distribution parameters 4−47885
atom, photoionisation, channel interaction and threshold behaviour 4−47866
atom, photoionisation, simplified random-phase-approx.-with-exchange, comparison with reaction matrix 4−47867
atom, secondary electron emission from contaminated Cu-Be surface 4−82777
atom, spectroscopy and collision theory, Hartree-Fock-Roothaan calcs. 4−81712
atom, spectrum in 1.2-4.0 μm region 4−43725
atom, vacuum u.v. emission, relativistic electron beam excitation 4−59955
atomic beam light source, two component model 4−77075
atomic collision with H_2^+ dissociative, obs. of polarization of Balmer lines of H 4−60126
atomic Compton profiles, X-ray form factors, depend. X_α exchange parameter 4−81713
atomic electron elastic scattering, cross section, optical potential method 4−47897
atomic electron impact excitation, photon emission, $3s3p^6nl$ excited states *(French)* 4−59944
atomic electron scattering, ratio of forward to back scatt. 4−63367
atomic high energy electron impact, multi-ionisation 4−72087
atomic metastable state, near-threshold photoionisation, autoionisation effect 4−72063
atomic scattering from clean and CO coated Pt surfaces 4−67684
atoms, metastable, relaxation at pyrex walls during afterglow *(French)* 4−51982
breakdown time lag of short gaps 4−75365
bubbles, in water, damping, from desinent threshold for subharmonic-$^1/_2$ 4−78691
Clausius-Mossotti function, 35°C and 12 kbar *(French)* 4−43910
collision diameter, upper bound calc. from HNC and PY theories 4−75433
compressible fluid, calc. of double scatt. of X-rays in two scatt. geometries 4−56602
Compton scattering, relativistic Hartree-Fock profile 4−66277
critical point region, scale hypothesis and eqn. of state *(Russian)* 4−79138
crystal, lattice dynamics *(Russian)* 4−44629

argon continued
c.w. ion laser, high power, construction and test results *(German)* 4-55464
c.w. laser emission, polarisation in transverse mag. field 4-51559
d.c. electric-field-induced second harmonic generation 4-47378
dense fluid, thermal cond., viscosity calc. using equilib. statistical mech. perturbation theory 4-67059
diluent cooling effect on vacuum u.v. high press. Xe laser, expt. 4-51555
dilute gas, viscosity, thermal conductivity, kinetic theory 4-43907
discharge, hollow cathode, axial changes in characts. *(Russian)* 4-63720
discharge, low pressure, two- and three-electron group models 4-60345
discharge, low-inductance, transition to spark regime 4-75366
discharge, pulsed, afterglow due to H_2O and N_2 impurities *(German)* 4-52646
discharge, s.h.f., excited by mm waves, plasma props. *(Russian)* 4-72404
discharge under the influence of illumination, alteration of characteristics *(Russian)* 4-75340
electric breakdown by laser pulse, press. depend., cascade ionisation 4-43911
electrical conductivity measurement in wall stabilized arc 4-44419
emission lines from glow discharge, press. broadening and shift investig. 4-69407
flow, partially ionised, expansion through a supersonic nozzle 4-75152
flow in nuclear reactor, Na entrainment processes 4-43628
flowing, condensation of Cs vapour, mist form. influence 4-43946
gas, K^+ mobility, quantum phenomena 4-43909
gas, K^+ mobility at 293 K, pressure depend. 4-43908
gas const. determ. by acoustic interferometry 4-60142
gas ionizer calc., 0.2-0.4 atm., 350K 4-69678
hard-sphere transition, triple pt., expandable-lattice theory 4-69899
harmonic emission from Tonks-Dattner resonance excited afterglow plasma 4-63687
hypersonic flow around blunt body *(Russian)* 4-52426
hypersonic flow props. in expansion tube 4-81911
intermolecular potential, repulsive wall, rel. to high temp. thermal diffusion 4-78382
ion beam, charge-state separator based on offset magnetic quadrupoles, design and operation 4-55019
ion beam, defect form. in muscovite due to irrad. *(French)* 4-66946
ion engine atomic excitation processes, influence of metastable states 4-59948
ion laser, large bore high power, mode struct. and beam divergence 4-43297
ionisation, electron impact, cross section calc. 4-78363
ionisation behind reflected shock waves 4-63569
ionisation chamber filling, current meas. for pulsed e.m. fields 4-77236
ionised by shock wave, flow in nozzle with slits *(Russian)* 4-66704
ionised shock wave mag. field penetration, refl. and transmission characts. 4-72379
ionized gas, shock induced flow, unsteady interaction with mag. and elec. fields 4-72363
ionized radiating non-equilibrium flow over blunt body 4-60260
ions, 6+ to 16+, 86 MeV, charge states in solids, assoc. X-ray prod. investig. 4-75552
ions, multiply charged, heavy, duoplasmatron-type discharge source 4-78828
ions, static polarisability, calc. and shock tube expt. 4-66303
L-shell ionization by 50-600 keV ion impact 4-74913
laser, c.w. emission in mag. field, l.f. beats 4-69044
laser, plasma oscillations effect on emission parameters 4-59401
laser action, electron beam stimulation for molecular gas 4-59385
laser discharge, transient gain detection 4-74079
laser frequency stabilisation by saturated absorption or dispersion in I_2 4-65908
laser line selection using Littrow prism 4-51553
laser spark, charact. expansion vel. 4-78789
liquefying unit, miniature, heat exchange meas. 4-58765
liquid, appl. of theory for Brownian motion of particle in heat-cond. liq. *(Russian)* 4-81242
liquid, atomic and electronic transport props. and molar vol. 4-72581
liquid, average energy per ion-pair, electron scatt. 4-56785
liquid, Brillouin linewidth, sound attenuation 4-70298
liquid, dispersion of phonon-like excitations, model calcs. 4-75602
liquid, dynamic structure factor calc. 4-63748
liquid, freq. moments, atomic correlations, sum rules 4-72421
liquid, isotopic distillation Laplacian, surface energy and tension 4-75685
liquid, metastable state, specific vol. meas. *(Russian)* 4-82267
liquid, molecular dynamics investigation of free surface 4-52971
liquid, particle shower detector construction 4-77177
liquid, self-diffusion, theory 4-75638
liquid, self-diffusion coeff. calc. *(Russian)* 4-56897
liquid, surface structure and surface tension, perturbation theory and Monte-Carlo calcs. 4-44748
liquid, transport coefficients and corrected Enskog theory 4-52914
liquid, X-ray scatt. investig., tunnel-model theory 4-82099
liquid ionisation calorimeter, detection of e.m. and hadronic showers 4-77181
matrix, $Fe(CO)_5$ u.v. photolysis, spectra of Fe atom, 20K 4-43724
melting, hard sphere model, Monte Carlo calc. 4-48496
microwave discharge, stationary 4-75336
molecule, intramolecular potential between atoms, self-exchange correction 4-56046
multiple photoionisation 4-78565
muonium formation 4-72105
neutron-bombardment in diffusion chamber, electron pair detection *(Russian)* 4-46858
optimised cluster theory, liq.-vapour phase transitions, thermodynamic props. 4-66806
photoionization cross-section of outer s-subshells 4-78348
Planck emission of 763.5 nm line 4-78719
plasma, a.c. mode ion probe characteristics 4-78816

argon continued
plasma, diffusion of Mg, Cd and Zn atoms and ions 4-52551
plasma, in afterglow, electrical conductivity *(German)* 4-48451
plasma, in tube flow, heat transfer obs. and computer calcs. 4-75232
plasma, ion acoustic waves, electron energy distrib., Boltzmann's law 4-44210
plasma, ionisation rate, freq. discharge tube meas. *(Russian)* 4-75300
plasma, particle-carrying, flow in plasmatron nozzle 4-44196
plasma, positive column, electron energy distrib., spatial relax. in high field *(German)* 4-52624
plasma, pulsed high pressure arc, vacuum UV emission 4-78814
plasma, radial distrib. of ionisation temp. meas. using Stark broadening *(French)* 4-52614
plasma, radiative losses, continuous optical discharge model *(Russian)* 4-66685
plasma, supersonic, heat transfer to semispherical body 4-48406
plasma, trapped electron modes in cylindrical geometry 4-82009
plasma, Z-pinch, transient flow, heating 4-66702
plasma afterglow, microwave and mass spectroscopic obs., ion densities 4-60321
plasma arc, low-pressure hollow cathode, elec. and energy characteristics *(Russian)* 4-69676
plasma in flashtube, electrical conductivity meas. 4-75319
plasma in triode ion gun, beam formation anal. 4-55027
plasma jet, temp. and noise profiles 4-82038
plasma production by h.f. induction discharge, 30-60 MHz 4-69677
plasma sheath, mass spectra obs. *(German)* 4-78823
plasma shock heated, temp. and electron density meas., precursor phenomena investigated 4-72398
plasma torch, h.f. inductively-coupled, fund. parameters and matrix effects 4-62600
plasma torch, h.f. inductively-coupled, use as analytical tool 4-62599
positive column, pulsed discharge, constriction mechanism 4-82072
pressure effects, on Ba II, first diffuse series doublet 4-43721
pulse radiolysis of gases containing naphthalene or anthracene, light emission from ion recomb. 4-54045
second virial coefficient of gas and binary mixtures, meas. rel. to temp., pot. parameters calc. *(German)* 4-52322
shock waves, nonequilibrium structure in relaxation region 4-44040
shock waves, use in shock tube study of SF_6, SF_5Cl equil. decomp. 4-45901
shocked, multistep initial ionization behind strong shock waves 4-74856
shockwave flow field and vel. profile measurement in e.m. shock tube 4-71298
solid, adsorption of He 4-75701
solid, CO mol. vibr. relaxation 4-60577
solid, diffusion of O_2 4-52930
solid, doped, exciton-enhanced photoemission 4-70394
solid, efficient fluoresc., 10 to 30 kV electron excitation 4-61198
solid, emission spectrum analysis *(Russian)* 4-70323
solid, self-diffusion, isotope effect, correction factor calc. 4-44706
solid, surface energy, u.s. meas. *(German)* 4-51179
solid doped with ^{41}K, optical and e.s.r. data 4-76285
specific heat, high resolution meas. 4-72576
spectral analysis of nitrogen in Ar stream with variable impurity conc. 4-58988
stimulated thermal Rayleigh scattering 4-71580
third depolarization virial coefficient calculation 4-60141
threshold excitation spectra meas. 4-59949
u.v. continuum, press. depend of decay 4-78450
vinyltrimethylsilane-Ar(He) discharge reactive plasma, ionisation, mass spectra 4-46935
virial coefficients, test of 14-12-8-6 potential function 4-78381
viscosity by capillary flow relax. 4-52332
X-ray $L_{2,3}$-spectrum, satellite obs., X-ray and optical transitions *(French)* 4-74839
X-ray photoelectron spectrum, satellite struct. 4-63350
X-ray scattering evidence for critical exponent value 4-56859
Ar, effect of forced blowing through plasmatron on arc 4-69679
Ar, metastable, electron impact excitation cross section 4-59956
Ar and Ar-alkane mixtures, second virial coeffs. meas. rel. to temp., pot. parameters calc. *(German)* 4-56340
Ar discharge enhancement of light emission by addition of CO 4-60352
Ar I, transition probability between $3p^5ns$-$3p^54p$ configs., calc. from gyromag. ratio 4-69410
Ar I transition probabilities meas. using new plasma-oven 4-82041
Ar II, high power laser, axial mag. field influence *(German)* 4-62827
Ar II, plasma, Stark shifts of singly ionised lines 4-59912
Ar II CW laser with 500 W output, description 4-47341
Ar:K, crystal, X-band e.s.r. spectra obs., existence of multiple trapping sites 4-61031
Ar/butane use in multiwire proportional counter for relativistic heavy nuclei detection 4-46806
Ar/CO_2 use in multiwire proportional counter for relativistic heavy nuclei detection 4-46806
Ar/Xe/CO_2 in multiwire proportional counter for relativistic heavy nuclei detection 4-46806
Ar-active N_2 mixture, form. of $N_2(a^1\pi_g, v \leqslant 6)$ mols. investig. by chemiluminesc. emission, mechanism 4-48137
Ar-CO_2 mixtures, thermal conductivity meas. by hot-wire method in 0-150°C range *(Russian)* 4-43904
Ar-Co mixture, positron annihilation, diffusion eqn. soln. 4-72071
Ar-Cs, plasma inhomogeneities between coaxial electrodes in mag. field 4-69627
Ar-Cs plasma, electron temp. determ., line reversal method 4-44391
Ar-H_2, Ar-N_2 mixtures, laser emissions obs. in u.v., prod. by transverse excitation laser *(French)* 4-43298
Ar-H^-, absolute H^- detachment cross section 4-72096
Ar-HCl, interaction pot. determ. 4-56047
Ar-HD(N_2) mixtures, flow birefringence 4-66552
Ar-ion laser, cavity dumped, excitation source for time-resolved fluorimetry 4-77644

argon continued
- Ar-Kr, binary liquid mixtures, partial struct. factors in long wavelength limit 4−78884
- Ar-methane-acetylene gas mixture, new drift chamber 4−77195
- Ar-N_2, high-power transfer laser at 3577Å 4−62830
- Ar-N_2 laser, electron-beam-pumped, emission at 3577 and 3805 Å 4−71525
- Ar-N_2 mixture, electrodeless r.f. discharge breakdown voltage obs. 4−75383
- Ar-NH_3 mixtures, PVT relations at h.p., compressibility factors 4−56344
- Ar-Ne crystal, cathodoluminesc., exciton spectra 4−67667
- Ar-Ne discharge positive column, cataphoresis, spectra meas. 4−78841
- Ar-Ne mixture, mutual diffusion coeffs., 296 to 1363K 4−66548
- Ar-O_2-N_2 glow discharge, anal. for Ta sputtering 4−75331
- Ar-Xe solid solutions, radiative annihilations of excitons 4−79781
- Ar + Ar(HCl)(Cl_2), K-shell X-ray production cross sections and spectra 4−72072
- Ar + CO_2, vibr. relax., spectrophone method 4−69535
- Ar + H, stripping collisions, 1-10 keV, small-angle ion scatt. 4−81728
- Ar + H^-, absolute H^- detachment cross section 4−72096
- Ar + H^-, collisionally produced autodetaching states, electron energy spectra 4−56042
- Ar + H^+, 22-300 keV collisions, $L_{2,3}$ Auger emission 4−81734
- Ar + H^+, outer-shell ionisation, 125-1200 keV 4−59962
- Ar + H^+ fast highly excited atom production cross sections 4−47909
- Ar + H^+(D^+), 3s, 4s electron capture cross section 4−47908
- Ar + HCl elastic scatt., differential cross section, Ar-HCl interaction potential determ. 4−63497
- Ar + H + H → H_2 + Ar, recombination classical mechanics via resonance complex mechanism 4−61587
- Ar + He*, Penning electron ang. distribs. 4−74880
- Ar + He*(Ne*) collisions, ArII excitation 4−66323
- Ar + He(Ne), gas systems, diff. coeffs. rel. to conc. determ., pot. parameters calc. 4−48179
- Ar + He(2^3S), second type collision rates, thermal energy structs. 4−51981
- Ar + I_2* inelastic collision, entropy analysis of vibr. and rot. state distribs. 4−63488
- Ar + Kr, conformal solution theory, mixture radial distrib. function and mol. dynamics 4−44455
- Ar + methane, linewidth broadening effect, ν_3 fundamental 4−69506
- Ar + methane ion collision, ion dissoc. mass spectra, isotope effects, 2-25 eV *(French)* 4−48110
- Ar + N_2, Ar + O_2, Ar + CH_4, liq., hole theory for binary mixtures, excess functions calc. *(Spanish)* 4−48494
- Ar + N_2 energy transfer collision, N_2 vibr. level excitation 4−66524
- Ar + NH_3 collisions, ammonia intermol. pot. determ. from differential cross sections 4−63501
- Ar + O, metastable oxygen atom collision-induced emission rate consts. 4−74868
- Ar + O^{x+}(x=6-8), K X-ray transitions 4−72047
- Ar + P(S)(Cl)(Ar)(K), L X-ray prod. cross-section, 4fσ electron promotion 4−51985
- Ar + Si, noncharacteristic Si X-ray end-point variations, projectile Z depend. 4−57641
- Ar^-, laser discharge, excited state population densities 4−55468
- Ar^+, electron impact excitation of $3s3p^6$ ^2S and $3s^23p^44s$ ^2P levels 4−47873
- Ar^+, laser plasma parameters, probe meas. 4−71531
- Ar^+, laser state radiative lifetimes meas. 4−77650
- Ar^+ bombardment of GaAs surface, luminescence and mass spectra ejected particle characterisation 4−53564
- Ar^+ bombardment of SiO_2 surface, sputtering, specific energy losses 4−73226
- Ar^+ laser, wavelength stabilization, external $^{129}I_2$ absorption cell 4−47336
- Ar^+ + 2Ar = Ar_2^+ + Ar, rates at 296K 4−53982
- Ar^+ + Ar, differential elastic scatt., 20-340 eV 4−74915
- Ar^+ + Cs → Ar + Cs^+, 1.44-28.7 keV, charge-exchange cross-section behaviour 4−59971
- Ar^+ + H_2, nonadiabatic collisions, charge exchange and chem. react., dynamics investig. 4−53981
- Ar^+ + H_2(D_2)(CO_2), charged transfer, collision energetics 4−53984
- Ar^+ + methane → ArH^+ + CH_3, cross sections, prod. energy distribs. meas., translational energy threshold investig. 4−61589
- Ar^{16+}, origin of Hund's rule investig., energies of $1snl_{max}$ configuration calc. 4−47819
- Ar_2 metastable dimers, u.v. continuum decay, temp. depend. 4−75014
- Ar_2^+ + e → 2Ar, reacting flow, pulsation characteristics in distant wake behind body *(Russian)* 4−52533
- Ar^{q+} + Ne, K X-ray prod., projectile charge-state depend. 4−59964
- ^{37}Ar excretion in human breath following total-body neutron activation, Ca quantification 4−83331
- Ar* + N_2, excitation transfer collision cross section for $N_2(C^3\Pi_u, v'=0,1)$ 4−81810
- Ar* + Xe, Jesse effect, Xe_2^+ formation 4−69429
- Ar*(^3P) + $N_2(X^1\Sigma_g{}^+)$, electronic-energy exchange cross sections 4−78532
- Ar(e,2e), config. interaction anal., spectroscopic factor determ. 4−47894
- $C_2N_2-O_2-$Ar mixtures, ignition of C_2N_2 following shock-wave, investig. rel. to press., temp. 4−61588
- CO-Ar solid mixtures, electron diffr. struct. investigation 4−69970
- CO_2 + Ar, collision induced microwave absorpt. 4−60080
- CO_2 + Ar, collisional broadening of linewidth of $00^01 \rightarrow (10^00;02^00)$ transition in CO_2 *(French)* 4−48058
- Cs-Ar discharge, low pressure, two- and three-electron group models 4−60345
- Cs + Ar, Cs satellite band, semiclassical formalism 4−56009
- Cu:Ar, Mott-Hubbard type transitions 4−64122
- D_2 + Ar, vibr. relax. of Raman excited D_2 at 300K 4−52284
- F^+ + Ar → F + Ar^+, 14-100 keV, charge exchange cross-section meas. 4−60127
- F_2, in Ar, vibr. relax. investig., shock-tube schlieren method 4−66544

argon continued
- H^+, H_2^+ + Ar collisions, 0.3-3.0 keV electron capture cross-section to n=3,4 states 4−63374
- HF + Ar, vibr. de-excitation of HF, importance of rot. transitions, theory 4−52283
- He-Ar, pulsed afterglow, laser oscillation at 4765 Å 4−43306
- He-Ar mixture, Ar elastic electron scatt. 4−74882
- He-Ne-Ar mixture, diffusion in capillaries, Knudsen to molecular diffusion transition 4−56347
- He + Ar, He electron loss cross section 4−72095
- He^+ + Ar, inelastic collisions, vac. u.v. spectral obs. 4−74916
- Hg-Ar discharge, a.c. fluoresc. lamp, Hg 2537Å radiation intensity, electron de-excitation effect 4−78835
- Hg-Ne-Ar discharge, l.p., electrical characts., radiation efficiency 4−66781
- Hr + He*, Penning ion ang. distrib. 4−47911
- K halides, Ar interstitial migration, anharmonic lattice statics calcs. 4−60648
- K-Ar basalt ages, Macquarie Valley, New South Wales 4−50237
- KCl/Ar, degassing in neutron irrad. crysts., gas reaction with defects *(German)* 4−79195
- N^+ + Ar, elastic scatt., interaction pots. 4−69438
- N_2-Ar mixture, collision induced microwave absorption, 35 and 70 GHz 4−48138
- N_2-Ar mixture, photoionisation, plasma production 4−66752
- NH_3-Ar mixtures, gaseous, positron annihilation investig., lifetime spectra meas., mechanism 4−76618
- Na:Ar, Mott-Hubbard type transitions 4−64122
- Ne-Ar, system, vapour-liq. and gas-gas equilib., to 2000 atm. 4−72558
- Ne + 1% Ar glow discharge, striking and running voltages, Hg addition effect 4−60340
- OH + Ar, fluorescence quenching, OH natural lifetime determ. 4−48063
- press. broadening and shift of emission lines 4−69407
- Xe + $Ar_{g(l)}$, solvent shifts and excited state pots. 4−56003

argon compounds
- ArHF, struct., r.f. spectra determ. 4−56255
- HD-Ar Van der Waals complexes, i.r. spectrum, intramolecular force study 4−43890

aromatic compounds *see organic compounds*

arrays (antenna) *see antenna arrays*

arsenic
- amorphous, continuous random network model with threefold coordination 4−56621
- amorphous film, electronic props., temp. depend. 4−82503
- determination by atomic absorption using Ta-foil lined graphite tube 4−58978
- determination in atmospheric particulate matter by automated at. absorpt. technique 4−51202
- diffusion in glassy $CdGeAs_2$, temp. depend. and activation energy 4−56913
- diffusion in Si, interstitial-induced enhancement obs. 4−49592
- Gruneisen constant, using Debye temp. vs. at. vol. data 4−67006
- molecule, rot. anal. of bands from A(ν=0-9) and B(ν=0-7) vibr. levels 4−47992
- proton-enhanced diffusion in Si, theory and expt. 4−49590
- vapour, i.r. laser lines obs. 4−77651
- vapour density at 600-1000°C, partial pressures of As, As_2, As_4, phase equilib. of GaAs 4−44652
- X-ray emission, Kβ_2 bands 4−82765
- As I, radiative lifetimes, 1850-3000 Å 4−74826
- As_2, As_4, vapour press. over InAs(c) and GaAs(c) investig., enthalpy of dissoc. determ. 4−52886
- CaS:As phosphor, cathodoluminesc., decay studies 4−82756
- Cd-As contact fusion, phase diagram *(Russian)* 4−61339
- n-Ge:As, γ-irrad., acceptor levels, annealing obs. 4−60761
- Ge:as, impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
- Ge:As-In, tunnel junction, characteristic curves, proton irrad. effect 4−64138
- Si:As, epitaxial, impurity alloying using flux of GaP(As) 4−49626
- Si:As, impurity conc., mobility, elec. and backscatt. meas., drive-in diffusion 4−64503
- Si:As, ion implanted impurity energy levels 4−69993
- n-Si:As, shallow donor polarisability determ. 4−61098
- Si:Sb,As ion implantation and drive-in diffusion effects 4−49609

arsenic alloys
- *see also arsenic compounds*
- As-Bi-Se, amorphous film, permittivity, freq. and heat treatment depend. 4−67514
- As-Sb, single cryst., galvanomagnetic effects 4−49003
- As-Se, amorphous, elec. cond. and thermopower, comp. depend. 4−75868
- As-Te, amorphous, structural and thermal properties, compositional dependence 4−66829
- As-Te, As-Te-I, annealed glass, elec. and struct. props. 4−64083
- As-Te-Se system, binary glasses, elec. and optical props. 4−79345
- $As_{0.15}Ge_{0.13}Te_{0.73}$, glass, visual effects of switching 4−75929
- AsTeSe amorphous system, binary mol. struct. evidence 4−63763
- Ca_2As, struct. *(German)* 4−72445
- ErAs, low temp. sp. ht., λ-like peak, S' = 3/2 ground state 4−69922
- Ga-Al-As, semiconducting, ternary melting diag., thermodynamic calc. 4−48738
- Ga-As-Ge(Zn), ternary phase diagram calc., electronegativity data 4−56866
- Hg-As system, struct. obs. *(German)* 4−66859
- Se-As, vitreous alloy film, electron energy losses, dielec. const. determ. 4−64324
- Si-As-Te, glasses, i.r. spectra, struct. anal. 4−79722

arsenic compounds
- *see also arsenic alloys*
- chalcogenide materials applic. as reversible media in holography 4−80926
- group-V trihalides, vapour phase Raman spectra, Raman band contour anal., Coriolis and force const, thermodynamic functions 4−66437
- rare earth arsenides, nonstoichiometry in rocksalt phases 4−63794
- X-ray emission, Kβ_2 bands 4−82765

arsenic compounds continued
- X-ray spectroscopic investigations of chem. bonding *(German)* 4−64455
- ASP $^1\pi$-$X^1\Sigma^+$ system, Franck-Condon factors, +-centroids, Morse pot. function 4−56167
- As-S, film, amorphous, photodepression 4−75729
- As-S, film, photographic effects, anomalous temp. depend. 4−82775
- As-S and As-S-Te glasses, bond-structural approach to thermal props. *(Japanese)* 4−69917
- As-S-I glass, i.r. transmission spectrum, 0.75-25 μm, temp. depend., 77-413K *(Russian)* 4−82703
- As-S-Se system glasses, dielec. consts., freq. and comp. depend. *(Japanese)* 4−49293
- As-S(Se), glasses, conductivity, dielec. props. 4−75866
- As-S(Se) system glasses, stress relax. *(Japanese)* 4−50028
- As-Se, glass, i.r. spectra, comp. depend. 4−45295
- As-Se-S-Ge, amorphous film, photoexpansion, thermal contraction 4−75728
- As-Te-Ge-S(Si), amorphous, a.c. Hall mobility and cond. 4−75902
- $AsCl_3$, transfer of Se and Si impurities from $AsCl_3$ to epitaxial GaAs, carrier conc. 4−44555
- $AsCl_6^-$, valence force consts., Coriolis coupling, mean vibr. amplitude 4−56153
- AsF, near u.v. spectrum, electronic $A^3\pi$ state investig., vibr., rot consts. determ. *(French)* 4−43829
- AsF, radical, near i.r. emission spectrum, charact. of electronic ground and excited states 4−48007
- AsH_3, forbidden rotational spectrum, Stark modulation 4−66452
- AsI_3, Raman spectra obs. at 77K, use of pulsed dye laser system 4−65425
- AsO_4^{x-}, X-ray electron spectra, valency levels *(Russian)* 4−45371
- As_2O_3, cryst. and glass, photoemission 4−76367
- AsS_4^{3-}, kinetic and pot. consts. 4−66406
- As_2S_3, amorphous, a.c. Hall mobility and cond. 4−75902
- As_2S_3, amorphous, light enhanced vaporisation 4−82268
- As_2S_3, amorphous, photoluminesc. excitation spectra 4−57616
- As_2S_3, amorphous, temp. and field depend. of optical absorption edge 4−45317
- As_2S_3, As_2Se_3, glassy films, struct., elec. cond. 4−82342
- As_2S_3, cryst., surface and bulk photoresponse, photocond. investig. 4−64118
- As_2S_3, cryst. and amorphous states, n.q.r. investig., spin-lattice relax. meas. 4−64284
- As_2S_3, crystal growth from CS_2 soln. *(German)* 4−49571
- As_2S_3, evap. films, surface relief holograms 4−42817
- As_2S_3, film, high field absorption current and space charge meas. 4−82507
- As_2S_3, glass, acoustic anharmonic props., acousto-optical appl. 4−70279
- As_2S_3, glass, i.r. and microwave cond. 4−82448
- As_2S_3, glass struct. anal., X-ray and neutron diffr. 4−60415
- As_2S_3, glassy state, magnetic moment, purity depend. 4−57254
- As_2S_3, internal stress, obs. by i.r. crossed nichols 4−82221
- As_2S_3, laser window passivator, beam damage 4−55502
- As_2S_3, photoelectret and photomemory props. 4−61095
- As_2S_3, photoluminesc., 0.4-1.8 eV, recomb. mechanism 4−45355
- As_2S_3, press.-Raman effects, vibrs. scaling laws 4−70304
- As_2S_3, surface photoresponse, I radical quenching 4−49036
- As_2S_3, vitreous, low freq. dielectric constant meas. 4−61091
- As_2S_3, vitreous and crystalline, temperature dependence of absorption edge, electron-phonon interaction 4−64398
- As_2S_3 amorphous films, prep. method effect on vibr. spectra 4−45283
- As_2S_3 film, laser deposition, structure w.r.t. vapour composition *(Russian)* 4−79884
- As_2S_3/KCl, laser mirror, i.r. beam damage 4−55503
- As_2S_3-Ag glasses, i.r. spectra, O impurity bands 4−61151
- As_2S_3-As_2Se_3, film formation, sequence of substitution in sublattices 4−67130
- As_2S_3-As_2Se_3 glasses, multiphonon absorption, mol. model 4−73122
- As_2S_3-CdI_2, evaporated layer, hole drift mobility 4−75855
- AsSI, crystn. in As-S-HI-H_2O system 4−49627
- $As_2S(Se)(Te)_3$, positron annihilation rel. to bonding and defects on vitrification 4−44838
- $As_2(Se,Te)_3$ glasses, Hall effect, small polaron model 4−75903
- AsSe, double layer with poly-N-vinyl carbazole photothermoplastic, investigation of quantum efficiency *(Russian)* 4−57633
- AsSe film, laser deposition, structure w.r.t. vapour composition *(Russian)* 4−79884
- As_2Se_3, amorphous, carrier recomb., photocond. obs. 4−70051
- As_2Se_3, amorphous, photocond., hopping model 4−79384
- As_2Se_3, amorphous, photocurrent gain, switching mechanism 4−82461
- As_2Se_3, amorphous, photoluminesc. excitation spectra 4−57616
- As_2Se_3, As_2S_3, As_2Te_3, amorphous, local struct., EXAFS 4−82116
- As_2Se_3, As_2S_3, crystalline, photo-chemical effects 4−75746
- As_2Se_3, chalcogenide cryst., rigid-layer modes, Raman scatt. meas. 4−44624
- As_2Se_3, glass, i.r. and microwave cond. 4−82448
- As_2Se_3, glass struct. anal., X-ray and neutron diffr. 4−60415
- As_2Se_3, glassy, dielec.-const. study, immersion method 4−68736
- As_2Se_3, liquid, elec. cond. switching, temp. depend. of activation energy 4−79386
- As_2Se_3, liquid semiconductor, cond. phenomena 4−75881
- As_2Se_3, obs. of band gap energy levels by stimulated dielec. relax. currents 4−49301
- As_2Se_3, photoluminesc., 0.4-1.8 eV, recomb. mechanism 4−45355
- As_2Se_3, thermally stimulated depolarisation meas. 4−57464
- As_2Se_3 amorphous films, prep. method effect on vibr. spectra 4−45283
- As_2Se_3 film, laser deposition, structure w.r.t. vapour composition *(Russian)* 4−79884
- As_2Se_3 films, amorphous, X-ray diffr. investigation of struct. 4−44469
- As_2Se_3-As_2Te_3, liq. semiconductor, temp. depend. of electrical conductivity 4−72779
- As_2Se_3-CdO, glass, photocond., conc. depend., struct. effect 4−44960

arsenic compounds continued
- As_6Se_4, glass, light irrad., hardness and transmission changes 4−59447
- $As_2Se_3Mn_x$ glass, prep., elec. cond. at high temps. 4−70055
- $As_2Se_3(S_3)$, vitreous and cryst., photoluminescence, mechanism 4−73177
- $As_2Se_3(Se_3,Te_3)$, vitreous, configurational entropy 4−75635
- As_2SeTe_3, amorphous, extrinsic electroabsorption, 0.47-0.9 eV 4−61179
- $As_2(Se_{1/3}Te_{2/3})_3$, localized states, carrier transport mechanism, glassy bulk, sputtered film 4−64009
- $As_2(Se_{1-x}Te_x)_3$, vireous, crystn. mechanism 4−60418
- $As_2(Se_{1-x}Te_x)_3$, vitreous, crystn. study by radial distrib. functions method 4−60419
- $(1-x)As_2Se_3.xSb_2Se_3$, amorphous alloy, thermodynamic and kinetic study 4−44482
- AsTe, amorphous film, switching, computer simulation and obs. 4−82504
- As_2Te_3, glass, gaps and localised states 4−75768
- As_2Te_3, glassy, effect of O on optical props. in weak absorpt. region 4−67624
- As_2Te_3, localised band tail and extended states cond. 4−75867
- As_2Te_3-As_2Se_3, glass, elec. breakdown reversibility conditions 4−73070
- As_xTe_{1-x} glasses, glass forming ability and elec. props. 4−78927
- $(As_{0.4}Te_{0.6})_{100-x}Ge_x$ glass, elec. and thermodynamic props., stepwise comp. depend. 4−75457
- $As_{30}Te_{48}Ge_{10}Si_{12}$ glass, prep., elec. cond. at high temps. 4−70055
- $As_2Te_3.As_2Se_3$, photoluminesc., 0.4-1.8 eV, recomb. mechanism 4−45355
- AsX_3, X=Cl, Br, I, photoelectron spectra interpret., spin-orbit interaction model including d-electrons 4−52245
- HCl-AsH_3-H_2 gas mixtures for GaAs etching 4−53619
- Si-Te-As, amorphous, photocond. and trapping parameters 4−75918

art
- International Colour Association 2nd Congress, York (1973) 4−54883
- painting damage detect. on wooden panels, holographic interferometry appl. 4−74065
- pottery, mechanics, explains casting on the potter's wheel 4−54767
- spectrophotometer design for fading meas. of paintings 4−54923

articulation (speech) *see speech*

artificial hearts *see artificial organs*

artificial kidneys *see artificial organs*

artificial limbs
- No entries

artificial organs
- *see also prosthetics*
- lungs, CO_2 transfer rate 4−58543

artificial satellites
- Alfven waves, long cylindrical satellites 4−52477
- astrometric reduction, collinear methods for satellite positions 4−54615
- attitude-stability at libration points *(Russian)* 4−51383
- AUREOLE, 0.4 to 30 keV electron and proton spectrometry apparatus *(French)* 4−65533
- balloon satellite 1963-30D, radiation pressure and atmospheric effects on orbit 4−61980
- Copernicus orbiting astronomical observatory, stability and control systems 4−71070
- correlation search coil magnetometer 4−71075
- COS-B, modifications for gamma-ray burst obs. 4−83246
- Cosmos 395 rocket (1971-13B), 15th-order resonance orbit and geopotential 4−70625
- D-28, remote u.v. solar experiment *(French)* 4−54614
- dual-spin, eddy current nutation dampers 4−47053
- dynamically symmetrical satellite, circular orbit, uniaxial stabilisation *(Russian)* 4−80450
- Earth observation satellites, detecting toxic effects of metals on vegetation 4−50902
- Earth orbits, computer illustrations 4−76771
- Earth resources development, Brazilian space research 4−64983
- Earth Resources Technology Satellite, multispectral scanner performance degradation 4−54280
- Earth Resources Technology Satellite *(German)* 4−54281
- ECHO 2, photoelec. photometry in eclipse *(French)* 4−70759
- eclipse calculation from relation between solar position and satellite's orbital plane 4−58204
- ERTS data interdisciplinary analysis and interpretations 4−70825
- ERTS-1 applicability for photogeologic and tectonic mapping 4−70827
- Explorer I, unexpected nutation *(German)* 4−62673
- GEOS telecommunications 4−58462
- GEOS waves experiment, magnetosphere meas. *(French)* 4−58143
- geosynchronous, meteorological, SMS-1, NASA 4−73580
- Goddard Space Flight Center computer support 4−46723
- gravity-stabilized, nonlinear reson. effects on ang. motion 4−68318
- gyroscopic stabilisation, nutation *(French)* 4−46573
- Intercosmos 5, charged particle meas. by PG-1-A apparatus 4−70835
- i.r. spectrometry, application to 4-dim. numerical anal. of geopotential and wind fields *(Russian)* 4−83141
- ISIS group, upper ionospheric plasma struct. *(French)* 4−58144
- lunar orbit determination, effect of unmodeled accelerations 4−58201
- lunar perturbations, disturbing function 4−58202
- magnetosphere electric field meas. role of geostationary satellites 4−61943
- Mariner 10, mag. field obs. near Venus 4−70938
- Mariner 10, Mercury encounter, review 4−68366
- Mariner 10, Venus encounter 4−70934
- Mariner 9, satellite orbit determ., rel. to Mars gravity model 4−65043
- Miranda UK-X4 satellite, description, instrumentation, expts. 4−58475
- Molniya-1, low energy electron and proton spectrometer 4−65529
- Netherlands astronomical satellite, Groningen u.v. experiment 4−76929

artificial satellites continued
Netherlands astronomical satellite, obs. of cosmic X-ray sources 4−76930
Netherlands astronomical satellite ANS, onboard digital computer 4−54610
orbit anal. rel. to odd zonal harmonics in geopotential 4−57899
orbit analysis, for coastal zone oceanography observations 4−76763
orbit determ. from multiple exposures on single photograph 4−68473
orbit integration, multirevolution methods 4−59095
orbit prediction, numerical averaging procedure 4−50432
orbital differential equations, multi-step integration, multi-off-grid methods 4−59085
orbital parameters, accuracy determ. method 4−76923
orbital remote sensing, applic. 4−50379
orbiting telescope, large, fine pointing system 4−76925
orbits, calc. using anal. methods of resolution *(Spanish)* 4−65044
orbits with nonsingular elements, variation of parameter formulation 4−59087
oscillations, parametrically excited in near-Earth orbit, stability *(German)* 4−68320
OSO, improvements, review 4−76926
OSO-7, e.u.v. and X-ray spectroheliograph instrument details 4−71072
perturbations in close orbits caused by Earth asphericity 4−54359
photosheath, effect on double floating probe system, model 4−65009
Pioneer 6 2300 MHz telemetry signal perturbations during solar occultation 4−46168
Pioneer 9, solar proton event, August 1972 *(Japanese)* 4−70896
planetary winds, use of orbital satellite occultations 4−58470
position determ., influence of atm. oscills. on accuracy of photographic obs. *(Russian)* 4−80671
Prognoz unmanned stations, cosmic ray instrumentation 4−65528
Prospero, micrometeoroid detector 4−58277
reflections, solar from clouds, geometry 4−54242
remote sensing satellite ocean colour meas. 4−61948
rotation-stabilized satellite, motion about centre of mass 4−74261
sea swell meas. artificial satellite obs. *(Russian)* 4−70671
solar perturbations, computation with Poisson series 4−61981
solar satellites, research and study of solar chromosphere and corona 4−71064
space plasma, standards for space research instruments *(French)* 4−54339
space shuttle, controlled space and plasma physics experiments 4−68290
testing, European Laboratory of Space Tribology 4−61572
tracking system and photoelectric photometer described *(Russian)* 4−80672
trajectory meas. content of information on initial parameters 4−46144
Vanguard 3 (1959-7A), eleventh order geopotential resonance 4−73594
Viking-type orbits, effects of resonant tesseral gravity coeffs. 4−58193

asbestos
low temperature magnetic properties 4−82554
plastic, physico-mech. props. in vacuum and atmospheric conditions, temp. influence *(Russian)* 4−53863

asdic *see sonar*

aspherical lenses
foil, correction of electron lens spherical aberration 4−43367
reflective lens arrays for laser-induced fusion 4−59880
Schmidt reflective corrector profile, exact eqn. 4−76921
surface deformation effect on astigmatism 4−80879
surface testing, null Ronchi test 4−71184

association
see also association of gases; association of liquids
amide groups assoc. of m-acrylamide-styrene copolymer and isobutyramide, i.r. spectra *(Russian)* 4−61612
carbon tetrachloride-methanol (ethanol) systems, relation between self-diffusion and interdiffusion coeffs. investig. 4−83038
ethanol-carbon tetrachloride system, relation between self-diffusion and interdiffusion coeffs. investig. 4−83038
ferrosol, ferroparticle association in mag. field *(Russian)* 4−63621
halogen atom recombination in rare gas diluents, mechanism 4−80170
heterocyclic N-oxide complexes with halogenoacetic acids, hydrogen bonding 4−45937
methanol-carbon tetrachloride system, relation between self-diffusion and interdiffusion coeffs. investig. 4−83038
three-body ion-neutral, rate coeff. calc. 4−54009
three-spin system, e.s.r. obs. 4−49214
$Bi^+(H_2O)_n$, hydration equilibria, mass spectrum 4−61594
H + H + H, assoc. and mol. dissoc. phase space theory 4−61593
$He^* + H(D) \rightarrow HeH(D)^+ + e$, merging beam reacts. investig., effective cross sections determ. 4−61580
$Hg^+ + Hg + He \rightarrow Hg_2^+ + He$, rate coeff. calc., orbital ang. momentum effects 4−54009
NaCl:$NiCl_2$ crystals, association between Ni^{2+} and vacancies 4−63824
PbCl aerosol, coagulation in presence of water vapour 4−70585
$Tl_2(SO_4)_{3aq}$, ultrasonic absorpt. meas., ion assoc. investig. 4−69860
$U + O(O_2)$ collisions, associative ionisation 4−53993
$2\ Xe + Rb^* \rightarrow RbXe^* + Xe$, terat. recombination rate determ. from fluoresc. meas. 4−61582
$(ZnSO_4)_{aq}$, ultrasonic absorpt., rel. to temp., conc. meas., ion assoc. investig. 4−69860

association factor (liquids) *see association of liquids*

association of gases
dimer formation and decay, ideal gas kinetic eqs. derived 4−83017
dimer formation by three-body collisions, mol. dynamics model 4−73421
double molecule formation and breakdown, in dipolar and quadrupolar gases, rot.-translational energy transfer 4−66527
heterogeneous equilibria, calc. of association and aggregation consts. in vapour and second virial coeffs. 4−61611
$X + X + Y \rightarrow X_2 + Y$, $Y = X$ and $Y = X_2$, termol. recombination, quantum kinetic theory 4−83018

association of gases continued
CO_2 double molecule formation and breakdown, in dipolar and quadrupolar gases, rot.-translational energy transfer 4−66527
$He^* + H_2 \rightarrow HeH_2^+ + e$ collision reacts., associative and rearrangement ionisation investig., cross sections determ. 4−72248
NO, adsorption on low and high energy surfaces 4−44763
$NO^+ + CO_2(N_2)(O_2)$, atmospheric gas ion-cluster formation rate coeffs. 4−67999
No, $^{15}N/^{14}N$ isotopic liq./vap. fractionation factor investig. rel. to temp., dimerisation 4−50221

association of liquids
see also colloids
acetic acid, X-ray diffraction determ. 4−44459
alcohol, complexation in active solvents, linear and nonlinear dielec. method 4−64701
alcohol in inert solvent, linear and nonlinear dielec. methods 4−64700
aqueous solns. of alkali metal halides, relation between association and short-range hydration of ions 4−68029
cholesteric-nematic liq. cryst. mixtures, reflective pitch meas., mol. assoc. model 4−78889
cyclohexane-aliphatic alcohol mixture, u.s. velocities determ., excess vol., compressibility determ., assoc. investig. 4−56814
cyclohexane-phenol mixture, u.s. velocities determ., excess vol., compressibility determ., assoc. investig. 4−56814
N,N′-diethyl aniline, laser Raman and i.r. spectra, mol. association in liq. and soln. 4−57511
N,N′-dimethyl aniline, laser Raman and i.r. spectra, mol. association in liq. and soln. 4−57511
dimethylsulphoxide-water system, thermodynamic props., 25°C 4−54088
ethanol, in organic solvents, assoc. investig., u.s. studies 4−73456
fatty acids, u.s. investigation of association factors 4−75431
fatty acids, u.s. obs. 4−66991
formic acid, X-ray diffraction determ. 4−44459
halo-substituted acetic acid, spectroscopic investigation of self-association 4−78887
nitromethane, determ. by Rayleigh scattering 4−49346
polystyrene, benzene and cyclohexanone solns., aggregation, magneto-optic birefringence 4−48500
propionic acid, X-ray diffraction determ. 4−44459
proplylene carbonate-water system, thermodynamic props., 25°C 4−54088
Raman scatt. cross section determ. 4−56216
rhodamine dyes, in alcohol solns., luminesc., conc. quenching investig. 4−73176
2,2,2-trifluoroethanol, in organic solvents, assoc. investig., u.s. studies 4−73456
trifluoroethanol-triethylamine complex, temp. effect on hydrogen bond ν_s bond, liq. phase obs. 4−52167
Hg-In alloys, liq., association equilibria, conc. depend. of enthalpy of mixing *(German)* 4−72423

associative memories *see content-addressable storage*

associative storage *see content-addressable storage*

associative stores *see content-addressable storage*

astatine
No entries

astatine compounds
No entries

asteroids
1932 HA, Apollo-type object, precise position 4−58274
1971 FA, Apollo-type object, precise position 4−58274
1971 UA, ephemeris 4−50520
1971 UA precise positions for 1973 August 27 4−80536
1972 XA, Apollo-type object, precise position 4−58274
1974 MA, ephemeris for 1974 Nov 29-1975 Apr 18 4−80542
1974 MA, precise positions 4−73655
1974 MA (Object Kowal), precise position, orbital elements and ephemeris 4−65122
1974 MA improved elements 4−76808
887Alinda, precise position for 1973 December 31.00833 UT 4−68396
129Antigone, occultation of BD + 13⁰ 1940 on 1974, Oct. 12, prediction 4−80537
Apollo (1932 HA) precise position 4−65121
43 Ariadne, photoelectric light curve, 1972 opposition 4−50515
celestial mechanics, restricted circular three body problem 4−58198
collision of small planet with large comet, possibilities 4−65116
cosmogony of asteroid belt from partially corotating plasma 4−70957
433 Eros, 1974 Sept. 15-19 and Oct. 6, precise positions 4−83194
433 Eros, precise positions and κ Geminorum occultation prediction 4−70954
433 Eros, proposed observational campaign for 1974 October-1975 April 4−68392
evolution of orbits 4−73639
flybys, mission strategy for combined comet-asteroid flyby 4−80674
formation from coagulation equation with fragmentation 4−68326
1620 Geographos, UBV obs., light curves and polarization 4−54440
Kowal, precise positions, 1974 Jun 26-28, ephemerides 1974 July 8-August 1 4−62061
Minerva family, intermediate orbits for resonance asteroids 4−68399
motion, heliocentric and geocentric, original discovery 4−61975
Object Helin, fast-moving object, discovery positions 4−73654
Object Helin as 1952 RH, positions, elements, and ephemeris 4−73659
Object Kowal, precise positions 4−65120
occultation of stars 4−80527
orbit stability for close approach to Jupiter 4−54442
orbits at 3/1 commensurability 4−73644
precise obs. of five objects during 1971 and 1972 from Sydney Observatory 4−50532
size determ., recalibration of photometric/radiometric method 4−76920
solar wind magnetic turbulence in asteroid belt 4−80533
stability of L_2 points of asteroid orbits in solar nebula 4−54367
Sun-Jupiter system, periodic orbits of second generation 4−61977
1685 Toro, characteristics and orbit 4−65134

asteroids continued
- 1685 Toro, possible resonance capture by Earth 4−73666
- 1685 Toro, resonance with Earth and Venus *(Swedish)* 4−58271
- Trojans, unusual orbits of three faint objects 4−54454

astigmatism *see aberrations*

astronautics *see space research*

astronomical catalogues
- *heading is late addition, see also astronomy; astrophysics*
- A-type stars with peculiar and metallic line spectra *(French)* 4−62143
- AGK2-AGK3, new resolution *(French)* 4−73667
- AGK 3R proper motion base system 4−76823
- apparent magnitudes in several catalogues and UBV system 4−46219
- B2 radiosource catalogue, fourth part 4−76859
- BG sources from 408 MHz Bologna fan-beam survey 4−62166
- 4 C sources, reassessment of frequency dependent positions 4−54517
- Carina-Centaurus region, distribution of peculiar, early-type and very late-type stars 4−73731
- catalogue, Leonard Collection, University of California 4−65129
- clusters of galaxies in Abell and Shane-Wirtanen catalogues, cross-correlation analysis 4−73784
- compact groups of compact galaxies, second list 4−58406
- dark nebulae in SMC 4−80662
- degenerate stars, new Greenstein list of 52 stars 4−58314
- first astrolabe catalogue of Santiago, FK4 stars 4−76815
- galaxies and clusters of galaxies, statistical analysis 4−73783
- M-type dwarfs, spectral types of 426 objects 4−73688
- Ohio radiosource survey, sixth list 4−54510
- Parkes 2700 MHz survey, on-line computer reduction 4−54518
- peculiar galaxies, interacting pairs groups and clusters south of declination −43° 4−58417
- radiosources of small diameter at 408 MHz, Bologna fan-beam survey 4−62166
- regions of faint $H\alpha$ emission from photographic survey of whole Milky Way 4−62205
- southern O-type stars, supplementary list to Goy's general catalogue 4−65171
- spectral survey of southern Milky Way, $1=306°-318°$ 4−73684
- star catalogues on magnetic tape at Strasbourg Stellar Data Centre 4−65139
- stellar clusters in SMC, 86 new objects from B and V plates 4−73786
- stellar positional catalogues, chronological description *(Polish)* 4−68405
- stellar positional catalogues, review *(Polish)* 4−68404
- sunspot groups, 1955 to 1964 period 4−68331
- supernovae, Asiago search, 1959-73, brightness $\geqslant 15$, photographic obs. 4−58343
- supernovae, Konkoly survey, 1963-73, photographic obs. 4−58346
- supernovae, Palomar search, 1958-71, photographic obs., stellar populations 4−58345
- supernovae, UBV and spectroscopic obs., 1970-72, type II 'average' light curve 4−58352
- supernovae, Zimmerwald search, 1959-73, photographic obs. 4−58344
- Texas small-diam. source catalogue, data collection techniques 4−62247
- third Uhuru catalogue of 161 X-ray sources 4−46259
- $uvby\beta$ Catalogue, statistical analysis 4−50556
- H II regions in galaxies, second survey using $H\alpha$ obs. 4−50708
- $H\alpha$ emission line stars in LMC, objective prism survey 4−76900
- $H\gamma$ measures of 1171 stars by R.M. Petrie at Dominion Astrophys. Obs. 4−50613

astronomical ephemerides
- 1974 MA (Object Kowal), precise position, orbital elements and ephemeris 4−65122
- 129Antigone, occultation of BD + 13° 1940 on 1974, Oct. 12, prediction 4−80537
- asteroid 1971 UA 4−50520
- asteroid 1974 MA, ephemeris for 1974 Nov 29-1975 Apr 18 4−80542
- Comet Bradfield (1974b), precise positions, magnitudes for 1974 March and April, ephemeris for 1974, Jun. 2-Oct. 20 4−46193
- Comet Cesco (1974e), precise positions, elements and ephemeris 4−70951
- Comet Gibson (1973o), improved parabolic elements and ephemeris 4−50519
- Comet Kohoutek (1973f) orbital elements, ephemerides for 1974 Aug. 21-1975 Feb. 17 period 4−62064
- Comet Lovas (1974c), improved elements and ephemeris 4−80539
- Comet Lovas (1974c), precise positions for 1974 April 14, 19, and improved elements for 1974 May 13-Aug 21 4−46194
- Comet Sandage (1973k), improved parabolic elements and ephemeris 4−76802
- Geminorum, Cepheid, new ephemeris for March 1974 lunar occultation rel. to period variation 4−46238
- Jupiter, 13th satellite, positions, ephemeris for 1974 Sept. 30 to Oct. 30 period 4−80524
- Jupiter, new satellite possibility, precise positions and ephemeris 4−76793
- Object Helin as 1952 RH, positions, elements, and ephemeris 4−73659
- object Kowal, precise positions, 1974 Jun 26-28, ephemerides 1974 July 8-August 1 4−62061
- Periodic Comet Borrelly (1973m), extension to ephemeris 4−70952
- Periodic Comet Forbes (1974a), precise position, total visual magnitude estimates and ephemeris 4−70953
- Periodic Comet Gehrels 2 (1973n), orbital elements and ephemeris 4−73650
- Periodic Comet Gunn (1969 II), improved orbital elements and ephemeris 4−73661
- Periodic Comet Honda-Mrkos-Pajdusakova 4−73658
- Periodic Comet Schwassmann-Wachmann 2 (1973l) ephemeris for 1974 Sept−1975 Sept. period 4−68393
- Periodic Comet Wirtanen 4−73657
- planetary ephemerides from radar, transit circle and Mariner 9 data 4 -54414
- planetary ephemerides from radar-ranging 4−54595
- Southern Africa, 1974 astronomical handbook 4−61971

astronomical ephemerides continued
- Sun, planetary perturbations of Newcomb's tables 4−68327
- visual binaries, revised orbital elements, dynamical parallaxes, masses 4−46233

astronomical instruments
- *see also astronomical observations; astronomical techniques; astronomical telescopes; radiotelescopes*
- Apollo X-ray fluorescence spectrometer for lunar surface obs. 4−54602
- astrogeodesy, National Mapping complex 4−54613
- automatic machines for high speed evaluation of photographic plates 4−73871
- baffle, lens and mirror systems, stray light suppression in space expts. 4−46342
- camera, multiple-pinhole, multiplex imaging 4−58961
- camera, pinhole, multiplex, for solar X-ray photography 4−58472
- celestial X-ray and γ-ray burst, satellite search and instrumentation 4−58403
- chopper designed for i.r. photometry 4−65229
- coherence interferometer for atmospheric transfer function meas. 4−58464
- Copernicus orbiting astronomical observatory, general description 4−71070
- Copernicus X-ray apparatus for supernova remnant obs. 4−58364
- correlation spectrometers, quantization noise 4−62230
- coude spectrograph, imaging props., attached to Ondrejov 2m telescope 4−58456
- D-28 satellite, remote u.v. solar experiment *(French)* 4−54614
- digital correlation spectrometer for supersynthesis 4−62233
- digital pulsar processor, for signal to noise enhancement, spectral analysis, coherent dedispersion 4−62252
- digital recorder for solar spectrum *(Russian)* 4−80466
- electro-optical spectrograph for weak signals 4−73865
- electronic clock, portable, for timing grazing occultations 4−62261
- electronic instrumentation 4−68468
- ESO spectrum scanner, three channels with digital computer control 4−73864
- Fabry Perot coupled modular monochromator, space appl. 4−83266
- Fabry-Perot interferometer, tunable filter in astron. electronography 4−62469
- First European Astronomical Meeting, Athens 1972 4−73803
- fluxgate magnetometer design for outer planet exploration 4−71078
- Fourier transform spectrophotometer, 700-10000 cm^{-1} 4−62264
- gamma telescope using scintillation, Cherenkov counters, spark chamber, cosmic gammas $\geqslant 100$ MeV, meas. *(Russian)* 4−83262
- gamma-ray spectrometer, satellite borne high-resolution Ge(Li) system, description 4−50726
- heliostat using convex and concave reflecting mirrors 4−46347
- hybrid correlator for interferometric obs. 4−62237
- i.r. upconvertor using $LiIO_3$ crystal 4−54608
- Lyman-alpha detector with MgF_2 window 4−83267
- manufacture, in USSR 4−58460
- Mars-2 and-3, apparatus and meas. procedure for low-energy particles 4−76924
- Maryland Electrostatic Energy-Charge Analyzer, Si:Li surface barrier detector development 4−50727
- narrow-band electrophotometer with wedge interference filter 4−54616
- Netherlands astronomical satellite, Groningen u.v. experiment 4−76929
- Netherlands astronomical satellite, obs. of cosmic X-ray sources 4−76930
- Netherlands astronomical satellite ANS, onboard digital computer 4−54610
- nuclear counting methods, importance in space exploration 4−50429
- OSO satellite, improvements, review 4−76926
- OSO-7, gamma-ray search of supernovae and supernova remnants 4−58370
- Parkes 1024 channel digital autocorrelator and conversational mode software system 4−62234
- particle spectrometer system for low-energy interplanetary particle meas. 4−54603
- photoelectric azimuthal polarimeter 4−51017
- photoelectric devices, applications, educational paper 4−54793
- photoelectric photometer, computer interactive, adaptive device 4−65227
- photoelectronic picture tubes used in image intensifiers, electronic cameras and video systems *(Danish)* 4−58453
- photometry, computer controlled timing system for pulsar studies 4−58471
- photomultipliers for satellite gamma-ray experiments, selection criteria 4−50725
- photon counting spectrum analyzer, initial obs. 4−54594
- polarization Fourier spectrometer, performance, 0.3-2.5 μm 4−54592
- pulsar hunting, on-line computer hardware and software 4−54612
- r.f. quasi-linear intensity interferometer, response 4−62259
- scanning Michelson interferometer, phase correction in Fourier transform spectroscopy 4−62235
- Skylab X-ray spectroheliograph, hardware and performance 4−54604
- solar X-ray crystal spectrometer 4−68469
- solar X-ray photometers and spectrometers, design and construction problems *(Polish)* 4−68470
- spectral line processor, 100 channel, for Algonquin Radio Obs. 4−62236
- spectrograph, instrumental profile attached to telescope 4−58457
- spectrograph for solar observations, use of electronic programmer *(Italian)* 4−83258
- spectroheliograph, e.u.v. and X-ray, for use on OSO-7 satellite 4−71072
- spectrometer, extreme u.v., for space research 4−46344
- spectrometer, grazing-incidence, optomechanical system suitable for space appl. 4−50734
- star transit determ., electronic device for mean moment *(Polish)* 4−68471
- stellar photoelectric spectrometer, elec. system description *(Russian)* 4−68463
- stellar photoelectric spectrometer, optical system description *(Russian)* 4−68462

astronomical instruments continued
stellar photoelectric spectrometer, testing results *(Russian)* 4-68464
tracking polarimeter, for solar Faraday signal rotation meas. 4-50729
two beam single photomultiplier nebular photometer *(French)* 4-83259
URSIES at Bartol Coude Observatory 4-73873
X-ray equipment on Copernicus satellite 4-71032
Zeeman polarimeter, for solar active region investig. 4-71074
Zeeman polarimeter, influence of compensation of telescopic phase retardation 4-71073
Ge(Li), space-born spectrometer for gamma-ray astronomy 4-54601
Ge(Li) spectrometer, satellite-borne high resolution gamma-ray system, electronic, data handling and auxiliary sensor systems 4-54600
Si vidicon targets, sensitivity var. in red 4-65232
astronomical observations
see also gamma-ray astronomical observations; infrared astronomical observations; radioastronomical observations; ultraviolet astronomical observations; visible astronomical observations; X-ray astronomical observations
A-type stars with peculiar and metallic line spectra, catalogue *(French)* 4-62143
BDS 1269, visual binary, ubvyβ obs. show metal deficient primary 4-80595
3C 66A, bright new QSO, UBV photoelec. obs. 4-71019
u Cephei, peculiar spectral behaviour of eclipsing binary 4-76839
UV Ceti stars, photometry and analysis of rapid flares 4-80602
clusters of galaxies, X-ray emission rel. to radio emission and optical type 4-50677
Comet Bennett (1970 II-1969i), spectropolarimetry and spectrophotometry 4-54453
Crab Nebula, model, distrib. and motion of relativistic electrons 4-58376
Crab Nebula, supernova remnant dust envelope model, modulation of u.v. and i.r. luminosities 4-58377
CH Cygni, photoelec. obs. in 1969, August *(Russian)* 4-70998
dwarf stars, nearby, K and early M, UBVRI photometry 4-80597
1620 Geographos, UBV obs., light curves and polarization 4-54440
HD 203006 (θ^1 Microscopii) cool Ap star, rotational period and peculiarity *(German)* 4-50583
DQHerculis, variable linear and circular polarization 4-54490
interplanetary low-energy particles, Mars-2 and-3 meas. in 0.03-10 keV range 4-76813
interplanetary proton fluxes upstream from Earth's bow shock, satellite obs. 4-62092
interstellar polarization and extinction, review of observational data 4-46313
Jovian satellite mutual eclipses, UBV photoelectric light curves 4-65093
Jovian satellites, photometric and radiometric obs. 4-54409
Jupiter, Io orbital plane and Na I emission disc, 5000-9000 A obs. 4-76792
Jupiter, Pioneer 10 preliminary results *(German)* 4-50503
AP Librae, Lacertid, UBVRIJHKL photometry 4-73757
LMC, 8 high-luminosity M-type supergiants 4-70992
Magellanic Clouds, radial velocities and spectral type of non-supergiant stars *(French)* 4-65212
Mars, longitudinal polarization in 0.373-0.8 μ region 4-54426
Martian topography, global and local, spherical harmonic analysis of independent obs. 4-68353
NGC 1360, planetary nebula, spectroscopic and photometric obs. 4-54589
NGC 185, UBV photometry of globular clusters in elliptical galaxy 4-80638
NGC 2345, moderately young open cluster in Canis Major 4-62192
NGC 3105, young very distant cluster in Vela 4-62191
NGC 6281, open cluster, UBV photometry of field stars (including HD 153919) 4-80637
NGC 6871, uvby Hβ photometry of young open cluster, distance 4-58414
Nova Delphini 1967, atlas of objective prism spectra, 3400-9000 A 4-73727
novae, photographic and spectroscopic obs. 4-65170
Parsamyan 10, 17, 18, cometary nebulae, spectral obs. 4-58442
EQ Pegasi, flare star, spectral and photoelec. obs. *(Russian)* 4-70999
Periodic Comet Halley (1910 II, 1909c), Japanese obs. *(Japanese)* 4-54456
PKS 0521-36, N-type galaxy UBVRIJHKL photometry 4-73757
planetary ephemerides from radar, transit circle and Mariner 9 data 4-54414
Puppis region, distrib. of M-type giants and C stars 4-80636
refraction tables, new compilation 4-76721
Saturn's inner satellites, UBV photometry 4-54411
Skylab solar experiments, some results 4-80513
solar corona, 1972, August 12 disturbances and flare sprays 4-68348
solar disk centre, curve of growth from FeI lines 4-62024
solar eclipse of 1973, June 30, obs. from Kenya *(French)* 4-83179
solar flares, time-overlapping events, release of energetic particles 4-62012
solar wind, α-particle bulk velocities, discrepancy between HEOS 1 and Explorer 34 obs. 4-54399
solar wind direction from HEOS 1 and Explorer 33 obs. 4-54391
solar wind vel. during cycle 20 and solar radar cross-section 4-65080
supernova remnants, dust envelope model, modulation of u.v. and i.r. luminosities 4-58377
supernovae and supernova remnants, conf., Lecce, Italy (1973) 4-58341
supernovae research, review 4-58342
Texas radiosource positions, spectra of nearby stellar objects 4-65182
Titan, UBV photoelectric obs. 4-58252
Venus, Mariner 10 obs. 4-54428
15 Vulpeculae, spectrophotometric characts. *(Russian)* 4-68421
astronomical spectra
see also atmospheric spectra; solar-spectra; stellar spectra
43 Ariadne, photoelectric light curve, 1972 opposition 4-50515
astronomical spectra continued
Balmer decrement, effect of inelastic electron-atom collisions 4-80452
black-body background radiation 4-58381
blue object near NGC 520, spectra and red shift *(Russian)* 4-73762
4 C 05.34, H_2 absorption features in QSO spectrum 4-71020
celestial X-ray and γ-ray burst, satellite search and instrumentation 4-58403
Comet Bennett (1970 II), CN band spectrum 4-50517
Comet Bennett (1970 II), OH scale length, H and OH production rates 4-76801
Comet Bennett (1970 II-1969i), spectropolarimetry and spectrophotometry 4-54453
Comet Kohoutek (1973f), CH 9 cm. emission after perihelion 4-73646
Comet Kohoutek (1973f), identification of H_2O^+ in tail 4-62060
Comet Kohoutek (1973f), OH obs. at 18 cm 4-73645
Comet Mrkos (1957V-d), Na tail rel. to u.v. optical thickness 4-46201
comets, OI line strength rel. to H_2O composition 4-50535
comets, u.v. fluorescent pumping of OH 18 cm radiation 4-80532
compact nonthermal sources, radiation processes 4-46248
cool carbon and O rich stars, high resolution spectra in 10, 20 μ regions 4-50560
cosmic gamma-ray burst origin in old neutron stars, magnetospheric activity rel. to glitches 4-76884
cosmic gamma-ray bursts, Galactic origin, distance estimate 4-76883
cosmic plasma, electric field effects on H spectral lines 4-54362
Crab Nebula, gamma radiation above 35 MeV 4-80618
Crab Nebula, gaseous filaments spectra computation and interpret. *(Russian)* 4-73856
Crab Nebula, physical conditions in filaments 4-65221
Crab Nebula, X-ray and γ-ray spectra 4-58366
Cygnus A (2U 1957+40), X-ray spectrum of radiogalaxy 4-76860
Cygnus Loop, photoelectric spectrophotometry, 3400-5100 A 4-50570
Cygnus X-2, OSO-7 X-ray flux and energy spectrum obs. 4-50640
diffuse cosmic X-ray background from OSO-3 obs. in 7-100 keV range 4-65189
diffuse X-ray background, multiple inverse Compton scattering 4-46267
dipyridyl magnesium tetrabenzporphin, spectroscopic simulation of diffuse interstellar lines 4-46293
double object near Markarian 261 and 262, spectroscopy 4-58405
dust cloud behind Orion cluster, H, H_2Co obs. 4-46325
elliptical galaxies, turnover radio spectra 4-80619
ethane, ν_9 fundamental, intensity, absorpt. meas. rel. to Jupiter and Saturn atms. 4-74993
expanding medium, optically thick lines 4-58208
galactic centre, spectrum in 8-13.5 μ region and interstellar silicate 4-73809
galactic diffuse Hα intensity distrib. 4-83250
galaxies, normal spirals and ellipticals, polarization at 2695 and 8085 MHz 4-62177
gamma-ray bursts, interpretation of double struct. 4-58404
gamma-ray microbursts with trailers, spectra meas. with Vela satellites 4-73779
GX-21, spectrum and absorption in 0.2-18 keV range 4-50647
Herbig-Haro objects, ionization equilibrium and transition radiation 4-65167
interstellar clouds near ρ Ophiuchi, velocity structure from optical lines 4-50716
interstellar gas detection using Na I lines 4-71059
interstellar H_2, highly excited, expected radioline intensities 4-54565
interstellar He, resonance scattering source of nighttime He I 584 A line 4-46289
interstellar K I lines, interferometric scans 4-46288
interstellar molecular rotational line formation 4-54563
Io, He 10830A emission line obs. 4-68357
Io, Na I D-lines, spatial extent of emission around satellite 4-68350
Jupiter, dekametre radiation, periodicities and sources rel. tp posn. of Io *(Swedish)* 4-68352
Jupiter, $H_2{}^+$ u.v. spectrum possibility of using u.v. spectral probe 4-65103
Jupiter, hyperfine structure in radio spectra 4-54423
Jupiter, Io orbital plane and Na I emission disc, 5000-9000 Å obs. 4-76792
Jupiter, modulation lanes in dynamic spectra of decametric radio emission 4-83183
Jupiter, spectra and gas pressures 4-76797
L1534, dense dust cloud, H, OH, H_2CO line obs. 4-46325
local galactic magnetic field from background polarization surveys 4-58439
M51, digital analysis of colour structure 4-58429
M 31, radio continuum survey at 2695 MHz, 5 C 3 source positions 4-76892
M 33, physical studies of emission regions in spiral galaxy 4-65207
Markarian 501, blue galactic nucleus with featureless spectrum 4-58418
Markarian 94 connection with galaxy III Zw 0834+51, spectroscopic obs. *(Russian)* 4-71034
Mars, atmospheric H distrib. Lα airglow obs. 4-50496
Mars, CO_2 absorption at 11 μ using i.r. heterodyne spectroscopy 4-62042
Mars, exosphere upper limit on H_2 u.v. emission, Mariner 9 obs. 4-70933
maser H_2O sources, pumping mechanisms 4-65185
Mercury CO_2, CO atmosphere upper limit from i.r. spectra 4-46172
metagalactic X-UV flux, interaction with galactic H I 4-83243
meteor spectra patrol and meteoroid mass determ. 4-65133
meteors, spectra of Fe- and Na- deficient objects 4-54441
microwave background photon-photon interaction upper limit 4-61986
molecular clouds, X-ray transition radiation 4-58432
nebulae, He I singlet spectrum optical thickness 4-46310
nebulae, low dispersion spectra 4-73858
nebular line profile reduction from photoelectric Fabry-Perot monochromators 4-65228

astronomical spectra continued
Neptune methane absorption feature at 6420 A 4−50474
NGC 1360, planetary nebula, spectroscopic and photometric obs. 4−54589
NGC 2068, reflection nebula, OH emission obs. 4−62207
NGC 2071 reflection nebula, OH emission obs. 4−62207
NGC 2345, moderately young open cluster in Canis Major 4−62192
NGC 2474-75, planetary nebula, interferometry, spectroscopy in Hα and NII lines 4−65223
NGC 4151, Seyfert, blue shifted absorption line spectrum 4−50662
NGC 4676, peculiar double galaxy, spectroscopic obs. rel. to velocity difference and tidal model 4−46269
NGC 6572, planetary nebula line identification and flux values in 1.6-0.9 μ range 4−54588
NGC 6803, planetary nebula, relative line intensities in 3299-5007 A range 4−80663
NGC 7027, planetary nebula, absolute spectrophotometry in 7000-10000 A range 4−54590
North Polar Spur, enhanced soft X-ray emission 4−62175
NP0532, X-ray spectrum of Crab pulsar 4−62171
objects near Texas radiosource positions, spectra 4−65182
OH471 highly redshifted quasar, radio spectra 4−58392
ρ Ophiuchi complex, new source of intense molecular emission 4−58438
ρ Ophiuchi dark cloud, C166α C167α recombination line obs. 4−50715
optically thin extended sources, spatial spectroscopic diagnostic 4−58206
optically thin extended sources, spatial spectroscopic diagnostics, Fredholm integral eqn. 4−58207
OQ172 highly redshifted quasar, radio spectra 4−58392
Orion, molecular cloud, CO 231 GHz emission line obs. of large-scale wave structure 4−73836
Orion molecular cloud, 1-mm. continuum and 2-cm. H_2CO emission 4−50695
Orion molecular cloud, magnetic field from Zeeman effect in SO lines 4−80660
Orion Nebula, $^{12}C/^{13}C$ ratio from $H^{12}C^{14}N$ and $H^{13}C^{14}N$ line emissions at 80 GHz 4−68458
Orion Nebula, CO and CS line emission maps 4−73854
Orion nebula, electron temp. from forbidden transitions in S III 4−62212
Orion nebula, emission lines near 8500 Å 4−62211
Orion Nebula, filamentary structure seen in OI 8446 Å emission line 4−83257
Orion Nebula, search for D Balmer-α line and high-velocity Hα features detection 4−68459
Orion Nebula continuous spectrum, absolute spectrophotometry 4−62204
Orion Nebula direction, possible maser emission near 3.48 mm 4−50692
Orion Nebula temp. gradient rel. to radio recomb. lines 4−54578
Parkes 2700 MHz survey, intensity dependent radio spectral distribs. 4−54511
peculiar galaxies, HI 21-cm line obs. 4−73785
Periodic Comet Tuttle-Giacobini-Kresak (1973b), spectrographic obs. after brightness jump in July 1973 *(French)* 4−54443
Perseus 2 cloud, line spectra in 3100-4300 A region 4−62206
PKS 0735+178, optical obs. of variable radiosource 4−71014
planetary atmosphere nonspherical scattering function, absorption line profiles and curves of growth 4−54424
planetary atmospheres, coupled spectral line formation 4−65089
planetary H_2 quadrupole absorption lines effect of pressure shifts 4−65102
planetary nebulae, local absolute monochromatic energy, inversion of integral equations 4−58444
planetary nebulae i.r. spectrum from dust calc. 4−73861
PSR 0833-45, soft X-ray emission 4−62170
pulsar flux-density spectra in 250-8085 MHz range 4−50631
QSO, gravitational effect in spectral line redshift 4−73764
QSO absorption lines and bulk motions in clouds 4−65187
QSO absorption systems rel. to radiative acceleration of gas 4−76864
quasar colour-redshift relation using pure continuum colours 4−76868
quasar emission line profiles for radially streaming suprathermal ion model 4−80603
quasars, angular structures at 408 and 610 MHz of 30 objects with steep spectra 4−76865
radiative transfer in spectral lines, book 4−80457
radio background, northern sky linear polarization at 49 cms 4−58387
radio outbursts, spectral evolution, transient emission of high energy photons 4−46250
radiosources, steep spectra of 26 objects at 408 and 1407 MHz 4−73758
Rosette Nebula, emission spectrum 4−54574
rotating galaxies mass/luminosity ratio and colour index 4−76903
Sagittarius A, radio recombination line emission 4−76913
Sagittarius B2, acetaldehyde mol. cloud, microwave rot. spectra 4−62198
Saturn, spectra and gas pressures 4−76797
Scorpius X-1, simultaneous hard X-ray and optical obs. 4−62173
Scutum X-1, spectrum and absorption in 0.2-18 keV range 4−50647
Seyfert nuclei, emission line intensities in 3300-6750 A range 4−71052
soft X-ray background, search for cosmological component in M31 direction 4−80615
Stephan's Quintet region, low freq. radio obs. 4−73789
supergiant galaxies with multiple nuclei, spectroscopic obs. 4−71036
Supernova formation rate from distrib., age, spectrum, flux density of SNRs and pulsars 4−65178
supernovae and supernova remnants, conf., Lecce, Italy (1973) 4−58341
supernovae remnants, extragalactic, radio emission 4−58347
thermal radiosource continuum spectra and brightness contours 4−58385
thermal radiosources, spherical model with filling factor unity 4−58386

astronomical spectra continued
type I supernova envelopes, initial expansion phase, light element abundances 4−65177
Uranus, D/H upper limit from spectral obs. 4−70924
Uranus, visible spectrum absorption features due to H_2+CH_4 simultaneous transitions 4−83185
Uranus methane absorption feature at 6420 A 4−50474
variable N galaxies, trajectories in colour-colour diag. using Sandage model 4−50655
W28, supernova remnant interferometry in Hα and N II 6584 4−65175
C recombination line, freq. depend., radio obs. of C clouds 4−83256
CN 3874 Å band, R(2) equivalent line width rel. to 1.32 mm cosmic background radiation 4−73743
CO, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69503
Fe V-Fe VI spectral classification 4−74855
H I cold cloud, optical interstellar line studies 4−50698
H I region microwave recombination line obs. 4−62201
H I regions, Lyman α absorption, extension of OAO-2 survey 4−46301
H_2 lines in quasar absorption spectra 4−80604
HCN, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69502
$H^{13}CO^+$ rotational spectrum rel. to unidentified X-ogen interstellar radio emission line 4−46286
H_2O, vapour, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69501
H_2O emission sources, southern sky, assoc. with H II regions, 22 GHz obs. 4−62203
OCS, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69502
OH sources, plasma hypothesis for amomalous emission 4−54519
SO, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69504
SiO, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69503
SiO vibrationally excited 129 MHz line obs. in Orion Nebula 4−71058

astronomical spectroscopy *see astronomical spectra; spectroscopy*

astronomical techniques
see also radioastronomical techniques
angular diam. determ. with intensity interferometer effect of limb darkening 4−58293
anhysteretic remanent magnetization method for lunar palaeointensity determ., Apollo 15 samples 4−80528
anhysteretic remanent magnetization method for lunar palaeointensity determ., Apollo 11 and 16 samples 4−80530
Ap stars, detection in Geneva photometric system 4−62136
Ap-stars, photographic interpretation of magnetic curves 4−46216
artificial satellite orbital parameters, accuracy determ. method 4−76923
asteroid, size determ., recalibration of photometric/radiometric method 4−76920
astrometric reduction, collinear methods for satellite positions 4−54615
Cassegrain telescopes, i.r. background radiation reduction 4−83261
celestial X-ray and γ-ray burst, satellite search and instrumentation 4−58403
computer derivation of intermediate orbits for resonance asteroids of Minerva family 4−68399
computer-controlled rapid scanning radial velocity spectrometer 4−76928
data processing, directable modular approach 4−62223
education, photoelectric photometry for undergraduate research 4−73961
electronographic image analysis 4−73872
heliostat using convex and concave reflecting mirrors 4−46347
interstellar gas detection using Na I lines 4−71059
i.r. observation techniques and equipment, review 4−73870
Karhunen-Loeve series expansion rel. to type I bursts 4−71065
lunar laser ranging station, operation and performance 4−46343
lunar mascons, techniques in Doppler gravity inversion 4−58262
lunar subsurface probing, r.f. interferometry, Apollo 17 theory 4−62049
RR Lyrae stars, absolute magnitude determ. error in Rigal-Jung max. likelihood technique 4−65163
Mariner 9 television photometry, nonlinearities and systematic errors 4−50730
Mars photograph processing, contrast method 4−58474
Mars-2 and-3, apparatus and meas. procedure for low-energy particles 4−76924
multicolour photometric systems, early-type star luminosity determ. 4−58454
nebular line profile reduction from photoelectric Fabry-Perot monochromators 4−65228
neutrino emission during relativistic collapse of star, recording method *(Russian)* 4−76931
optical space expts., stray light suppression 4−46342
OSO-7, gamma-ray search of supernovae and supernova remnants 4−58370
paraboloidal mirror, laser interferometric test 4−54609
pattern recognition, automatic mechanical methods rel. to optical and radio astronomy 4−62238
periodicities in data obtained at irregular intervals 4−50733
photographic calibration for photometry and polarimetry of faint stars in R-IR region 4−46349
photographic emulsion sensitivity improvement by soaking in dry nitrogen 4−46346
photographic plates, high speed evaluation 4−73871
photospheric oscillation obs. using Na optical resonance device and optical spatial filtering 4−62002
planetary photometry, spreading of images, deconvolution 4−65226
planetary surface elemental analysis, problems in use of neutron-gamma methods 4−62262
planetary winds, use of orbital satellite occultations 4−58470
point determ. for latitude and longitude work *(Russian)* 4−54618
Population II Cepheids, luminosities and distance determ. 4−50564
pulsar hunting, on-line computer hardware and software 4−54612

astronomical techniques continued

- pupil imagery in astronomical spectrographs for optical telescopes 4-50731
- recording of solar spectrum on magnetic tape, design for digital device *(Russian)* 4-80466
- red-i.r. colour measurement, stellar effective temp. determ. 4-58466
- satellite orbit determ. from multiple exposures on single photograph 4-68473
- Schmidt telescopes, adjustment and testing 4-83260
- solar corona, synchronous emission detection *(Russian)* 4-80468
- solar force free magnetic fields, method of examination using magnetograph obs. 4-65224
- solar granulation, granulation, laser optical analysis of photographs *(German)* 4-50724
- solar photoelectric drift scans, time pulse eval. limb profiles, solar diam. 4-80675
- solar temperature distrib. in photospheric facula, mathematical technique 4-54401
- speckle interferometry, possible extensions 4-62248
- spectral classification of M star i.r. objective prism spectra of moderate dispersion 4-62218
- spectrograph for solar observations, use of electronic programmer *(Italian)* 4-83258
- spectrographic absolute magnitude system, independent calibration on 562 G and K stars 4-54591
- spinning charged particle telescopes, energetic particle flux anisotropy meas. corrections 4-50400
- stellar absolute parallax and proper motion, methods of correction 4-73679
- stellar photospheric polarization detection using intensity interferometer 4-76927
- stellar spectra, correction procedure for absorption line profiles 4-50554
- stellar spectrogram, semiautomatic reduction 4-58455
- supernova remnants associated with open clusters and OB associations, type determ. 4-58299
- supernovae, type I, typical light curves, subclasses 4-58350
- supernovae and supernova remnants, conf., Lecce, Italy (1973) 4-58341
- supernovae photometry, 'typical' light curves, behaviour models 4-58349
- telescope image degradation by atmospheric turbulence, resolution optimization 4-61736
- TV for ultrashort periodic optical radiation sources *(Russian)* 4-71068
- UBV photoelectric photometry, study of nova phenomenon 4-58319
- uby photometry, calibration using model stellar atmospheres 4-58468
- uvby photometric system, calibrations and applications 4-80562
- Volz sunphotometry, precision and accuracy 4-65231
- X-ray astronomy, multiplex methods and advantages 4-58452
- X-ray source position measurement with Copernicus satellite 4-71033

astronomical telescopes

- *see also radiotelescopes*
- astrograph, photographic and photovisual objective lenses, aberrations compared *(Russian)* 4-80670
- baffle, lens and mirror systems, stray light suppression in space expts. 4-46342
- Cassegrain telescopes, i.r. background radiation reduction 4-83261
- Cassegrain-type systems, off-axis, with spherical optics *(Russian)* 4-68466
- Cassegrainian configuration, aplanatic two-mirror telescopes, systematic study 4-80669
- chopper designed for i.r. photometry 4-65229
- electronic instrumentation 4-68468
- electronic system, control of instrument parameters 4-65233
- Fabry Perot interferometer scanned by elastic deform. *(French)* 4-80913
- field corrected telescopes performance comparison with Schmidt configuration 4-58465
- gamma-ray telescope used in balloon flight obs. of Crab Nebula and NP-0532 4-58366
- image degradation by atmospheric turbulence, resolution optimization 4-61736
- image detection, relative efficiencies, survey 4-76922
- mirror screen test, surface sampling, large area departures meas. 4-71183
- mirror/lens system with spherical surfaces, c.a.d. *(Russian)* 4-68467
- Ondrejov 2m, imaging props. of coude spectrograph 4-58456
- orbiting, figure sensing by stellar interferometer 4-73863
- orbiting, large, fine pointing system 4-76925
- Ostrowic, Poland, new 60 cm telescope *(Polish)* 4-58469
- paraboloidal mirror, laser interferometric test 4-54609
- phase retardation compensation, influence on Zeeman polarimetry 4-71073
- pupil imagery in astronomical spectrographs for optical telescopes 4-50731
- retinal nonlinear response rel. to telescope core-halo stellar images 4-76969
- Schmidt camera, plate bending corrections 4-58459
- Schmidt camera, prismatic correction plate 4-54605
- Schmidt reflective corrector profile, exact eqn. 4-76921
- Schmidt telescopes, adjustment and testing 4-83260
- Shajn 2.6 m telescope, optical system adjustment method *(Russian)* 4-68461
- solar, 40 cm coude equatorial telescope of Nice Observatory *(French)* 4-83265
- solar seeing effects, microthermal meas. 4-62265
- Solar Tower Telescope instrumental polarisation effects on mag. field meas. *(Russian)* 4-73867
- spectrograph, instrumental profile 4-58457
- two-lens objectives, aberrations and c.a.d. *(Russian)* 4-68465
- u.v. telescope-spectrometer system on Copernicus satellite 4-71071

astronomy *see astronomy and astrophysics*

astronomy and astrophysics

- *see also astronomical catalogues; astronomical instruments; astronomical observations; astronomical spectra; clusters of galaxies; cosmology; galaxies; gamma-ray astronomy; infrared astronomy; infrared sources (astronomical); intergalactic matter; interplanetary matter; interstellar magnetic fields; radioastronomy; radiosources (astronomical); solar system; stars; ultraviolet astronomy; X-ray astronomy*
- American Astronomical Society, 141st meeting (Tucson, 2-5 December 1973) 4-54350
- ancient astronomy and study of time 4-54351
- astrology, course for students 4-54775
- astronomy in the Ancient World, discussion, London, England (December 1972) 4-46141
- astrophysical plasmas, summing series of Bessel functions 4-61983
- Australian Astron. Soc. meeting (Victoria, 16-18 May 1973) 4-54352
- black hole physics introduction 4-50615
- cosmic plasma, electric field effects on H spectral lines 4-54362
- differentially rotating compressible flow between two coaxial cylinders, stability 4-63546
- directed panspermia, Mo abundance in living organisms 4-54619
- directed panspermia, sea water Mo abundance 4-50738
- dynamical astronomy division of American Astron. Soc. meeting (Tucson, 30 Nov-1 Dec. 1973) 4-54353
- education, introductory laboratory course, behavioural objectives 4-73962
- educational courses for liberal arts college 4-68586
- European site survey for solar observatory 4-80363
- fast Fourier transform computer applications 4-62253
- galaxies and relativistic astrophysics, First European Astronomical Meeting, Vol. 3 (Athens, 4-9 Sept. 1972) 4-73813
- gravitational Stokes parameters rel. to radiative transfer 4-50439
- Indian astronomy at time of Copernicus 4-73939
- iterative technique for rectification of observed distribs. 4-65225
- Jupiter, Pioneer 10 results summarised 4-76795
- Kepler's work 4-62359
- magnetoactive plasmas, radiated and received power relations 4-73599
- MdDonald Observatory, atmospheric extinction in UBV bands 4-58054
- neutrino gas, transport coeffs. calc. from relativistic transport eqn. *(French)* 4-76775
- particles and fields in space, Hungarian Acad. Sci. conf. 4-50430
- photographic plate analysis using precision encoding and pattern recognition 4-80676
- plasma in stellar and planetary interiors, new nodal expansion technique 4-69612
- plasma instabilities and nonlinear effects 4-58155
- plasma-oven of astrophysical interest 4-82041
- relativistic fermion gas interacting through scalar field, Hartree approx., astrophysical importance 4-69115
- relativistic particles, variable masses, equilib. statistical mech., nonquantal theory 4-71414
- Rosario Municipal Astronomical Observatory *(Spanish)* 4-68472
- rotating fluid masses containing toroidal magnetic field, figures of equilibrium 4-65053
- scientific objectives, including solar wind studies, lunar and planetary exploration and stellar and galactic research 4-50429
- stellar, conf., Cikhaj, Czechoslovakia (Oct. 1971) 4-58191
- stellar astrophysics, introduction 4-50539
- synchrotron radiation, absorption coeff. comp. from emission coeff. universally applicable rule 4-65052
- tachyons in extended relativity theory 4-47178
- toroidal figures of equilibrium rel. to astrophysical object evolution 4-70863
- white holes, high energy radiation 4-83172
- $\alpha\alpha$ reactions and gamma-ray emission at 431 and 478 keV 4-73602

atmosphere *see solar atmosphere; terrestrial atmosphere; upper atmosphere*

atmosphere (terrestrial) *see terrestrial atmosphere*

atmospheric acoustics

- auroral infrasonic wave obs., in Antarctica, using 7 microphone system 4-83140
- directed MHD signal generation by acoustic pulse 4-68211
- infrasonic, nonlinear long range propag. 4-68208
- infrasonic acoustic-gravity waves *(Russian)* 4-54217
- infrasonic waves obs., in Antarctica, using microbaroic systems 4-80344
- infrasound, 1-16 Hz, association with CAT predictors 4-50300
- infrasound associated with storms 4-58033
- mesosphere, optical wave recording method 4-58145
- modulation of auroral X-rays by atmospheric sound waves 4-54245
- naturally occurring signals, north Texas, acoustic gravity waves, infrasound 4-80336
- ray acoustic intensity in moving medium, general expression 4-54741
- ray acoustic intensity in moving stratified medium 4-54742
- severe storm acoustic signals observed at ionospheric heights 4-46069
- sonic bang zone position, influence of meteorological conditions 4-46047
- sonic boom propag. through turbulent atmosphere, deterministic model 4-44044
- sounding in atmosphere, refractive effects 4-58641
- travelling discontinuities, transmission and reflection of acoustic gravity waves 4-68183

atmospheric composition

- *see also atmospheric structure*
- aeronomic processes, review of photochemistry 4-61745
- aerosol, latitudinal variation of solar radiation 4-64914
- aerosol, over Southern California coastal waters 4-61794
- aerosol Pb in Rome atmosphere, dependence on meteorological and traffic parameters 4-80365
- aerosol sampling error corrections *(Russian)* 4-54224
- aerosols, neutron activation anal. of trace elements using short-lived isotopes 4-46961
- aerospace operation impact on environment, San Diego conf. 4-80319

atmospheric composition continued
Aitken nuclei, use of radioactive tracers ^{222}Rn and ^{212}Pb in lower troposphere 4−46031
Aitken nuclei source intensity meas. and sources in SW France *(French)* 4−70834
Arctic stratosphere, H_2O, O_3, N_2O and HNO_3 meas. 4−70741
Belgium, pollution by sulphur oxides and smoke (1 Apr. 1971-31 Mar. 1972) 4−61813
biological modulation causing maximization of biosphere 4−50294
Bombay, monthly average concentrations of gaseous pollutants 4−54214
circumsolar sky radiation scatt., turbidity effect, pyranometer obs. 4−46011
climatic effects of stratospheric chemistry 4−61757
D-region semi-empirical model, electron density, positive ion density, ionic composition 4−46077
daytime positive ion composition meas. from 73-137 km above Sardinia 4−64953
Denver aerosols, size distrib. at two polluted sites 4−68167
dicarboxylic acids from electric discharge, primitive Earth atm. simulation 4−76708
excited particle distrib. in 40-300 km range 4−50312
f.m.-c.w. radar and lidar concurrent observations 4−64999
gases, error anal. of lidar meas. by differential absorption 4−61927
H-O minor neutral constituents of winter mesosphere and lower thermosphere, latitudinal distribs. 4−68217
halocarbons distrib. over Los Angeles Basin 4−54189
homeostasis, control of structure and composition by life on surface 4−46040
IBC class II aurora, ion composition meas. 4−70761
IBC class II aurora, ion composition model 4−70762
intertropical convergence zone boundaries from tropospheric Rn conc. *(Russian)* 4−83089
i.r. emission rel. to O_3, CO_2, N_2O and H_2O concs., aircraft obs. 4−61738
magnetosphere He^+ energetic ion discovery 4−83129
marine atmosphere, halogen photolysis rates 4−64904
micron size particle, collision efficiency with raindrops 4−61781
Moscow surface pollutants, influence of atmospheric processes *(Russian)* 4−83354
neutral composition changes during ionospheric storm, Esro 4 gas analyzer results 4−64934
optoacoustic detection, water vapour absorption limit 4−54329
particle detection using optical extinction meas. 4−76759
particulate content from lidar observations 4−73558
particulate matter, determ. by photon activation anal. 4−77268
particulate matter, in situ determ. method of refractive index 4−50394
particulate pollution, Detroit-Windsor, Sarnia-Port Huron area 4−61763
particulate sizes from polarization meas. 4−73583
peroxy acetyl nitrate in Atlantic air 4−50308
photochemical regime, effects of nuclear warfare 4−61812
pollen, mesoscale transport and dispersion 4−61793
pollution, climate effects *(Norwegian)* 4−50305
primitive Earth, prebiotic synthesis of amino acids 4−50309
quartz small amorphous spheres, i.r. absorpt. meas. 4−68162
satellites for air pollutants meas., feasibility consideration 4−62338
solar radiation absorpt. by atm. particles, pyranometer meas. during BOMEX 4−46013
stratosphere, i.r. measurements 4−61754
stratosphere, minor constituent distrib., theoretical model including diurnal variations 4−73545
stratosphere, OH + HCl, rate const. temp. depend. by flow tube reson. fluoresc., 224-460K 4−73410
stratosphere, spectra of NO_2 and HNO_3, local densities determ. *(French)* 4−61759
stratosphere, sulphate aerosol distrib. seasonal variation 4−73546
stratospheric aerosol layers obs. by optical radar at Fukuoka, Japan 4−61755
stratospheric aerosols, review of measurements and techniques 4−64871
stratospheric aerosols 4−61748
stratospheric HNO_3 vapour distrib. direct sampling 4−76701
stratospheric HO_x and NO_x diurnal var., model 4−46034
stratospheric ozone reduction by high-flying aircraft, two-dimens. photochem. model with transport 4−61756
stratospheric trace constituents, sampling methods 4−61925
stratospheric water vapour upper limits from upper air obs. in northern hemisphere 4−61740
stratospheric-mesospheric modelling 4−61758
sulphate and SO_2 dosages determ., automatic nephelometric method *(French)* 4−71127
sulphate cloud condensation nuclei, Aitken particles obs. as precursors 4−68193
telluric methane, abundance and rotational temp. 4−70720
thermosphere, eddy turbulence, role in development of self consistent theoretical models 4−61829
thermosphere, equatorial composition from SM 3 mass spectrometer 4−61831
thermosphere composition variations, model based on Ogo 6 mass spectrometer and drag data 4−61830
thermosphere N_2 vibrational temp. and molecular density from rocket-borne electron beam induced luminescence 4−61832
trace metals, concentrations and sources at South Pole 4−68203
troposphere, interhemispheric exchange, diffusion model 4−61766
troposphere aerosol absorpt. of spectral radiative flux 4−46012
tropospheric positive ion clustering, effect of organic vapour pollutants 4−50297
turbidity rel. to circumsolar radiation 4−61739
upper atmosphere, 97 km, O density, spatial and temporal variation from Ogo 6 airglow obs. 4−61833
upper atmospheric CO_2 density rel. to $O_2(^1\Delta_g)$ ionization rate 4−54257
upper atmospheric meteoric element densities, seasonal variation theory 4−76736
upper atmospheric meteoric metallic ions, drift motion by middle latitude winds 4−76737
Uppsala, wet fallout patterns for wet sulphate and strong acid 4−58027

atmospheric composition continued
urban air pollution modelling 4−68164
volcanic dust, layer formation after eruption of Mount Agung *(German)* 4−61804
NW metropolitan Washington, O_3 in ambient air 4−70693
water droplet aerosol, above-micron range, production and characteristics 4−61928
water vapour, satellite obs. 4−46014
water vapour content, obs. with Nimbus 5 i.r. temp. profile radiometer 4−46120
water vapour in lower stratosphere, record of 10 years measurements 4−61751
water vapour mass from Cosmos 243 radiometry at 0.8 cm *(Russian)* 4−83091
water vapour profile, low-altitude, i.r. meas. 4−61779
water vapour variations, comparison with NRAO interferometer phase fluctuations 4−46041
C, in atmospheric particulate matter, determ., particle size separation technique 4−77267
C isotope fractionation between dissolved bicarbonate and gaseous CO_2 4−50258
CH_4, global and seasonal variation from Nimbus 4 Iris meas. 4−50298
CO, in turbojet plume, chem. reaction in turbulent flow 4−60262
CO as toxic pollutant, review 4−70750
^{13}C and ΣCO_2 in surface waters and atmospheric CO_2 4−64840
H, in atmospheric particulate matter, determ., particle size separation technique 4−77267
H, production and escape 4−64929
H compound distrib. between 50 km and exobase 4−76732
H_2, production and escape 4−64929
HNO_3 vapour, u.v. absorption meas. 4−54188
H_2O, production and escape 4−64929
HT, sampling system for low level meas. 4−54335
HTO, sampling system for low level meas. 4−54335
He I latitudinal var. from e.u.v. obs. of 584 Å airglow emission 4−50319
^3He, origin in atmosphere from auroral precipitation 4−61835
^{127}I, airborne concentration meas. using charcoal collector and neutron activation anal. 4−54334
N, in atmospheric particulate matter, determ., particle size separation technique 4−77267
N· and NO concentrations in disturbed ionosphere in 100-200 km range 4−54263
NH_3, in rarefied atm., anal. using computerised microwave spectrometer systems 4−68838
$(NH_4)_2SO_4$-graphite, removal by rain in shallow air flow 4−61780
NO, apparatus for in situ stratospheric conc. meas. from chemiluminescence 4−70839
NO, NO_2, and HNO_3 in stratosphere, measurement techniques 4−61753
NO, NO_2 radicals, pollutants, atm. conc. meas., problems, 'state of art' 4−50900
NO and NO_2 in stratosphere, balloon and aircraft measurements 4−61752
NO concentration determ. from eclipse variations of ion concentrations 4−46056
NO concentration in mesosphere from 4.05 MHz absorption meas. 4−68213
NO meas. in lower stratosphere from aircraft flights 4−61811
$NO^+ + CO_2(N_2)(O_2)$, atmospheric gas ion cluster formation rate coeffs. 4−67999
NO_2, calibrated remote meas., differential-absorption backscatter technique 4−65283
NO_2, in rarefied atm., anal. using computerised microwave spectrometer system 4−68838
NO_2 conc. in urban atmosphere, differential absorpt. meas. technique 4−62337
Na, equilib. concen. in atmosphere, photochemical considerations 4−54207
O, meteorite ablation product atmos. oxygen isotope temporal variation determ. 4−58057
O I meas. by incoherent scatter and satellite-borne mass spectrometer techniques 4−50320
O/N_2 changes from ionospheric electron production rates 4−64905
O-H constituent concentration changes in mesosphere during solar eclipse 4−68222
O_2 number density from Lα absorption obs. 4−61834
O_2 number density from solar u.v. absorption, rocket meas. in 70-300 km altitude range 4−76730
O_3, absorpt. of CO_2 9.4 μ laser radiation 4−61737
O_3, gas transfer near Earth's surface 4−61770
O_3, total content in two layer plane parallel atmospheric model 4−50293
O_3, world wide distribution and seasonal changes 4−61749
O_3 concentrations and effect of stratospheric aircraft exhaust 4−54240
O_3 decrease causing increase in biologically effect u.v. solar radiation 4−46473
O_3 distribution tables, 1957-69, seasonal and latitude effects *(Russian)* 4−80364
O_3 meas. in lower stratosphere from aircraft flights 4−61811
O_3 removal by soil and vegetation 4−70743
O_3 vertical distrib. trends over Australia 4−58052
OH radicals, concs. in lower atm. estimated using trace constituent indicator as technique 4−50282
OH reaction with methane, stratospheric destruction rates 4−83077
^{222}Rn and cloud condensation nucleus concentrations, correlation coeffs. 4−73550
^{222}Rn profiles over closed basin and open ocean, comparison with electrical conductivity 4−73547
SO_2, in rarefied atm., anal. using computerised microwave spectrometer systems 4−68838
SO_2, long range transport 4−61765
SO_2, long-range diffusion from urban centre 4−61764
SO_2, meso-scale pollution transport in the Netherlands 4−61762
SO_2 distribution, St. Louis metropolitan area, air pollution model 4−64907
SO_2 mean hourly average maximum ground level concentrations at Tilbury 4−68163

atmospheric composition continued
SO_2 oxidation in stratosphere rel. to Junge sulphate layer 4−73544
atmospheric density *see atmospheric pressure and density*
atmospheric disturbances *see atmospheric movements; thunderstorms*
atmospheric duct *see atmospheric electromagnetic wave propagation*
atmospheric dynamics *see atmospheric movements*
atmospheric electricity
see also atmospheric electromagnetic wave propagation; atmospheric ionisation; atmospherics; aurora; electrojets; ionosphere; lightning; thunderstorms
atmospherics, polarisation error in direction finding, inclined electric dipole effects 4−83115
auroral-polar currents during moderate magnetospheric activity 4−73562
conductivity over closed basin and open ocean, comparison with ^{222}Rn profiles 4−73547
dicarboxylic acids from electric discharge, primitive Earth atm. simulation 4−76708
droplet accretion on ice, electrification 4−70716
EAS atmospheric ionization, local changes of atmospheric elec. field 4−76766
EAS radio pulses during thunderstorms rel. to atmospheric electric field 4−68305
eddy diffusion effects on atmospheric electric current 4−64906
F-region Ba cloud coupled to E-region, conductivity ratio effects on drift and deformation 4−70792
fair-weather electric field, short-period fluctuations 4−58037
field aligned currents and auroral electrojet 4−83111
ground-layer meas. during undisturbed conditions at Marsta, Sweden *(German)* 4−61771
high-latitude ionosphere self-consistent electrostatic field mapping 4−70774
ionosphere, critical frequencies of field F, correl. dependences 4−54259
ionospheric charged particle conductivity measurement, charged particle cond. meas., rel. to h.f. radiowave absorption meas. 4−58076
ionospheric DP1 and 2 current systems, effect of conductivity on natural oscillations 4−50331
ionospheric dynamo, mathematical theory, excited electric fields and currents 4−58079
ionospheric dynamo-electric fields 4−70772
ionospheric electric field global distrib. at 200 and 540 kHz Ogo 6 obs. 4−64946
ionospheric field-aligned current induced by asymmetric dynamo action 4−68237
ionospheric ion flow and related convective electric fields near auroral arc 4−70776
ionospheric Sq currents, rocket meas. over Kagoshima 4−61840
ionospheric winds and electric fields from geomagnetic S_q-var. 4−61837
lightning-induced electric fields in ionosphere 4−61839
lower ionosphere potential field generated by diurnal atmospheric tide 4−58077
magnetic field aligned potential diff. causing downward electron acceleration 4−70777
magnetic storm, 1970 February 24, electric and magnetic field obs. by Injun 5 4−83133
magnetic storm ring current, radiation production, energy deposition 4−58108
magnetopause, electric currents and geomagnetic dipole field 4−61860
magnetosphere, high latitude dayside, elec. field and particle meas. 4−83128
magnetosphere, plasma flow and electric fields from whistler obs. 4−61875
magnetosphere electric field meas. role of geostationary satellites 4−61943
magnetosphere inductive electric field of field aligned current system 4−70802
magnetospheric convection electric field and high-latitude F_2-layer 4−46086
magnetospheric current flow during substorms 4−61857
magnetospheric current-produced forces and torques on the Earth 4−46090
magnetospheric electric field, configuration and features 4−61871
magnetospheric electric field and currents connected with Y-component of interplanetary mag. field 4−58112
magnetospheric electric field derivation from whistler data in dynamic geomagnetic field 4−70798
magnetotail, self-consistent theory 4−61862
magnetotelluric sounding in polar regions, ionospheric effects 4−64825
measurement with ion mobility spectrometer *(Japanese)* 4−61936
nuclear debris cloud, electric dipole moments from Compton current model 4−50299
open drift shells, latitudinal distrib. and composition of charged particles 4−46084
partial ring current rel. to storm-time geomagnetic disturbance field 4−46089
plasma sheet near $30R_e$, cross-tail current 4−58110
point-discharge current, rel. to sea-breeze 4−46018
polar cusp ionosphere, field aligned current system 4−83109
polar ionosphere, ion-acoustic wave detection by satellite radio beacons 4−50338
polar ionosphere, VHF satellite signal amplitude variations, ion-acoustic waves 4−50339
potential above ocean waves 1 m high 4−73551
potential gradient and current during steady precipitation 4−83105
raindrop, charge at ground level 4−61796
raindrop charge, meas. by disdrometer 4−61929
ring current protons beyond plasmapause low altitude obs. 4−58064
spread-F events, energetics and energy source 4−50347
strong electric fields above ordinary rain cloud 4−50306
substorm 3-dim. current system in ionosphere 4−68235
sudden impulse, ionospheric electric field, surface magnetic field meas. 4−61858
threshold corona field strengths rel. to linear dischargers in thunderclouds *(Russian)* 4−46023

atmospheric electricity continued
thunderclouds, central New Mexico, electric field meas. 4−50301
thunderstorm electric field accelerated decay by chaff seeding, comments 4−73552
trapping region, electrostatic waves at half gyrofrequency 4−61855
upper atmosphere, Joule dissipation, effects of including coriolis force in eqns. of motion 4−64943
water droplet aerosol, above-micron range, elec. charges 4−61928
atmospheric electromagnetic wave propagation
see also atmospheric light propagation; ionospheric electromagnetic wave propagation; tropospheric electromagnetic wave propagation
4 GHz cross-polarisation discrimination deterioration during rain and multipath fading, obs. 4−70753
absorption of solar radiation, parametric analysis 4−54228
anisotropic precipitation media, deterioration of circular polarisation clutter cancellation 4−50285
attenuation along transmission path *(French)* 4−58000
attenuation at 15.3 GHz and rain rate statistical distributions 4−70756
attenuation at millimetre and submillimetre waves 4−64927
attenuation due to rainfall theoretical calcs. *(French)* 4−58001
attenuation prediction for millimetric waves 4−70755
auroral absorption storms, HF propagation, field strengths 4−54253
coruscation of auroral particle flux at College, Alaska, correlation with radiowave absorption 4−46059
Earth-ionosphere cavity, Schumann resonance problem, convergence of zonal harmonic series representation 4−50302
frequency spectrum, effect of atmospheric winds 4−59335
gyroresonant wave-particle interactions, phase-bunching and nonlinear processes 4−50350
ion cyclotron wave non-linear interactions obs., satellites and fundamentals 4−50371
i.r. radiance, effect of particulate matter 4−70714
magnetosphere, VLF wave decay instability 4−68251
magnetospheric conjugate v.l.f. transmissions from Alaska to New Zealand 4−50365
magnetospheric u.l.f. wave stimulated amplification by injection of plasma clouds and particle beams 4−70805
magnetospheric v.l.f. wave injection from Siple station, Antarctica 4−68254
mesospheric NO concentration from 4.05 MHz absorption meas. 4−68213
mesospheric v.h.f. backscatter studies using Jicamarca incoherent-scatter radar 4−64939
microwave, refraction in boundary layers 4−46042
microwave rain-induced cross-polarisation estimates 4−70754
millimetre wave propagation in turbulent atmosphere 4−46127
molecular absorption, direct integration transmittance model 4−58043
NRAO interferometer phase fluctuations, comparison with water vapour variations 4−46041
plasmasphere, relation between ELF hiss and plasma density 4−61856
radiative transfer, non-LTE, temp. distrib. of electrons, ions and atoms 4−58288
radiative transfer, time-depend, non-LTE 4−58287
radio aurora backscatter, HF and VHF obs. 4−50322
radio emission from cosmic ray shower ionization elecs. in thundercloud 4−76767
radio refractive index variations affecting large aperture synthesis radio telescopes 4−50307
radio signal attenuation, use of weather radar in communication engineering 4−70738
radiowave scattering, by atmospheric particles *(Russian)* 4−58051
rain attenuation measurement at 15.3 GHz using transportable earth station 4−61760
rain depolarisation at 4 and 6 GHz 4−61761
rain-induced polarization rotation at 30.9 GHz 4−54249
rainfall, at 20 GHz, absorbt., cross polarisation correlation, meas. 4−43236
relations at Hohenpeissenberg *(German)* 4−61803
satellite/aircraft multipath properties at 1600 MHz 4−76682
s.h.f. plane e.m. waves scattering by axisymmetric raindrops 4−68994
solar radiation, atmospheric water vapor and volcanic aerosol effects 4−70737
solar radiation transmission at Mauna Loa, seasonal variations due to aerosols 4−70723
spectral characteristics 4−46044
stratified shear layer, thermally radiating, stability, self absorbing model 4−54241
temperature pulsation spectrum restoration, optical meas. *(Russian)* 4−54221
thermal long wave radiation field, seasonal variations 4−61809
thermospheric neutral wind diurnal variation from incoherent scatter radar 4−70763
transmission function computation method, results for 15 μ CO_2 band 4−58042
tropospheric spectral short wave radiative flux divergence variability, aerosol absorption *(Russian)* 4−54222
turbulent atmosphere, antenna gain fluctuations 4−46043
ultrashort, calibration technique for measurement of ultrashort waves 4−70747
v.h.f. radar backscatter, electron trapping boundary and visual aurora 4−64966
VLF emission triggered by whistlers, non linear theory 4−58114
v.l.f. emissions, theory of u.l.f. modulation 4−83126
VLF long term variation over transauroral paths 4−46055
v.l.f. propag. below anisotropic ionosphere, mode conversion coeffs. in Earth-ionosphere waveguide 4−83083
VLF propagation characteristics for nighttime surface waveguides 4−68182
VLF sunrise fading, Northwest Cape to Sugadaira path 4−58083
whistler ducting at low latitudes 4−57999
whistler modulation, perturbation method for non linear effects 4−58074
whistler triggering of energetic particles 4−58115
X-ray propagation, Monte-Carlo simulation *(French)* 4−57996

atmospheric electron precipitation
see also aurora; radiation belts
airglow line spectra, excitation by precipitating low energy electrons *(Japanese)* 4−83106
Arctic thermosphere, electron streams at 100-180 km height, rocket meas. 4−76728
artificial magnetosphere, particle precipitation and radiation belt 4−50361
auroral oval position determ. method of representation 4−46050
auroral zone, energy spectral var. during SVA electron precipitation events 4−64972
auroral zone, i.r. band enhancement due to electron precipitation or electric fields 4−50321
breakup aurora, low altitude acceleration of electrons 4−50315
cosmic ray secondary electron fluxes, energy spectra at various atmospheric depths *(Russian)* 4−80443
cosmic ray secondary electrons spectrum and intensity in upper atm. *(Russian)* 4−80442
cosmic rays, synchronous variations in energetic electron flux and gamma quanta during magnetic perturbation *(Russian)* 4−80434
dayside auroral zone, fluctuations modulated by magnetospheric compression and expansion 4−64974
GEOS waves experiment, magnetosphere meas. *(French)* 4−58143
ionosphere, ionisation sources, solar eclipse data 4−54374
ionospheric Ba releases, wave and particle precipitation stimulation 4−70778
ionospheric ion flow and related convective electric fields near auroral arc 4−70776
lightning discharge, multiple return-stroke, radiated energy 4−57998
magnetic field aligned potential diff. causing downward electron acceleration 4−70777
magnetosphere, contoured v.l.f. wave injection experiments 4−68286
magnetosphere, French-Soviet ARAKS project, 1975 4−68289
magnetosphere, high latitude dayside, elec. field and particle meas. 4−83128
magnetosphere, laboratory experiment 4−68255
non-uniform glow, aurora, rocket meas. of electron intensities 4−70768
polar cap auroral electron fluxes, Isis 1 obs. 4−46085
polar cusp, magnetic field fluctuations and low energy particle meas. 4−83110
radiation belt slot region, resonance precipitation of energetic electrons 4−83130
relativistic precip. event, 1969, February 2, energy spectra 4−83113
solar cosmic ray penetration into polar caps 4−46051
upper atmosphere, horizontal heat conduction during electron precipitation 4−80374
wave-particle interaction, electron beam from sounding rocket 4−68285
atmospheric energetics *see atmospheric movements*
atmospheric humidity
see also hygrometers
aerosol, effect on optical consts. *(Russian)* 4−61772
air-sea interaction, turbulent fluxes 4−54173
air-sea interface, bulk aerodynamic coeffs. for heat and moisture fluxes 4−58008
air-sea interface, fluctuation meas. 4−57975
air-sea interface, velocity fluctuations rel. to convection 4−54172
aircraft noise dependence, near Arlanda airport 4−80810
aluminium oxide water vapour sensor, time response characteristics 4−58139
atmospheric duct, effect on microwaves in geodetic meas. *(German)* 4−70752
boundary layer turbulent fluxes, heat, momentum, moisture, parametrization *(Russian)* 4−64879
eddy flux measurements, over Lake Ontario 4−54162
evaporation in humid regions in SE Spain *(Spanish)* 4−83102
evaporation studies in India, relation between humidity vars. and number of rainy days 4−80329
evapotranspiration, lysimetric calibration of Bowen Ratio-Energy Balance method 4−64911
free atmosphere, temp. rel. to humidity during stable stratification and thermal intermittency 4−76714
haze scattering coeff., relation with relative humidity *(Russian)* 4−83080
hygrometer, absolute meas. using heated LiCl *(Dutch)* 4−80400
lidar measurement by differential absorption, error anal. 4−61927
low altitude profile, i.r. meas. 4−61779
lower atmosphere, diurnal variation *(German)* 4−61802
lower troposphere, orthogonal distrib. of temp. and humidity *(Russian)* 4−50289
marine boundary layer, temp. and humidity spectra 4−76713
measurements for calculation of short wave radiation fluxes *(Russian)* 4−73553
mist, effect on light attenuation by aerosols *(Russian)* 4−61773
moisture, effect on hydrostatic pressure 4−61797
moisture content and lower level convergence rel. to cloudiness 4−54211
monsoon rainfall conditions and drought causes over western India 4−80328
plume persistence from natural draught cooling towers 4−70691
precipitable water, meas. using Sun photometer 4−70832
St. Louis urban atmosphere, warm dry envelope 4−73549
statistical model, surface relative humidity 4−61787
surface layer at sea, turbulent fluxes 4−58006
tropical convective boundary layer, climatological aspects 4−57974
turbulent fluxes of moisture over ocean *(Russian)* 4−64877
turbulent surface layer, wind wave-induced disturbances 4−54174
wet adiabatic lapse rate, use in stability criteria of saturated atmosphere 4−70730
atmospheric ionisation
see also atmospheric radioactivity; ionosphere
auroral electron interaction with atmosphere, spectral degradations backscatter, optical emission, ionization 4−50316
D-region ionisation at v.l.f. reflecting heights after solar flare SID, zenith angle depend. 4−83124
D-region negative-ion changes during solar eclipse 4−68245
daytime positive ion composition meas. from 73-137 km above Sardinia 4−64953
atmospheric ionisation continued
E-region, nighttime midlatitudes, ionisation by energetic electrons, rocket obs. 4−83121
GEOS waves experiment, magnetosphere meas. *(French)* 4−58143
ground level, ion density obs., correl. with atm. phenomena 4−83086
ionosphere, sources of unsounding electron conc. solar eclipse data 4−54374
ionosphere ionization-neutralization and dynamic characteristics, optimum number of rocket soundings 4−46063
ionospheric afternoon trough characteristics from ground-based vertical sounding 4−68231
polar F-region excitation and ionization, diurnal var. 4−68244
solar radiation ionization rates for two atmospheric models 4−68228
^{222}Rn decay products, gamma ray flux and ionization 4−58040
atmospheric light propagation
aerosol, humidity effect on attenuation *(Russian)* 4−61773
aerosol, humidity effect on optical consts. *(Russian)* 4−61772
autocorrelation function of doubly scatt. light, appl., to temporal light coherence 4−47308
backscatter of near i.r. radiation by artificially-formed clouds *(Russian)* 4−54218
brightness wave propagation in optically thick atmosphere 4−73540
circumsolar sky radiation scatt., turbidity effect, pyranometer obs. 4−46011
coherence interferometer for atmospheric transfer function meas. 4−58464
dust absorption coefficient, diffuse refl. meas., 0.3-1.1 μm 4−76680
fluctuations spectra 4−70746
focused spot characteristics, atm. coherence meas., 10.6 and 0.63 μm 4−76679
haze scattering coeff., relation with relative humidity *(Russian)* 4−83080
haze scattering matrix, indirect determ. of angle dependences *(Russian)* 4−83081
intensity correlation function meas. of focused light beam propagated through turbulence *(Russian)* 4−51520
i.r. absorption by small amorphous quartz spheres 4−68162
i.r. radiation transfer through clouds, calcs. 4−46015
laser beam, effects of atmospheric fluctuations *(French)* 4−42689
laser beam, in lower atm., weak scintillations, aperture averaging effects 4−43255
laser beam focused in turbulent atm., scintillation calcs. 4−50295
laser beam intensity fluctuations, finite receiver aperture effect 4−70749
laser beam phase, atm. turbulence effects 4−68161
laser beams, rapidly slued, thermal blooming rel. to wind speeds 4−80313
laser cross-beam velocimeter, effect of atm. turbulence 4−80339
laser focused beam in turbulent atm., intensity fluctuations *(Russian)* 4−73534
laser waves, through turbulent atmosphere, cumulative probability distribution 4−50287
MdDonald Observatory, atmospheric extinction in UBV bands 4−58054
Monte Carlo methods for solving light scattering theory problems 4−76762
multiple scattering problems, radiative transfer theory 4−73640
photon path length distrib. for two-layer cloud models *(Russian)* 4−73537
polarisation for scattering by smoke and smog *(Russian)* 4−50290
pollution detect. of Hg trace element, coherent light scatt. method 4−46122
radiative transfer, middle u.v. reaching ground, multiple scatt. calcs. 4−70688
refraction angles, accuracy of calcs. using aerological data *(Russian)* 4−80318
refraction profiles, use of statistical orthogonal polynomials *(Russian)* 4−83082
resolution of partially coherent objects, speckle interferometry appl., atm. turbulence effects 4−43254
scintillation saturation by strong turbulence, variance and covariance 4−43253
Sobolev Φ-function in planar and spherical, isotropically scattering, atmospheres 4−50546
solar eclipse spectra, chromospheric emission lines seen in corona, double scatt. in Earth's atm. 4−83178
solar radiation absorpt. by atm. particles, pyranometer meas. during BOMEX 4−46013
specular reflection near 90°, satellite obs. 4−83103
stellar light scintillation, spatiotemporal (angular) correlation meas. for turbulent layer detect. 4−80338
thermal emission profile rel. to radiative equilib., scatt. independ. determ. 4−46027
thin clouds, monochromatic optical thickness from 0.65-13.5 μ meas. 4−54235
turbulence, irradiance scintillations, log-normal paradox 4−64900
turbulence, laser beam mutual coherence function and freq. sepectrum 4−64901
turbulence, temporal-freq. spectrum, saturation conditions 4−43256
turbulence effect, irradiance fluctuations, diffr. cutoff 4−46028
turbulence effects, perturbed log normal distrib. of irradiance fluctuations 4−80337
turbulence induced beam-wander, cancellation by fast-tracking laser transmitter 4−80340
turbulent medium, strong optical amplitude fluctuations, physical model 4−43251
upper atmosphere laser sounding, Monte Carlo study of light haze 4−73541
visible and i.r. atmospheric propagation, book 4−64926
HNO_3 vapour absorption, 1700-2636 Å, quantitative meas. 4−54188
NO_2 conc. in urban atmosphere, differential absorpt. meas. technique 4−62337
atmospheric motion *see atmospheric movements*
atmospheric movements
see also wind
acoustic radar system for lower atmospheric probing, turbulence detect. 4−73577
acoustic-gravity waves *(Russian)* 4−54217

atmospheric movements continued
air pollution turbulent diffusion differential eqns. *(French)* 4−54192
air trajectory, computation of large scale dispersion 4−62339
air-sea interface, bulk aerodynamic coeffs. for heat and moisture fluxes 4−58008
air-sea momentum exchange 4−57971
amplifying baroclinic wave, mid-tropospheric frontogenesis 4−70722
annual energy distribution on planetary scale 4−58034
arbitrary map projections, pure image space 4−68176
Arctic atmosphere energy balance, year to year variations 4−46032
astronomical telescope image degradation by atmospheric turbulence, resolution optimization 4−61736
astronomical viewing quality at Mt. Hopkins Observatory (1969-71) 4−68207
atmospheric, wind tunnel simulation 4−61768
auroral region, planetary wave struct. 4−76731
available potential energy, hemispheric spectral statistics 4−76687
baroclinic boundary layer with linear variation of geostrophic wind, vorticity, divergence and vert. vel. 4−68170
barotropic model, updating expts. 4−54229
barotropic zonal shear flow, forced Rossby wave encountering a critical level 4−76689
boundary layer, diurnal variations in mesoscale model 4−76691
boundary layer, Lagrangian similarity theory of diffusion 4−58016
boundary layer, neutral barotropic, asymptotic similarity rel. to aerodynamic model *(Russian)* 4−64885
boundary layer, simulation of diurnal meteorological variables *(Russian)* 4−61776
boundary layer parametrization of barocline effects *(Russian)* 4−70702
boundary layer turbulence, numerical model *(Russian)* 4−64884
boundary layer turbulence application of Taylor's hypothesis 4−76692
boundary layer turbulent fluxes, heat, momentum, moisture, parametrization *(Russian)* 4−64879
breaking gravity waves in marine inversion, energy budget and turbulence 4−68169
CAT, association with 1-16 Hz infrasound 4−50300
cellular vortices due to radiative cooling and cellular structure of sea mists *(French)* 4−54199
characteristics from radiosource scintillation data *(Russian)* 4−54216
circulation, two week periodicity 4−70710
clear air turbulence, computer forecasting *(Russian)* 4−83095
convection, problem of multivalued pressure 4−76704
convective activity over GATE area, interannual variations 4−61742
cumulus clouds, non-precipitating convection, parameterization 4−76718
cyclone tracking over sea areas 4−80325
cylindrical fluid annulus, wave-amplitude vacillation, rel. to atmospheric circulation 4−70706
diffusion and turbulence, air pollution, Santa Barbara Conf. 4−80320
diffusion in atmospheric surface layer, wind tunnel simulation 4−58014
dispersion, global scale modelling 4−58026
dryline motion, boundary layer slab symmetric numerical model, turbulent vertical mixing 4−76690
dynamic initialization for primitive equation model, experiments 4−80356
Ekman boundary layer, parametrization of turbulent exchange *(Russian)* 4−83092
equatorial kelvin waves at 100 mb. 4−76715
equatorial latitudes, large scale motion 4−73538
equatorial waves, NCAR global circulation model 4−64886
F$_2$-region over Delhi, gravity wave assoc. neutral particle vel. perturbations 4−64960
F-region Ba cloud coupled to E-region, conductivity ratio effects on drift and deformation 4−70792
F-region Joule heating, atmospheric expansion 4−64961
F-region vertically travelling disturbance, changes in electron number density 4−68243
front formation, downstream of temp. field deform. 4−58044
frontogenesis, Boussinesq formulations of quasi-geostrophic and primitive eqns. models 4−76684
gaseous effluent from tall stack, dispersion model 4−58021
GATE Convection Subprogram, scientific basis and objectives 4−64869
Gaussian plume model sensitivity 4−54193
general circulation, hemispherically available potential energy, comp. with numerical models *(German)* 4−64920
general circulation model, effects of mountains 4−54225
general circulation model, numerical experiment for winter 4−76709
geostrophic drag coeff., planetary boundary layer, radiosonde data *(Russian)* 4−64881
GFDL general circulation model, spectral analysis of tropical disturbances 4−54232
global circulation, GISS model 4−54227
gravity waves induced by Earth's diurnal rotation 4−50296
gust probe system, frequency response of input parameters 4−61931
horizontal wind, spectral model 4−64910
NW India, heavy winter rainfall and advection of vorticity at 300 mb level 4−54215
internal gravity waves, current instability 4−50311
intertropical convergence zone, Indian Ocean 4−61815
intertropical convergence zone over east Atlantic, convection conditions 4−68200
ionosphere, Ba ion cloud, nonlinear motion 4−50335
ionosphere, cylindrical plasma irregularity diffusion, effects of electron-ion collisions 4−58080
ionospheric ion flow and related convective electric fields near auroral arc 4−70776
ionospheric ion flow velocities using ion distribution technique 4−70837
ionospheric polar wind flow, two-temp. ion energy distrib. 4−64947
isentropic shear layer, dynamic stability 4−64897
jet streak, hyperbaroclinic zone, satellite indirect sounding technique 4−65001

atmospheric movements continued
Kelvin-Helmholtz billows and detailed mesoscale synoptic conditions 4−80354
Lagrangian turbulence in two and three dimens., numerical simulation 4−58012
Lagrangian-Eulerian time scales from balloon flight past tall tower 4−58017
large-scale vertical motion determ., modified isentropic technique 4−46125
laser beam focused in turbulent atm., scintillation calcs. 4−50295
laser beam phase, atm. turbulence effects 4−68161
laser cross-beam velocimeter, effect of atm. turbulence 4−80339
laser focused beam propag. in turbulent atm., intensity fluctuations *(Russian)* 4−73534
lateral velocity, statistical props. of vertical shear 4−64912
Leipzig wind profile and boundary layer wind-stress relationship 4−76717
light beam, two dimens. intensity correlation function meas. *(Russian)* 4−51520
lower atmosphere, convection cell model 4−73533
lower level convergence rel. to cloudiness 4−54211
lower troposphere, vertical exchange meas. using ^{212}Pb and ^{222}Rn 4−61789
lower turbulent zone, rel. to mountain lee waves 4−61791
macroturbulent transfer, 200 mb in Southern Hemisphere *(French)* 4−57997
magnetosphere, artificially injected electrons, observed and theoretical motions, Electron Echo expt. 1 4−64964
magnetospheric convection, effect of east-west component of interplanetary magnetic field 4−83131
magnetospheric particle clouds, time dependent electric field model for drift motion 4−50362
magnetospheric plasma flow from 30 eV-30 keV proton studies, rel. to boundary layer nature 4−61872
mean zonal flow, forcing by stationay waves 4−76688
mesoscale cellular convection 4−61790
micron size particle, collision efficiency with raindrops 4−61781
mixed layer, non buoyant particle vertical diffusion modelling 4−58020
mixing heights in lower atm. over India, seasonal var. 4−70701
mixing layer, Western Oregon, lidar obs. rel. to pollutant dispersion 4−54190
monsoon disturbances, Indian region, power spectrum anal. of wind data 4−80326
monsoon rainfall conditions and drought causes over western India 4−80328
NCAR general circulation model, response to sea temp. perturbations 4−76683
NCAR global circulation model, ice age boundary conditions 4−70729
neutral planetary boundary layer, accelerating, frequency dependence 4−64896
noctilucent clouds rel. to mesospheric circulation *(German)* 4−64941
nonlinear interaction mechanics, three component system *(Russian)* 4−54219
nonlinear quasi-geostrophic equation, solutions on a bounded domain 4−64892
northern hemisphere energetics, annual cycle 4−64903
Northern Hemisphere planetary waves, statistical anal. 4−73539
ocean-atmosphere system, ice cover regime, theoretical model 4−57972
optical scintillation saturation by strong turbulence, variance and covariance 4−43253
optical wave in turbulent atm., perturbed log normal distrib. of irradiance fluctuations 4−80337
planetary atmosphere turbulence, effect on radio occultation 4−62040
planetary atmospheric turbulence effect on flyby spacecraft radio occultation 4−76798
planetary boundary layer, eddy diffusion coeffs., vertical profiles 4−58015
planetary boundary layer, height variation of turbulent kinetic energy budget 4−64895
planetary boundary layer, similarity theory *(Russian)* 4−61775
planetary boundary layer, temporal spectra and cross-spectra of kinetic energy 4−76716
planetary boundary layer, time-dependent integrated flow 4−64894
planetary boundary layer structure from higher order closure model calcs. 4−70713
plasma sheet near 30R$_e$, motion, magnetic field structure 4−58110
plume dispersion parameters from 3-dim. aerial probing 4−58003
pollen, mesoscale transport and dispersion 4−61793
pollution dispersion on regional scale estimation, limitations and prospects 4−58024
pollution transport in the Netherlands, SO$_2$ 4−61762
precipitation probability, prediction from 500-mb flow types 4−64909
quasi-geostrophic 2-level baroclinic model, predictability and spectral truncation 4−76686
quasi-geostrophic turbulence, inertial ranges 4−70697
quasi-geostrophic turbulence model 4−70705
quasi-nondivergent prediction models, bounds on error growth rate 4−80357
refractive index structure constants determination *(Russian)* 4−54332
resolution of partially coherent objects, speckle interferometry appl., atm. turbulence effects 4−43254
rising thermal, entrainment coefficients 4−43972
shallow sea water surface, drag and bulk transfer coeffs. 4−57976
small particle motion, water drop or dust particle 4−70699
solar geomagnetic disturbance, response of circulation at 700 mbar 4−58035
Southern Hemisphere, mean 200-mb circulation 4−64890
spectral three component complex system for barotropic atmosphere 4−50481
stratified flow of boundary layer, turbulence and dispersion 4−58013
stratified jet stream, finite amplitude waves and CAT 4−46024

atmospheric movements continued
stratified shear layer, thermally radiating, stability, self absorbing model 4−54241
stratoform cloud, gravity wave breaking phenomenon *(French)* 4−68196
stratosphere, gravity waves from wind and temp. data 4−70718
stratosphere, large scale turbulent motion, eddy KE budget *(German)* 4−68173
stratosphere, momentum balance and energetics, simulation model 4−64891
stratosphere, vertical transport in 20-120 km range 4−54206
stratospheric ozone reduction by high-flying aircraft, two-dimens. photochem. model with transport 4−61756
stratospheric-mesospheric modelling 4−61758
streamline patterns and momentum transports 4−76702
summer hemisphere Hadley cell rel. to zonally averaged mean meridional circulation 4−76719
sun-weather correlations 4−61784
surface boundary layer, momentum and mass transfers 4−80360
surface layer, turbulent characteristics *(Russian)* 4−61774
thermals, realization form of spontaneous convective movements 4−50291
thermosphere, eddy turbulence, role in development of self consistent theoretical models 4−61829
thermosphere, superrotation, small diurnal mean driving force 4−50323
tornado, MHD model *(Russian)* 4−64919
tornado-like vortex, laboratory simulation 4−61778
trajectory numerical prediction based on radiosonde obs. 4−58025
transport mechanisms and energy fluxes in northern hemisphere *(German)* 4−83087
trapeze instability, on open domain 4−61777
travelling discontinuities, transmission and reflection of acoustic gravity waves 4−68183
travelling ionospheric disturbances in magnetically conjugate regions 4−68232
tropical atmospheric circulation, seasonal var. on global model 4−54226
tropical cyclone struct., 3-dim. numerical simulation model 4−76685
tropical Hadley circulation model *(German)* 4−68174
tropical storm movement in Indian Seas, objective prediction method 4−54209
tropics, contrasting circulation and cloudiness 4−64888
tropics, wave-conditional instability of second kind 4−54231
troposphere, interhemispheric exchange, diffusion model 4−61766
troposphere, large scale turbulent motion, eddy KE budget *(German)* 4−68173
tropospheric global scale diffusion characteristics 4−58023
tropospheric horizontal divergence and vertical motion rel. to equatorial atmosphere disturbance 4−70740
tropospheric turbulence, antenna gain and resolution effects of phase fluctuations 4−80368
turbojet plume containing CO, chem. reaction in turbulent flow 4−60262
turbulence, irradiance scintillations, log-normal paradox 4−64900
turbulence, laser beam mutual coherence function and freq. sepectrum 4−64901
turbulence, wind tunnel simulation 4−61768
turbulence effect on aircraft smoke-marked wakes 4−48307
turbulence effects on speckle pattern prod. by laser beam 4−51523
turbulence in convective conditions, vertical wind component 4−54204
turbulence induced beam-wander, cancellation by fast-tracking laser transmitter 4−80340
turbulence over densely wooded terrain *(Russian)* 4−64875
turbulence over vegetation covered terrain, KE exchange *(Russian)* 4−64876
turbulent, 'energetic catastrophe' *(French)* 4−54186
turbulent convection with shear 4−52355
turbulent diffusion study using artificially produced electric space charge 4−80366
turbulent jet, entrainment characteristics 4−60208
turbulent layer detection, correlation meas. of stellar light scintillation 4−80338
turbulent medium, strong optical amplitude fluctuations, physical model 4−43251
turbulent mixing layer generation, buoyancy effect 4−58010
turbulent puff, unsteady flow 4−61769
turbulent transport, computational modelling 4−56363
upper atmosphere, Joule dissipation, effects of including coriolis force in eqns. of motion 4−64943
upper atmosphere dynamical model based on MHD, Joule heating and winds due to magnetic storm 4−46060
upper atmospheric meteoric metallic ions, drift motion by middle latitude winds 4−76737
upper atmospheric turbulent motion velocities, radio meteor and O absorption spectrum methods *(Russian)* 4−70760
urban air pollution source orientated mathematical models 4−58018
urban heat island, phys. modelling of flow and diffusion 4−61767
urban mixing height, meso-scale variations 4−70698
SW USA summer monsoon source, Pacific Ocean via Gulf of California 4−70732
vertical exchange processes, use of Rn conc. variations as indicator *(French)* 4−70696
vertical velocities in rotating planets *(Russian)* 4−58241
von Karman's eddy runs, mesoscale diffusion coeff. *(Russian)* 4−54220
vortex ring formation in stratified atmosphere 4−68202
vorticity, troposphere and lower stratosphere, influence of solar mag. sector struct. 4−64899
waves, steady and transient, excited by diabatic heat sources 4−64887
weather forecasting, long-range, basic and conjugate problems *(Russian)* 4−58045
wind and turbulence simulation of atmos. boundary layer flow 4−46046
winter flow pattern, 50-mb, synoptic climatology 4−64908
zonal wind quasi-biennial oscills. at 25-60 km. altitude (1962-9) 4−76712

atmospheric movements continued
AgI plume characteristics, over Bridger Mountain Range, Montana 4−61792
H_2, H, H_2O production and escape 4−64929
O_3, gas transfer near Earth's surface 4−61770
SO_2, long range transport of air pollutants 4−61765
SO_2 diffusion from urban centre 4−61764
SO_2 distribution, St. Louis metropolitan area, air pollution model 4−64907

atmospheric noise *see atmospherics*

atmospheric optics
see also airglow; atmospheric light propagation; sky brightness; sunlight; twilight
aerosol depolarisation meas. using LIDAR analogue 4−68282
aerosol extinction, meas. using Sun photometer, 0.44-1.6 μm 4−70832
aerosol microstructure and light scattering matrices 4−46025
aerosols, choice of refractive index for microstructure determ. by optical methods *(Russian)* 4−58032
altocumulus and altostratus, optical props. at 10-12 μ and 0.694 μ 4−76699
astronomical refraction tables, new compilation 4−76721
astronomical telescope image degradation by atmospheric turbulence, resolution optimization 4−61736
astronomical viewing quality at Mt. Hopkins Observatory (1969-71) 4−68207
aureole haze scattering functions rel. to aerosol microstructure *(Russian)* 4−54223
Bemporad's airmass function, improved approximation 4−54187
cloud layers, models of multiple scattering 4−76727
cloud shadow calculations for Earth surface modelling 4−61807
conference, Washington, USA, Spring (1974) 4−46624
Earth's surface with clouds and shadows, obs. from space *(Russian)* 4−61810
European site survey for solar observatory 4−80363
glory 4−80362
haze on skylight energy spectral distribution, effect on aerial photography 4−61814
horizontal halo, in divergent light 4−61817
light scattering, dust layer formation after eruption of Mount Agung *(German)* 4−61804
MdDonald Observatory, atmospheric extinction in UBV bands 4−58054
mirage, explanation 4−68594
molecular and aerosol backscatter, laser determ. *(Russian)* 4−61941
monochromatic rain or fog bow obs. 4−61820
Monte Carlo methods for solving light scattering theory problems 4−76762
opacity, latitudinal variation of solar radiation 4−64914
optoacoustic air pollution detectors, laser calibration system 4−71138
particulate matter, in situ determ. method of refractive index 4−50394
photogrammetric refraction, local var. 4−61825
photogrammetric refraction, local variation 4−46719
poly-dispersed aerosols, scattering and absorption 4−76726
radiometer, scanning, to monitor u.v. irradiance low levels, biological correlation 4−46118
rainbow, treatment for students 4−54798
refraction, effects of temp. inversion, using lower atm. temp. gradient data and two atm. models *(Russian)* 4−80317
refraction angles, accuracy of calcs. using aerological data *(Russian)* 4−80318
refractive index structural characteristics, photographic method *(Russian)* 4−58029
refractive index structure constants determination *(Russian)* 4−54332
satellite position determ., influence of atm. oscills. on accuracy of photographic obs. *(Russian)* 4−80671
scattered radiation, effect of polarisation *(French)* 4−54247
solar radiation absorption radiometer 4−46126
solar seeing rel. to air temp. fluctuations at Oslo Solar Observatory 4−80367
solar u.v. flux below 50 km 4−61750
spectral power distributions of daylight from north sky at Amagasaki *(Japanese)* 4−50281
spectral radiance and contrasts of natural formations from space obs. 4−73557
stratosphere molecules, photoabsorption cross-sections 4−61747
turbulence effects on speckle pattern prod. by laser beam 4−51523
u.v. radiation increase due to ozone reduction by high flying aircraft 4−61756
visibility range, relation with cloud base height 4−68201

atmospheric pollution *see air pollution*

atmospheric precipitation
see also atmospheric electron precipitation; atmospheric proton precipitation; ice; rain; snow
anisotropic precipitation media, deterioration of circular polarisation clutter cancellation 4−50285
Arabian Sea, lower tropospheric water vapour budget and precipitation during northern summer 4−80353
baroclinic disturbances, mechanisms influencing precipitation distrib. 4−80350
charged droplets, collision coeff. and coalescence meas. *(French)* 4−66671
charged particle measurement, by PG-1-A apparatus on Intercosmos 5 4−70835
cloud droplet, condensational growth 4−61785
cloud seeding with artificial ice nuclei, temp. window 4−68188
coruscation of auroral particle flux at College, Alaska, correlation with radiowave absorption 4−46059
downwind precipitation from cooling towers 4−70690
dynamic cumulus seeding, Florida, seedable cloud radar populations 4−68189
electric potential gradient and current during steady precipitation 4−83105
enhancement by cloud modification, statistical evaluation *(Russian)* 4−83094

atmospheric precipitation continued
- generalized beta distribs. of 2nd. kind rel. to hydrology and meteorology 4−68130
- hail, Doppler radar spectra rel. to exponential size distribution 4−70736
- hail pellet growth at cold front 4−80351
- hailstone size distribution function *(Russian)* 4−58031
- power spectrum analysis, maxima at 2.2 and 2.4 years, comparison with sunspot relative numbers 4−83088
- prediction, rel. to 500-mb flow types 4−64909
- primary water product, adsorption effect 4−50283
- radiowave scattering, polarisation characteristics *(Russian)* 4−58051
- sea currents due to precipitation and evaporation *(Russian)* 4−80296
- sea-salt cloud condensation nuclei formation on seashore 4−68146
- solid particle, fall speeds and masses 4−58038
- stratosphere, lower, high condensation nuclei conc. meas. 4−68194
- sulphate cloud condensation nuclei, Aitken particles obs. as precursors 4−68193
- Uppsala, wet fallout patterns for wet sulphate and strong acid 4−58027
- water drop terminal velocity, equation for calc. 4−61795
- winter flow pattern, 50-mb, synoptic climatology 4−64908

atmospheric pressure *see atmospheric pressure and density*

atmospheric pressure and density
- 500 mb height tendency field in the tropics, tropospheric phenomena 4−80334
- altitude of barometric station determ. by barometric levelling *(Russian)* 4−54341
- Arctic and Antarctic, comparison of values of meteorological elements *(Russian)* 4−58047
- artificial satellite deceleration rel. to atmospheric density variation determ. 4−44018
- balloon satellite 1963-30D, radiation pressure and atmospheric effects on orbit 4−61980
- baric formations, calc. speed of movement *(Russian)* 4−58050
- baroclinic waves, meridional variation of eddy heat fluxes 4−64893
- barometric levelling in hilly regions, systematic errors *(Russian)* 4−54340
- barotropic model for heights of atm. layers over India, computerised forecasting 4−80323
- Black Sea, calc. of currents, numerical model *(Russian)* 4−57992
- CACTUS microaccelerometer, atmospheric density and radiation pressure meas. *(French)* 4−54338
- cold front forecasting over N. Vietnam using statistical discriminant anal. *(Russian)* 4−83096
- contour heights of atm. levels over India, objective anal. 4−80324
- convection, problem of multivalued pressure 4−76704
- cyclone tracking over sea areas, isallobaric field mapping 4−80325
- equatorial wind speed correlation with atmospheric pressure distrib. *(Russian)* 4−83098
- fluctuations, rel. to parametric excitation of satellite oscillations in near-Earth orbit *(German)* 4−68320
- global, 180 to 500 km, statistical model *(French)* 4−54251
- ground-level air pressure, time statistical struct., 1956-1960 *(Russian)* 4−58049
- hydrostatic pressure, effect of moisture 4−61797
- infrasonic waves obs., in Antarctica, using microbaroic systems 4−80344
- Laptev Sea, Arctic, atmospheric pressure fields and ice drift relation 4−68149
- latitudinal density var., ion gauge meas. 4−80371
- Limited-Area Model, formulation of lateral boundary conditions 4−61786
- mesoscale range surface pressure variations, power spectrum 4−70731
- northern hemisphere annual mean surface pressure var. during double sunspot cycle 4−64915
- Northern Hemisphere monthly pressure anomalies rel. to mean temp. and rainfall for England and Wales 4−46038
- planetary boundary layer, time-dependent integrated flow 4−64894
- power spectrum analysis, maxima at 2.2 and 2.4 years, comparison with sunspot relative numbers 4−83088
- pressure broadening effects on i.r. spectra 4−68184
- rapid pressure rise followed by pressure oscillation during trough passage at Liverpool 1972 Dec. 5 4−83085
- solar geomagnetic disturbance, response of circulation at 700 mbar 4−58035
- surface pressure increases under flying aircraft *(Russian)* 4−46021
- thermosphere, Jacchia models in spherical harmonic functions 4−64942
- tropical cyclone struct., 3-dim. numerical simulation model 4−76685
- vapour pressure over an aerosol particle 4−70725
- vortex ring formation in stratified atmosphere 4−68202
- water vapour pressure effect on atmospheric extinction 4−54236
- O_2 number density from $L\alpha$ absorption obs. 4−61834

atmospheric propagation *see atmospheric electromagnetic wave propagation*

atmospheric proton precipitation
- *see also aurora; radiation belts*
- artificial magnetosphere, particle precipitation and radiation belt 4−50361
- auroral breakup, $H\beta$ variations rel. to prebreakup H arc 4−58063
- ionospheric Ba releases, wave and particle precipitation stimulation 4−70778
- ionospheric ion flow and related convective electric fields near auroral arc 4−70776
- low-energy fluxes in 100-180 km range, rocket meas. 4−50313
- magnetospheric solar proton entry, satellite data interp. 4−50368
- magnetospheric solar proton entry, trajectory comparison for two models 4−50369
- nonadiabatic proton losses from radiation belt during magnetic storms 4−46083
- polar cap solar proton precipitation rel. to magnetospheric boundaries 4−61866
- ring current protons beyond plasmapause low altitude obs. 4−58064
- solar cosmic ray penetration into polar caps 4−46051

atmospheric proton precipitation continued
- $H\beta$ emission in postbreakup auroral glow and proton precipitation 4−61827

atmospheric radiation
- *see also aurora*
- absorption of solar X-ray radiation in thermosphere, satellite meas. 4−68219
- bremsstrahlung at satellite altitudes emitted by electrons, transport calcs. 4−64940
- Cherenkov radiation from disturbed ionosphere 4−54265
- cirrus cloud, radiative props. in window region 4−64898
- climatic effects of stratospheric chemistry 4−61757
- climatological computation of net radiation components 4−54213
- clouds, radiative properties at visible and i.r. wavelengths 4−80359
- EAS radio pulses during thunderstorms rel. to atmospheric electric field 4−68305
- ground level radionuclide concentrations, baseline survey for reprocessing plant 4−51925
- i.r. intermediate region, statistical props. of background noise for atm. windows 4−58028
- i.r. radiation transfer 4−73641
- Lyman-alpha detector with MgF_2 window 4−83267
- SW New Mexico, polarized emergent radiation at 28 km altitude 4−80355
- radiation and remote probing, conference (Los Angeles, 28-30 August, 1973) 4−73554
- radiative transfer in thick atmospheres 4−73556
- radiative transfer of visible radiation in turbid atmospheres 4−73555
- short wave, calculated from observations during world cruise *(Russian)* 4−73553
- shortwave, estimation as function of relative sunshine, results from lower Zaire *(French)* 4−54195
- solar u.v. penetration below 50 km 4−61750
- Spherical Harmonics method *(French)* 4−51486
- stratiform cloud, effect of atmospheric radiation 4−54234
- thermal, estimation based on results from Zaire *(French)* 4−54194
- water vapour profile, low-altitude, i.r. meas. 4−61779

atmospheric radioactivity
- *see also fallout*
- aerosols, recoil nuclei effects and free atom conc. 4−76707
- concentration meas., discontinuous 4−50396
- Hawaiian Islands, ^{222}Rn atmospheric vertical profiles 4−80346
- induced airborne, at Prague-Bulovka during 1972 4−46036
- Kilauea volcano plume, ^{222}Rn vertical profiles 4−80346
- rainwater, Ru and Ce isotopic activity ratios at Osaka rel. to 1969-72 nucl. explosions 4−80342
- resuspended airborne radionuclides, computer-controlled sampling system 4−54333
- thermonuclear source in air, transport cross-section sensitivity anal. 4−81680
- Yukon Valley, ^{222}Rn vertical profiles over snow cover 4−80346
- γ-ray spectrometer, air-borne, calc. of yield curves 4−61896
- ^{214}Bi, gamma ray flux and ionization 4−58040
- ^{14}C variation in natural geophysical reservoirs, Box model calc. 4−76673
- ^{144}Ce, inhaled fused clay particles, removal by bronchopulmonary lavage, dog expt. 4−65277
- ^{3}H, continuous monitoring using flow-cell type scintillation detector system 4−51146
- ^{3}H concentration meas. using flow through ion chambers 4−46838
- ^{125}I, air sampling techniques using carbon-containing filter, absolute decay rate determ. 4−55976
- ^{214}Pb, gamma-ray flux and ionization 4−58040
- ^{226}Ra, concentration in region of Katowice 4−58053
- Rn isotopes, atmospheric disequilibrium meas. by gamma spectrometry 4−55051
- ^{222}Rn and cloud condensation nucleus concentrations, correlation coeffs. 4−73550
- ^{222}Rn decay products, gamma ray flux and ionization 4−58040
- ^{222}Rn profiles over closed basin and open ocean, comparison with electrical conductivity 4−73547
- ^{222}Rn vertical profiles 4−80346

atmospheric spectra
- *see also atmospheric optics*
- air, dry, Rayleigh scatt. coeffs. 4−46010
- air-sea interface, vertical wind velocity, temp., radiorefractive index fluctuation meas. 4−57975
- aurora, low latitude, physico chemical reactions, spectrometer for obs. *(French)* 4−73578
- auroral emission, 6.72-23.2 μm, detector design 4−71166
- auroral photometry, ground based meas., calibration, 3200-7500 Å 4−54330
- auroral spectrum emissions theory 4−64928
- auroral X-ray spectra, Monte-Carlo simulation *(French)* 4−57996
- equivalent line width, use of Pade approximants 4−46035
- extraterrestrial photoelectric photometric study of atmospheric brightness 4−46019
- Fraunhofer line filling in, 3855-4455 Å 4−61743
- Freon-12, Rayleigh scatt. coeffs. 4−46010
- gamma-ray spectra from 50 MeV to 1 GeV 4−46029
- gamma-rays in 30-300 MeV range, three-dimensional study 4−50422
- haze on skylight energy spectral distribution, effect on aerial photography 4−61814
- i.r. emission in 700 to 2800 cm^{-1} region, concs. of O_3, CO_2, N_2O and H_2O, aircraft obs. 4−61738
- molecular absorption parameters in atmospheric modelling 4−73559
- monochromatic extinction of solar radiation by Dessens' droplets 4−54237
- nighttime ionosphere, E-region and lower F-region radiation fields, $L\alpha$ and $L\beta$ 4−83120
- pollutants, i.r. spectroscopic detection, long path 4−62579
- pressure broadening effects on i.r. spectra 4−68184
- shallow sea water, drag coeff. 4−54175
- single-ended atm. transmissometer 4−64923
- sky brightness at Amagasaki *(Japanese)* 4−50281
- solar absorption, heliostat with convex and concave mirrors 4−46347
- stratosphere, i.r. measurements 4−61754
- stratosphere, spectra of NO_2 and HNO_3, local densities determ. *(French)* 4−61759

atmospheric spectra continued
thermal radiation spectra, 4-5.5 μ, comparison of expt. and calc. values *(Russian)* 4−58030
thin clouds, monochromatic optical thickness from 0.65-13.5 μ meas. 4−54235
turbulent surface layer, wind wave-induced disturbances 4−54174
water vapour continuum, search for e-effect 4−54236
water vapour profile, low-altitude, i.r. meas. 4−61779
X-ray, Monte-Carlo simulation *(French)* 4−57996
CO_2, Rayleigh scatt. coeffs. 4−46010
Hβ emission in postbreakup auroral glow and proton precipitation 4−61827
He I 584 Å airglow emission rel. to latitudinal var. and He abundance 4−50319
He^+ 304 Å radiation, satellite obs. and interpretation 4−50367
Mg II equatorial dayglow intensity distrib. TD1-A satellite obs. in 2796-2803 Å range 4−64936
N_2^+ 3914 Å emission in twilight airglow 4−50318
NO and NO_2 in stratosphere, balloon and aircraft measurements 4−61752
O I 5577 Å line, N + NO reaction as possible excitation source in aurorae 4−68223
O I lines in tropical nightglow, radiative cascade model for recombining O plasma 4−64935
O II 7319 Å doublet emissions, Fabry-Perot interferometric meas. 4−58061
O_3, absorpt. of CO_2 9.4 μ laser radiation 4−61737
OH, mesosphere, gravity and acoustic wave recording method 4−58145
OH near i.r. airglow intensity, balloon-borne telescope obs. 4−70766
OH nightglow (8-3)/(5-0) intensity ratio at Adi Ugri, diurnal var. 4−70767
OI 5577 Å nightglow intensity, monthly variation at Dumka, S/N annual variation 4−61826
OI 6300 Å emission line contamination by OH (9-3) band, night sky high resolution meas. 4−46030

atmospheric structure
see also atmospheric composition
aerosols, choice of refractive index for microstructure determ. by optical methods *(Russian)* 4−58032
baroclinic disturbances, mechanisms influencing precipitation distrib. 4−80350
barotropic model for heights of atm. layers over India, computerised forecasting 4−80323
biological modulation causing maximization of biosphere 4−50294
boundary layer, baroclinic influence on resistance law *(Russian)* 4−64874
boundary layer, stratified, 2-layer model *(Russian)* 4−64880
boundary layer changes rel. to atmospheric model *(Russian)* 4−64883
boundary layer modelling 4−54205
contour heights of atm. levels over India, objective anal. 4−80324
GFDL general circulation model, spectral analysis of tropical disturbances 4−54232
homeostasis, control of structure and composition by life on surface 4−46040
magnetospheric particle clouds, time dependent electric field model for drift motion 4−50362
mesometeorological boundary layer, nonstationary two-dimensional model *(Russian)* 4−73535
mixed layer, non buoyant particle vertical diffusion modelling 4−58020
mixed layer in stably stratified planetary boundary layer 4−54202
planetary boundary layer, vertical struct. in undisturbed trade winds 4−58007
rainband structure within mid-latitude winter depression 4−80349
remote determination, statistical inversion procedure for 4−46020
Roche limit of ionospheric plasma rel. to plasmapause formation 4−58111
spectral model, horizontal wind 4−64910
stratospheric aerosol layers obs. by optical radar at Fukuoka, Japan 4−61755
stratospheric-mesospheric modelling 4−61758
turbulent mixing layer generation, buoyancy effect 4−58010
upper atmosphere effective vertical turbulent viscosity from radio meteror trail meas. 4−46053
upper ionosphere plasma structure, ISIS group of satellites *(French)* 4−58144
vertical exchange processes, use of Rn conc. variations as indicator *(French)* 4−70696

atmospheric temperature
see also atmospheric thermodynamics
accuracy of satellite probing *(Russian)* 4−61939
air temp. fluctuations rel. to solar seeing at Oslo Solar Observatory 4−80367
air-sea interface, fluctuation meas. 4−57975
aircraft noise dependence, near Arlanda airport 4−80810
Arctic and Antarctic, comparison of values of meteorological elements *(Russian)* 4−58047
Arctic atmosphere energy balance, year to year variations 4−46032
atmospheric duct, effect on microwaves in geodetic meas. *(German)* 4−70752
automatic system for temp. fluctuations meas. at different heights over ground *(Russian)* 4−68280
available potential energy, hemispheric spectral statistics 4−76687
biological modulation causing maximization of biosphere 4−50294
boundary layer, low freq. temp. spectra from 444 meter tower 4−76703
boundary layer turbulent fluxes, heat, momentum, moisture, parametrization *(Russian)* 4−64879
cloud seeding expts., freezing level over India, seasonal and latit. var. 4−68172
cloud seeding with artificial ice nuclei, temp. window 4−68188
coastal, rel. to water temp., factor anal. 4−61722
cold air cumulonimbi, thunderstorm potential 4−61788
cold front forecasting over N. Vietnam using statistical discriminant anal. *(Russian)* 4−83096
daily mean, random sample anal. *(German)* 4−61800

atmospheric temperature continued
delay between solar radiation and air temp. changes *(Spanish)* 4−83101
diurnal and seasonal components from grenade experiments, Brazil 4−80372
E-region, electron temp. discrepancy between in situ and remote probe meas. 4−64962
eddy flux measurements, over Lake Ontario 4−54162
England and Wales, mean temp. and rainfall from N. Hemisphere pressures 4−46038
F-region electron density and temp. at Malvern, relationship from incoherent scatter meas. 4−68246
free atmosphere, temp. rel. to humidity during stable stratification and thermal intermittency 4−76714
front formation, downstream of temp. field deform. 4−58044
geopotential wind and temp. field variational adjustment *(Russian)* 4−83090
Hambledon vineyard, meteorological obs., 1972 4−61816
heat flux influence on temp. spectrum shape over vegetated surfaces 4−68168
heat island intensity in Toronto rel. to lapse rate/stability 4−70751
ice crystal, dimensions and aggregation in natural clouds 4−58039
ice rate, of small-capacity fishing vessels *(Russian)* 4−58048
inversion influence on astronomical refraction *(Russian)* 4−80317
ionospheric charged particle conductivity measurement, rel. to atmospheric parameters 4−58076
lower atmosphere, diurnal variation *(German)* 4−61802
lower troposphere, orthogonal distrib. of temp. and humidity *(Russian)* 4−50289
lower turbulent zone, rel. to mountain lee waves 4−61791
marine boundary layer, temp. and humidity spectra 4−76713
mesosphere 30-80 km, thermal effect of radiative transfer in 15 μ CO_2 band 4−50292
mixing layer, Western Oregon, lidar obs. 4−54190
monthly mean, prediction *(German)* 4−61801
night temp. at Nagpur, unusually low, 1970, November 4−80332
Northern Hemisphere energy budget, solar radiation and temp. change 4−64925
off-shore air stream 2m above water reservoir *(Russian)* 4−58056
power spectrum analysis, maxima at 2.2 and 2.4 years, comparison with sunspot relative numbers 4−83088
pulsation spectrum restoration, optical meas. *(Russian)* 4−54221
radiometer for remote atm. temp. profile meas. 4−83143
Scottish snowbeds, Summer 1973 4−61818
sea surface temp. rel. to tropical atmospheric circulation, seasonal var. on global model 4−54226
sensible heat, vertical turbulent flux, diurnal variation at 300 m *(German)* 4−61799
St. Louis urban atmosphere, warm dry envelope 4−73549
stratosphere, 30-80 km, thermal effect of radiative transfer in 15 μ CO_2 band 4−50292
stratosphere, gravity waves from wind and temp. data 4−70718
Sydney, Australia, downwind temp. increase in July advective boundary layer 4−70695
thermosphere, eddy turbulence, role in development of self consistent theoretical models 4−61829
thermosphere, high-latitude heating during magnetically quiet periods 4−64930
thermosphere, seasonal temp. fluctuations, harmonic anal., stationary model 4−83107
thermosphere N_2 vibrational temp. and molecular density from rocket-borne electron beam induced luminescence 4−61832
thermospheric heating by solar radiation in Schumann-Runge continuum (1300-1800A) during high solar activity 4−54255
thermospheric temperature simulation with theoretical models 4−70765
tropical stratosphere, annual, semi-annual radiance variations 4−70719
tropospheric temp. correlation with critical freq. of F_2-layer 4−68234
turbulent fluxes of sensible heat over ocean *(Russian)* 4−64877
turbulent layer detection, temp. struct. consts., stellar light scintillation meas. 4−80338
two-temp. ion energy distrib. in region of ionospheric polar wind flow 4−64947
unstable temp. stratification of boundary layer, turbulence and dispersion 4−58013
upper ionospheric plasma, ISIS group of satellites *(French)* 4−58144
upper stratosphere, temp. distrib., hemispheric differences 4−58036
USA, annual frequency of freeze-thaw cycles 4−70733
vertical profile, obs. with Nimbus 5 i.r. temp. profile radiometer 4−46120
weather forecasting, long-range, basic and conjugate problems *(Russian)* 4−58045
wet adiabatic lapse rate, use in stability criteria of saturated atmosphere 4−70730
zenith scanning, remote temp. sounding with cloud layers 4−70831
F_2-region storms, electron density and temp. changes 4−50346

atmospheric thermodynamics
see also atmospheric temperature
air-sea interaction, turbulent fluxes 4−54173
air-sea interface, bulk aerodynamic coeffs. for heat and moisture fluxes 4−58008
air-sea interface, velocity fluctuations rel. to convection 4−54172
Arctic atmosphere energy balance, year to year variations 4−46032
asymmetric hurricane, Isbell 1964, multiple-grid primitive equation simulation model 4−64889
book 4−61824
boundary layer, thermal fluxes, temp. and vel. gradients *(Russian)* 4−64882
breaking gravity waves in marine inversion, energy budget and turbulence 4−68169
climatological computation of net radiation components 4−54213
cloudy atmosphere, radiant heat transfer, book 4−61823
complete omega equation, reduction to simplest form 4−80347
convection, problem of multivalued pressure 4−76704
convective activity over GATE area, interannual variations 4−61742
convectively unstable boundary layer, thermodynamic models 4−58011

atmospheric thermodynamics continued
cumulus cloud ensemble, interaction with large-scale environment 4–70708
diabatic heat source, excitation of steady and transient waves 4–64887
eddy exchange in Atlantic Ocean tropical zone *(Russian)* 4–61719
eddy heat flux, meridional variation by baroclinic waves 4–64893
energy balance model for evapotranspiration from sloping watershed surfaces 4–68178
energy fluxes in northern hemisphere and atm. transport mechanisms *(German)* 4–83087
evapotranspiration, lysimetric calibration of Bowen Ratio-Energy Balance method 4–64911
exospheric downwards conductive heat flux at mid-latitude station, diurnal and seasonal var. 4–64938
free atmosphere, temp. rel. to humidity during stable stratification and thermal intermittency 4–76714
gas, phys. modelling of flow and diffusion over an urban heat island 4–61767
ground level evaporation, roughness and molecular diffusion effects 4–68179
homogeneous atmosphere, radiation transfer in magnetic field *(Russian)* 4–68408
Indian Ocean, evaporation and energy budget across sea-air interface 4–54176
indirect sounding technique, hyperbaroclinic zone of jet streak 4–65001
i.r. radiation transfer through clouds, calcs. 4–46015
jet streak, hyperbaroclinic zone, satellite indirect sounding technique 4–65001
light multiple scatt. calcs., middle u.v. reaching ground, radiative transfer 4–70688
lightning discharge, multiple return-stroke, radiated energy 4–57998
mesoscale cellular convection 4–61790
Northern Hemisphere energy budget, solar radiation and temp. change 4–64925
ocean-atmosphere system, ice cover regime, theoretical model 4–57972
photochemical heating rates in upper atmosphere, latitudinal distribs. 4–68218
plane turbulent mixing layer, heat transport 4–54203
planetary boundary layer, height variation of turbulent kinetic energy budget 4–64895
planetary boundary layer, vertical struct. in undisturbed trade winds 4–58007
radiant heat flow in atmosphere, effect of aerosol *(Russian)* 4–46022
radiative transfer calcs., feasibility of satellites for air pollutants meas. 4–62338
rising thermal, entrainment coefficients 4–43972
sensible heat, vertical turbulent flux, diurnal variation at 300 m *(German)* 4–61799
shallow sea water surface, drag and bulk transfer coeffs. 4–57976
solar radiation absorption by atmosphere, parametric analysis 4–54228
stratified shear layer, thermally radiating, stability, self absorbing model 4–54241
stratiform cloud, effect of atmospheric radiation 4–54234
summer monsoon, excited by diabatic heat sources 4–64887
supersonic neutral winds in outer atmosphere, effects of variable temp. 4–73561
supersonic neutral winds in outer atmospheres, isothermal conditions 4–73560
surface layer at sea, turbulent fluxes 4–58006
thermal emission profile rel. to radiative equilib., scatt. independ. determ. 4–46027
thermal radiation, estimation based on results from Zaire *(French)* 4–54194
thermospheric eddy transport of heat, energetics 4–64933
tropical convective boundary layer, climatological aspects 4–57974
turbulent heat flux, over Baltic Sea 4–57969
urban heat island, phys. modelling of flow and diffusion 4–61767
urban mixing height, meso-scale variations 4–70698
yaw sphere-thermometer system, sensible heat flux meas. 4–61926

atmospheric turbulence *see atmospheric movements*

atmospheric wind *see wind*

atmospherics
see also atmospheric electromagnetic wave propagation; dawn chorus; whistlers
aircraft, clear air turbulence electronic detection *(Japanese)* 4–73579
duplicate whistler propag. at latitudes exceeding 30° 4–70771
e.l.f. atmospherics, propag. over mixed day-night path 4–83116
narrowband radio noise, 2 and 4 MHz obs. by ISIS satellites at auroral regions 4–58095
plasmasphere, relation between ELF hiss and plasma density 4–61856
plasmaspheric e.l.f. hiss intensity var. during magnetic storms 4–64969
polarisation error in direction finding, effect of Earth's mag. field 4–83114
polarisation error in direction finding, inclined electric dipole effects 4–83115
radio noise simulation, l.f. to h.f. 4–70757
thunderstorm distance determ. by atmospherics spectra fine struct. 4–68181

atomic beams
see also particle velocity analysis
acceleration of atoms by light *(Russian)* 4–69397
alkali metal halide, sputtering of hyperthermal beams by 6 keV Ar^+ bombardments 4–70385
deflection, by resonance radiation using stimulated emission 4–43754
frequency standards, second-order Doppler and cavity phase dependent frequency shifts, calc. 4–65349
light source, two component model 4–77075
metal, neutral, low energy, (1-10 eV), production using laser evaporation technique 4–43752
NBS primary frequency standards, accuracy and stability 4–65347

atomic beams continued
neutral, metastable, production and velocity distribution 4–43753
optically oriented atoms, thermal relaxation in surface collisions 4–49513
polarisation by magnetic mirrors 4–51137
polarized, prod. of polarized electrons, using tunable dye laser 4–77724
primary time and frequency standard CS1 at PTB 4–65346
scattering at metal surface, struct. probe 4–56945
scattering at surface, long range potential 4–61262
solid surface, interaction with rarefied monatomic gas, energy accomodation coeff. 4–49518
Ag beam atomic clock design and preliminary expts. 4–65351
Ar, light source, two component model 4–77075
Au^+, high current ion source by electron bombardment 4–80979
Ba, D states, hyperfine struct., atomic beam mag. resonance 4–56015
Ba atomic beam photoionisation to produce monoenergetic 17 meV electron beam 4–58913
Cs atomic beam frequency standards, second-order Doppler shift and cavity phase error corrections 4–65350
D 200 A neutral beam source test facility 4–59859
D neutral beam injectors for mirror machines 4–59860
D neutral beam R & D at Lawrence Berkeley Lab. 4–59858
H, from cooled discharge source, velocity distrib. obs. 4–59972
H, intense fast atom beam prod. with grounded large area ion source 4–63377
H, prod. in Wood discharge, design, operating conditions 4–81737
^{2}H thermonuclear reactor neutral beam injection efficiency, effect of component performance perturbations 4–63304
He, sputtering of Ag(111) surface 4–76343
He metastable atomic beam source using nozzle 4–56044
He + LiF, atom-solid elastic scatt., pot. depend 4–73220
He* + Ar, Penning ion ang. distrib. 4–47911
^{199}Hg,^{201}Hg, optically oriented atoms, thermal relaxation in surface collisions 4–49513
K + RbCl, exchange reaction on beam detector (Pb-W) surface 4–76593
^{99}Mo, magnetic resonance experiments, nuclear spin meas. 4–69207
N, from cooled discharge source, velocity distrib. obs. 4–59972
Na, dye laser beam excitation, resonant Stark effect 4–47835
Na, optical pumping expt. with c.w. dye laser, narrow spectral output 4–74853
^{87}Rb, optically oriented atoms, thermal relaxation in surface collisions 4–49513
$^{99,101}Ru$, hyperfine struct. meas. in ^{5}F ground states with atomic beam mag. reson. method 4–72019
Sn isotopes, nuclear spin, atomic beam mag. resonance 4–51751
Sr, excitation out of metastable states by intersecting beam method *(Russian)* 4–69424
^{99m}Tc, magnetic resonance experiments, nuclear spin meas. 4–69207

atomic clocks
see also frequency measurement; time measurement
long-term stability 4–65373
NBS primary frequency standards, accuracy and stability 4–65347
primary time and frequency standard CS1 at PTB 4–65346
resonant cavity tuning devices *(French)* 4–65331
Ag beam atomic clock design and preliminary expts. 4–65351
Cs, atomic second measurement to 13 significant figures 4–42697
H, magnetic freq. displacement, effect of linear transitions 4–73971
Rb frequency standard, principle, construction and performance 4–46555

atomic collision processes
see also atomic electron scattering; atomic forces
$A^- + A \rightarrow A_2 + e$, electron distrib., mol. vibr.-rot. states, Franck-Condon principle 4–52005
$A + BC \rightarrow AB + C$, react. cross section energy depend. determ. 4–67994
alkali + N_2 collisions in flames, quenching cross section investig., energy transfer mechanism, model 4–74872
alkali atom + methyl halide collisions, chemiionisation cross sections investig., mol. electron affinities determ. 4–67993
alkali atom + N_2* collisions, chemiionisation, N_2 vibr. distrib. investig. 4–74866
alkali metal + $Cl_2(Br_2)(O_2)$, ionising collisions 4–78527
alkali-inert gas atom pairs, pot. model, excited mol. term effects 4–52013
alkaline earths, metastable state prod. by discharge in heat pipe, absorpt. spectra 4–59911
atom + atom inversion-symmetry-changing collisions, mol. wave functions 4–59942
atom + diatom elastic scatt., Feshbach optical formalism 4–63470
atom + diatom scatt., translation-internal mode energy transfer 4–78529
atom + diatomic molecule reactive scattering, Fadeev-type eqns., coupled channel eqns. 4–47869
atom + heavy ion collision, Coulomb K-shell ionisation, cross sections 4–47910
atom + Morse oscillator, energy transfer in collinear and perpendicular central colisions 4–47868
atom (Z = 19 to 47) + ^{2}H, X-ray prod., $K\alpha/K\beta$ intensity ratios 4–63337
atom (Z = 19 to 47) + ^{4}He, X-ray prod., $K\alpha/K\beta$ intensity ratios 4–63337
atom (Z = 19 to 47) + C ion, X-ray prod., $K\alpha/K\beta$ intensity ratios 4–63337
atom recombination, surface catalyzed, excitation quenching and energy transfer effects investig. 4–50160
atom-diatom, rot. and vibr. excitation cross sections, impulse approx. 4–60125
atom-diatom collisions, multiple transition pts. in semiclassical treatment 4–56027
atom-diatom reactive collision, R-matrix theory 4–67991
atom-diatomic molecule collisions, reactive-scattering transition probabilities calc., kinetic isotope effects determ. *(German)* 4–45909
atom-diatomic molecule scattering, quantum theory formulations, space-fixed vs. body-fixed axes approaches 4–51980
atom-molecule collision, rot. excitation, strong coupling correspondence principle 4–75055

atomic collision processes continued
- atom-symmetric top rotational excitation, semiclassical approximation 4−52289
- atom/solid surface slow collision, reson. ionisation of H-like atoms 4−73221
- atom/solid surface slow collision, reson. processes 4−73222
- binary-encounter calcs. of cross sections and probabilities for 2s and 2p electron removal 4−74877
- charge exchange, program for cross-section and probability calculations 4−47901
- charged particle scattering, Glauber Eikonal series, term-wise analysis 4−47898
- Chebyshev expansion soln. for Coulomb and modified Coulomb pots. 4−51984
- collision broadening and depolarisation cross sections, info. on interaction potentials *(French)* 4−51983
- Coulomb ionisation of L sub-shells, heavy charged particle impact 4−52003
- coupled equation technique for medium energy scattering 4−62717
- coupled-state-impact-parameter method, variational formulation 4−74914
- cross-sections, influence of apparatus geometry 4−69434
- dense fluids collision diameter, upper bound calc. from HNC and PY theories 4−75433
- depolarisation and collision broadening cross sections giving info. on interaction potentials *(French)* 4−51983
- diatomic molecule collision, vibr.-translational energy transfer in near adiabatic approx. 4−75050
- elastic collisions, appl. of improved modified wavenumber approximation 4−81801
- elastic scattering potential construction from ang. and energy depend. of cross section 4−72258
- elastic total cross section meas., deconvolution methods 4−78359
- electron transfer in atomic-molecular collisions 4−66348
- electronic-state representations 4−78362
- energy levels in field of fixed centres of interaction 4−60116
- energy partitioning, in photodissoc., and excited atom quenching, impulsive half-collision model 4−50182
- exchange interaction between two different atoms at large distances 4−59979
- excitation and cascade repopulation, convolution into decay curve 4−47852
- excitation and ionisation, effects on structure of strong normal shock wave in monatomic gas 4−72323
- excitation transfer between fine structure levels, ang. depend. of sensitised fluoresc. 4−47851
- Fokker-Planck approximation for collisional relaxation of atomic and molecular systems 4−62751
- gas-solid interaction, analogue computer programs *(German)* 4−44756
- $H^+ + H$ collisions, elastic and inelastic diff. meas., direct excitation, charge exchange 4−66341
- hard sphere-harmonic oscillator collision, semiclassical calc. of transition probability 4−51421
- heavy ion + heavy atom, mol. orbital K X-ray emission theory 4−72074
- heavy P-state atoms, depolarization effects 4−59976
- heavy particle electronic excitation, cross section oscills., Born approx. 4−66318
- heavy-ion, interlevel-excitation probability calc. using relativistic molecular states 4−59941
- heavy-ion collisions, impact parameter depend. of inner shell ionisation, effect of particle identity 4−52006
- heavy-ion collisions, K X-ray and Auger electron energy shifts 4−66346
- heavy-ion-foil collision, lifetime meas. of ion inner shell vacancies 4−78340
- hydrogenlike ions, excited, in distant collisions with charged particles, transitions between degenerate states *(Russian)* 4−63376
- ideal gas mixture, dimer form., decay, kinetic eqs. derived 4−83017
- inelastic collisions, vel. distrib. relax., strong collision model *(Russian)* 4−66326
- inert gas + CH_3X ($X = NO_2$, CN, I, Nr), electron capture from excited atomic states 4−66510
- inert gas + H_2^+, dissoc., obs. of H Balmer line polarisation 4−60126
- inert gas + H^+, outer s-shell ionisation, 125-1200 keV 4−59962
- inert gas + $H^+(D^+)$, 3s, 4s electron capture cross section 4−47908
- inert gas atom + ion (alkali and halide), repulsive interaction pot. curve calc. 4−66350
- inert gases, metastable interactions, glow discharge, normal current density, gas press. depend. *(Russian)* 4−82052
- intersecting band model for interaction between closely approaching atomic particles *(Russian)* 4−74879
- ion + atom, K-shell excitation outer shell config. 4−78370
- ion + atom, polarisation in distant inelastic Coulomb collision 4−47907
- ion + atom collisions, level matching enhancements in inner-shell vacancy prod., mol. orbital model 4−74912
- ion or atom stopped in gas, total inelastic energy loss 4−72078
- ion scattering, wave nature of ion beams *(German)* 4−69439
- ion-atom pure polarisation interaction quasi-classical corrections to cross sections and mobility *(Russian)* 4−52011
- K-shell ejection, projectile charge depend., high-energy calcs. 4−74876
- K-shell ionisation, Z_1^3 dependence obs. to be widespread 4−47906
- L-shell ionisation by heavy ions, binding and Coulomb effects 4−81733
- methane + inert gas atom, ν_3 fundamental linewidth broadening investig. 4−69506
- model breakup process, variational solution, linear eqns. 4−47155
- model potential method for interactions 4−69440
- molecular orbital X-ray emission, atomic line broadening anal. 4−56032
- multichannel collision theory, bounds for transition probabilities 4−72077
- multiple scatt. expansions in several particle dynamics 4−71385
- multiplet spectra, quasistatic and impact theory in classical limit 4−66295
- nonlinear optical processes due to Van der Waals interaction during collisions 4−77710

atomic collision processes continued
- one dimensional model for three particle scattering 4−63360
- one-electron atom-fast particle collisions, asymptotic charge transfer cross section *(Russian)* 4−63375
- optical and radiative collisions *(Russian)* 4−69435
- Penning ionisation, review of theory and experiment 4−72069
- plasma, neutral atom induced spectral line collision broadening, theory *(Russian)* 4−81977
- polarisation interaction of particles with rigid core potential 4−66508
- potential curve crossing, semiclassical theory 4−63359
- rare gas atoms, I_2 collision-induced predissoc., appl. of classical trajectory calcs., pot. surface crossing 4−78525
- resonance charge exchange, cross section calculations for high density gases 4−52008
- resonance states, finite difference boundary-value method 4−59939
- resonantly interacting system, nonlinear third order process *(Russian)* 4−74535
- rigid rotor, rotational excitation by atomic scatt., iterative soln. of close-coupled eqns. 4−66519
- solid surface, elastic and inelastic scatt. of atoms, vibr. props. 4−45394
- spark chamber, gas ionisation by metastable atoms 4−81824
- spectral line narrowing, calc. using generalised Voigt function 4−66455
- spectral line shape, combined Doppler and press. broadening, classical theory 4−47836
- spin forbidden reactions, collision complex model 4−81805
- stability concepts in numerical soln. of classical scatt. problems 4−66506
- Stueckelberg formula for non-adiabatic transitions 4−63357
- ternary collisions, effect on pressure broadening of spectral lines, $6S_{1/2} \to 6^2P_{1/2}$ Cs perturbed by Ar example 4−51975
- thermal energy atomic charge transfer, Penning reaction, excited metal ion prod. 4−74908
- Thomas-Fermi model, two centre, for adiabatic ion atom collisions 4−63358
- three body, isotope dependence of close coupling calc. 4−81727
- three-atom, dynamics, permutational symmetry for identical nuclei 4−56028
- two component isothermal system, time dependent soln. of Boltzmann eqn. 4−64726
- Van der Waals constants, combined local linear response and inner projection approach 4−59975
- weakly bound electron detachment in slow collisions *(Russian)* 4−66325
- WKB theory, inelastic collision transition probabilities 4−74905
- $X + X + Y \to X_2 + Y$, $Y = X$ and $Y = X_2$, termol. recombination, quantum kinetic theory 4−83018
- Ae in glow discharge, press. broadening and shift of emission lines 4−69407
- Ar metastable atom with pyrex wall during afterglow, relaxation *(French)* 4−51982
- Ar-like gas, influence of electron-at. cross section uncertainties on shock wave struct. 4−66334
- Ar + Ar, dimer formation, press. depend. of u.v. decay continuum 4−78450
- $Ar + Ar(HCl)(Cl_2)$, K-shell X-ray production cross sections and spectra 4−72072
- $Ar + H^+$, 22-300 keV collisions, $L_{2,3}$ Auger emission 4−81734
- $Ar + H^+$, proton straggling, 100 MeV, transport eqn. 4−52007
- $Ar + H^+$ fast highly excited atom production cross sections 4−47909
- Ar + HCl elastic scatt., differential cross section, Ar-HCl interaction potential determ. 4−63497
- $Ar + He^+(D^+)(H_2^+)$, L-shell ionization by 50-600 keV ion impact 4−74913
- Ar + He*(Ne*) collisions, ArII excitation 4−66323
- $Ar + N_2$, afterglow mol. impurity spectrum *(German)* 4−52646
- $Ar + NH_3$ collisions, ammonia intermol. pot. determ. from differential cross sections 4−63501
- Ar + OH, afterglow mol. impurity spectrum *(German)* 4−52646
- Ar + P(S)(Cl)(Ar)(K), L X-ray prod. cross-section, 4fσ electron promotion 4−51985
- $Ar^+ + Ar$, differential elastic scatt., 20-340 eV 4−74915
- $Ar^+ + Cs \to Ar + Cs^+$, 1.44-28.7 keV, charge-exchange cross-section behaviour 4−59971
- $Ar^{+m} + Ar$ charge transfer, metastable atom prod., method for metastable ion detection 4−82777
- $Ar^* + N_2$, excitation transfer collision cross section for $N_2(C^3\Pi_u$, $v' = 0,1)$ 4−81810
- $Ar^* + Xe$, Jesse effect, Xe_2^+ formation 4−69429
- $Ar^*(^3P) + N_2(X^1\Sigma_g^+)$, electronic-energy exchange cross sections 4−78532
- Ba + inert gas atom, Ba spectral line broadening, Van der Waals interaction const. 4−66352
- $Ba + LiCl \to BaCl + Li$, crossed beam react., internal stages investig., laser fluoresc. method 4−83020
- $Bi + H^+$, L-subshell ionisation cross section 4−59965
- Br, 30 and 60 MeV beams, molecular orbital K X-ray spectral yields 4−52114
- Br,Br^-, collisional excitation, autoionisating and autodetaching states 4−78361
- Br + Br, quasimolecule, X-ray emission 4−52113
- $Br + H_2$, electronic to vibr. energy transfer, quantum reson. effects 4−81807
- Br + HBr system, Monte Carlo quasi classical trajectory study, energy transfer, kinetics 4−73423
- Br* + HBr(HCl), laser excitation, electronic-to-vibr. energy transfer, i.r. emission obs. 4−51979
- $C + Ne^+$, K-shell X-ray production by ion impact 4−59961
- $C^+ \to C^-$, change exchange in Mg and Zn vapour 4−52010
- Ca + H(He)(C)(N)(O)(Ne), K-shell ionisation, projectile depend. 4−74873
- Ca + inert gas atom, Ca spectral line broadening, van der Waals interaction const. 4−66352
- $Ca + O^{5+}(O^{7+})$, 24-48 MeV, Ca double K-shell ionisation 4−63372
- $Cd^+ + He$, Cd $5^2P_{3/2}$, $5^2P_{1/2}$ states lifetime and depolarisation, Hanle effect meas. *(French)* 4−47904
- Cl + H(He)(C)(N)(O)(Ne), K-shell ionisation, projectile depend. 4−74873

atomic collision processes continued
$Cl^- + Cr(CO)_5^-$, nonreactive ion-molecule collision rate consts., ion cyclotron resonance 4-78516
$Cl^+ \rightarrow Cl^-$, change exchange in Mg and Zn vapour 4-52010
$Cl^{13+} + Ne$ collisions, followed by metastable Ne X-ray emission 4-81726
$Cl^{n+} + Ne$, n=5-15, factor 20 increase in atomic X-ray cross-section 4-47905
Cs, excitation transfer between $7^2P_{1/2}$ and $7^2P_{3/2}$ states, collision-induced 4-78357
Cs, spin relax. with $6^2P_{1/2}$ and $6^2S_{1/2}$ states, white-light pumping obs. 4-74875
Cs + Ar, Cs satellite band, semiclassical formalism 4-56009
Cs + Ar, ternary collisions, press. broadening of Cs $6S_{1/2} \rightarrow 6^2P_{1/2}$ 4-51975
Cs + Ar(Ne)(He), collisional broadening of level crossing signals in Cs $6^2P_{3/2}$ and $7^2P_{3/2}$ states 4-47853
$Cs + BF_3(PF_3)$, C_s^+ and F^- formation, fragment product relax. 4-63356
Cs + Cs thermal collision, electron excitation doubling 4-69430
$Cs + Cs_2$, nuclear orientation transfer, n.m.r., optical pumping method, nuclear-spin polarisation 4-52223
Cs + deuterated methane, isotope effect in $6^2P_{1/2} \leftrightarrows 6^2P_{3/2}$ mixing in Cs 4-51977
$Cs + H_2(HD)(D_2)$ (ethane) (propane) $^2P_{1/2} \leftrightarrows {}^2P_{3/2}$ mixing cross section, temp. depend. 4-51978
$Cs + H^+$ charge exchange collision, H metastable state formation 4-59968
Cs + He(Ar), press. broadening, resonance line shape moment analysis using WKB wave functions 4-51976
Cs + noble gas atom, $7^2P_{1/2}$-$7^2P_{3/2}$ mixing, sensitized fluorescence 4-59924
Cs + Xe, width, shift, asymmetry and satellites of D-lines calc., unified theory 4-59915
$Cu + {}^{252}Cf$ fission fragment, K X-ray prod. 4-59967
$D + ClI \rightarrow DI + Cl$, trajectory calcs. using LEPS pot. surfaces 4-52293
$D + H_2 \rightarrow HD + H$, collinear reactive scatt., integral eq. approach, scatt. matrices calc. 4-83015
$D + I_2$ reaction, classical trajectory calcs. of ang. distrib. 4-50153
$D + NO_2$ reactive scattering, isotope effect on angular distrib. investig. mechanism 4-80174
$D^- + He(Ar)(H_2)(N_2)(O_2)$, electron detachment cross section 4-81735
$D^+ + H_2O$, cross section energy depend., 10 to 25 keV *(French)* 4-78508
Eu + inert gas atom Eu spectral line broadening 4-66293
$F + GeH_4$ reaction, energy partitioning and $D(H\text{-}GeH_3)$, i.r. chemiluminesc. of HF 4-45899
$F + H_2$ collisions, electronic to vibr. energy transfer, quantum reson. effects 4-81807
$F + H_2 \rightarrow HF + H$, collinear reactive scatt., integral eq. approach, scatt. matrices calc. 4-83015
$F + H_2 \rightarrow HF + H$, mol. rot. excitation effect on react. rate investig. 4-83021
F + HF(DF), vibr. relax. rate coeff. calc. 4-48147
F + HF(DF). vibr. relax. rate coeff. calc., comment 4-48148
$F + HF(v=1)$, HF deactivation investig. by laser induced fluoresc. method 4-75045
$F + HR \rightarrow FH + R$, R=substituted methanes, trajectory calcs. using LEPS pot. surfaces 4-52293
$F + Xe(H^+)$, collision induced fine struct. transitions in F, semiclassical theory 4-74867
$F^+ + Ar \rightarrow F + Ar^+$, 14-100 keV, charge exchange cross section 4-60127
$F^+ + He \rightarrow F + He^+$, 14-100 keV, charge exchange cross section 4-60127
$F^+ + Ne(N_2)(NH_3)$, K-vacancy production, inelastic energy loss 4-72098
$F^+ + Ne \rightarrow F + Ne^+$, 14-100 keV, charge exchange cross section 4-60127
$F^{7+}(F^{8+})(F^{9+}) + He(Ne)$, K X-ray transitions 4-72047
^{18}F atoms, thermal, react. with π-bonded species, radical form., decomp., detection 4-53957
Fe XIII and XIV forbidden solar coronal lines, depolarization by proton impact, fine structure cross sections 4-54369
Fe XIV., depolarization cross-sections in proton collision 4-54370
H, $2S \rightarrow 2P$ decay in mag. field, ion collision 4-78376
H, excited, charged particle binary encounter theory, form factors 4-47845
H atom recombination at walls, kinetic effects investig. 4-73427
H-photon elastic scatt. S-matrix theory calc. of differential cross-section 4-81391
$H + F_2 \rightarrow HF + F$, saddle point geometry, barrier height, SCF-CI calcs. 4-61590
H + H collisional excitation, eikonal distorted wave Born approx. 4-59943
$H + H_2$, atomic exchange, semiclassical multichannel expansion 4-53995
$H + H_2$ collision reaction, modified classical S-matrix for tunnelling 4-73426
$H + H_2$ reactive scattering, adiabatic distorted wave calcs. 4-83019
$H + H_2O$ integral cross section, thermal energies 4-63355
$H + H_2(He)(Ar)(Kr)(N_2)$, 5-500 keV metastable atoms, electron loss and deexcitation 4-74871
$H + H_2 \rightarrow H_2 + H$, collinear reactive scatt., integral eq. approach, scatt. matrices calc. 4-83015
$H + H_2 \rightarrow H_2 + H$, react. kinetics, quantum corrections calc. 4-80168
$H + H^- \rightarrow H + H + e$ reaction, rate coeff., 100 to 2000K temp. region 4-81731
$H + H^+$, coupled-state-impact-parameter method, variational formulation 4-74914
$H + H^+$, fast highly excited atom production cross sections 4-47909
$H + H^+$, scattering, variational bounds on 1s-charge-exchange amplitude investig. 4-59963
$H + H^+$ collision, H^+ electron capture, continuum distorted wave approx. 4-74909
$H + H^+(He^{2+})$, 1s-3d excitation of H 4-56041
H + HBr system, Monte Carlo quasiclassical trajectory study, energy transfer, kinetics 4-73423

atomic collision processes continued
H + HD, collinear collision, quantum vibr. transition probabilities calc. for Morse oscillator 4-48143
H + HF, flow tube meas. of deactivation rates 4-48146
H + HF ($v=1$), HF deactivation investig. by laser induced fluoresc. method 4-75045
H + H + H, assoc. and mol. dissoc. phase space theory 4-61593
$H + H + H_2 \rightarrow 2H_2$, termol. recombination react., kinetics investig. using S matrix formalism 4-76599
$H + H + M \rightarrow H_2 + M$, $M=H,H_2,He,Ar$, recombination classical mechanism via resonance complex mechanism 4-61587
H + He, elastic and inelastic scatt., differential cross sections, Born formulation 4-47870
H + He, inelastic collisions, first Born approx. calcs. 4-66321
H + He collision, H excitation, eikonal distorted wave approx. 4-72075
$H + He^+(H^+)$, elastic and inelastic collisions, Born approx. calcs. 4-66340
H + He* Penning ionisation, electron energy spectrum, semi-classical uniform approx. 4-56029
$H + He^{2+}(H^+)(D^+)$, mass depend of charge transfer cross section 4-74911
H + He(Ar)(Kr), stripping collisions, 1-10 keV, small-angle ion scatt. 4-81728
$H + NO_2$ reactive scattering, isotope effect on angular distrib. investig. mechanism 4-80174
$H + NO + O_2(^1\Delta_g)/O_2$, HNO chemiluminesc. investig. 4-76572
H + negative ion reactions, gas phase, rates, mechanism determ. effect of hydration investig. 4-76580
$H + p\text{-}H_2 \rightarrow H + o\text{-}H_2$, scattering react., quantum mechanical investig., H_2 rot. transition probabilities calc. 4-48140
H + Xe collisions, orbiting resonances in integral cross section investig. 4-81725
$H^- + He(Ar)(H_2)$, collisionally produced autodetaching states, electron energy spectra 4-56042
$H^- + He(Ar)(H_2)(N_2)(O_2)$, electron detachment cross section 4-81735
$H^- + He(Ar)(N_2)(H_2)(O_2)$, absolute H^- detachment cross section 4-72096
$H^- + He \rightarrow H + He + e$, 5-120 eV, electron detachment obs., cf with complex potential theory 4-59970
$H^+ +$ multielectron atom collisions, charge exchange 4-52009
$H^+ + H_2$, $H^+ + N_2$, $H^+ + Ar$, $H^+ + CO_2$, electron capture to n=3,4 states 4-63374
$H^+ + H_2O$, cross section energy depend., 10 to 25 keV *(French)* 4-78508
$H^+ + He$, reson. profile of $2s^2\ {}^1S$ state of He 4-52002
$H^+ + Xe$, double charge transfer spectroscopy, separation of multiplet terms of Xe^+ and Xe^{2+} *(French)* 4-63370
$H^+ + Xe$, electron transfer, highly excited H atom prod., multiphoton ionisation 4-69426
H(1s) + H(1s) differential cross section calc. in keV range 4-66324
H(1s) + H(3s, 3p, 3d), potential energy curves, excitation transfer cross sections 4-74869
He, in gas discharge at 1 atmosphere, resonance broadening of 7281 Å and 6678 Å lines 4-43757
He, inelastic proton scatt., Eikonal distorted wave method 4-47876
He I, spectral line broadening, including ion dynamic correction 4-72035
He II excitation, electron collisional cross sections 4-66337
He metastable atom with pyrex wall during afterglow, relaxation *(French)* 4-51982
He-He, interatomic pot. from scatt., energy depend., unbound mol. 4-74924
He + organic vapour molecules, theraml cond., viscosity of He, collision diameter investig. 4-66542
$He + CO(H_2)$, low energy collisions, classical trajectory study 4-78526
$He + D_2(HT)$, quantum mech. scatt. of asymm. mols. 4-75058
$He + H_2$, binary encounter stopping cross sections 4-56030
$He + H_2$, collisional dissoc. probability and cross section, calcs. for 30-50 eV 4-75051
$He + H_2$, electron-loss cross sections for excited He at 8-160 keV 4-74874
$He + H_2$ collisions, anal., use of harmonic and Morse oscillator wavefunctions, comparison 4-72070
$He + H_2$ vibr. inelastic collision, potential surface dependence 4 -60123
$He + H^+$, elastic and inelastic 2^1S and 2^1P differential cross sections 4-72094
$He + H^+$ influence of apparatus geometry on differential cross-sections 4-69434
$He + He_2$, semiclassical collision theory, Feynman path integrals, vibr. excitation 4-55328
$He + He(H_2)(N_2)(Ar)(Kr)$, He electron loss cross sections 4-72095
He + methane, proton spin relax., mol. reorientation 4-52204
He + multielectron atom, binary encounter stopping cross sections, target Z dependence 4-56031
$He + N_2^+$, excitation and first negative emission spectrum of N_2^+ 4-56320
He + NaF (001), scatt. obs. 4-78360
He + Ne collision-induced i.r. absorption 4-72032
He^+ reson. level excitation in electron-atom, electron-ion and ion-atom collisions *(Russian)* 4-78368
$He^+ + {}^{14}N_2({}^{15}N_2)$, charge exchange, mol. isotope effects 4-47900
$He^+ + Ar$, inelastic collisions, vac. u.v. spectral obs. 4-74916
$He^+ + CO_2$ ion collisions, vibr. energy distrib. of CO_2^+ investig. 4-69532
$He^+ + Cd$, charge exchange cross section meas. *(Russian)* 4-78377
$He^+ + Ne$ inelastic collision, uniform WKB theory 4-66345
$He^+ + Zn$, charge exchange mechanism in metal vapour laser 4-74907
$He^{2+} + H$ collision, mol. treatment, HeH^{2+} wave function expsn. 4-74906
$He(Is^2) + H^+$, electron capture cross section 4-66347
^3He, gas, longitudinal spin relax. time 4-56018
$^3He + {}^3He$ collisions, disorientation of $^3He\ {}^1D$ states 4-78355
^4He atomic beam scattering from clean surfaces of Si and Ge 4-56043

atomic collision processes continued
- $^4He + ^4He$, elastic total cross section meas., deconvolution methods 4-78359
- He^*-He scatt., long range pots., metastability exchange 4-78383
- $He^* + Ar(Kr)(Xe)(Hg)(CO)(N_2)$, Penning electron ang. distribs. 4-74880
- $He^* + H_2 \rightarrow HeH_2^+ + e$ collision reacts., associative and rearrangement ionisation investig., cross sections determ. 4-72248
- $He^* + H(D) \rightarrow HeH(D)^+ + e$, merging beam reacts. investig., effective cross sections determ. 4-61580
- $He^* + XY$ ($XY = H_2, N_2, O_2$, CO), Penning ion ang. distribs., pot. barrier effects 4-63489
- $He(2^3S) + Ar(Ne)$, second type collision rates, thermal energy structs. 4-51981
- $He(2^3S) + He$ collision, ionisation of He^*, diabatic mechanism 4-66322
- $He^+(2s)$ + atom, deexcitation rates 4-72076
- Hg, $^3P_2$ state, at. scatt., depolarization effects 4-59976
- Hg + Hg collision, Hg excited level population 4-69419
- Hg + K, 2-50 eV collision, population of K fine struct. states 4-66320
- Hg + Kr, broadening of Hg resonance line − 2537 Å, Jablonski theory 4-43755
- Hg + Zn(Cd), excited atom collisions, sensitized fluorescence 4-51987
- $Hg(^3P_1) + Q$, Q = gas molecule, absolute quenching cross section investig., photolytic studies 4-72049
- I, 82 MeV beams, molecular orbital K X-ray spectral yields 4-52114
- I + I + M and I + wall recombinations, kinetics, mechanisms investig. 4-80184
- I + rare gas atom, $(5p^46s)^4P_{5/2}$ state Hanle effect, collisional broadening 4-59929
- $I^- + CO_2(SO_2)$ collisions, mass spectroscopic investig. 4-72093
- $I^- + He$, autoionising spectra of I^- 4-43751
- $I^+ + Au$, mol. orbital X-ray emission spectra 4-69433
- $K + Br_2$, exchange, electron transfer and dissociation reactions, model calcs. 4-50138
- $K + Hg(N_2)(O_2)(CO_2)(NO_2)$, 2-50 eV collision, population of K fine struct. states 4-66320
- K + I differential elastic scattering, thermal energies 4-59940
- K + inert gas, electronic excitation cross section meas. 4-66319
- K + K, excitation collisions, first order Born calcs., pseudopot. model 4-74870
- $K + MX_2$, M = group IIb metal, X = halide, crossed mol. beam reacts., mechanism, complex intermediate investig. 4-50152
- $K + N_2(H_2)(O_2)(H_2O)$, 4^2P-doublet quenching and mixing cross sections 4-72073
- $K^+ + Ar(He)$, ion cyclotron resonance collision frequencies 4-78369
- $K^*(4^2P)$ + foreign gas atom, fluorescence quenching 4-66491
- $K^*(5^2P)$ + foreign gas atom, fluorescence quenching 4-66491
- Kr, $^3P_2$ state, at. scatt., depolarization effects 4-59976
- $Kr + He^*(Ne^*)$ collisions, KrII excitation 4-66323
- $Kr + Ne^{++}$, collisions, electron transfer investig., cross sections determ. 4-61585
- $La + He^+$, hybrid charge transfer/Penning reaction 4-66343
- Li-Kr, Li-Xe systems, high resolution differential cross section, intermol. pot. meas. 4-66349
- Li + Hg, intermol. pots. by inversion of atomic beam scatt. 4-74922
- $Li + M_2 \rightarrow Li^+$, dynamics of electron transfer collisions, up to 14 eV 4-78372
- $Li^+ + H_2$, vibr.-rot. excitation, Morse and harmonic oscills. anal. 4-52292
- $Li^+ + N_2$, mol. vibr.-rot. excitation, impulsive spectator model 4-75053
- $Mg^+ + He$ collisions, excitation of Mg $2p^6$ configuration, 15-75 keV 4-74918
- $N + N_2$, total inelastic energy loss 4-72078
- $N^+ + Ar$, elastic scatt., interaction pots. 4-69438
- $N^+ + Kr$, elastic scatt., interaction pots. 4-69438
- $N^+ + Kr(Xe)$, energy-change spectra, Wigner spin rule 4-78374
- N+ + Ne, elastic scatt., interaction pots. 4-69438
- $N^+ + Ne(N_2)(NH_3)$, K-vacancy production, inelastic energy loss 4-72098
- $N^+ + Xe$, elastic scatt., interaction pots. 4-69438
- $N_2 + H(H^+)(D)(D^+)$, 1-25 keV collisions, $N_2{}^+B^2\Sigma_u{}^+$ and $N_2C^3\Pi_u$ form. 4-81811
- $Na + Na^+$ collisions, excitation, charge transfer, three-state description 4-78378
- $Na + Ne^+$, gas target, asymm. collisions, K-shell vacancy sharing 4-74910
- Na^+-Ne, 80-320 eV relative energy of motion, production of autoionizing states 4-47903
- $Na^+ + Ar(He)$, ion cyclotron resonance collision frequencies 4-78369
- $Na^+ + Ne(N_2)(NH_3)$, K-vacancy production, inelastic energy loss 4-72098
- $Na^*(3^2P)$ + foreign gas atom, fluorescence quenching 4-66491
- $Ne + Ar^{q+}(Cl^{q+})$, K X-ray prod., projectile change-state depend. 4-59964
- $Ne + Cl^{+7,11,13}$, K X-ray spectra, 40 MeV, Cl beam 4-59969
- $Ne + H^+$, K X-ray spectrum 4-56011
- $Ne + H^+$ collision, Ne excitation cross section, first order distortion method 4-66342
- $Ne + He^+$, WKB theory, inelastic collision transition probabilities 4-74905
- $Ne + He^* \rightarrow He + Ne^*$, resonant transfer cross sections, 400-600 K *(French)* 4-43745
- $Ne + Kr^{++}$, collisions, electron transfer investig., cross sections determ. 4-61585
- $Ne + N_2$, mol. rot. excitation, strong coupling correspondence principle 4-75055
- $Ne + N_2{}^+$, excitation and first negative emission spectrum of $N_2{}^+$ 4-56320
- $Ne + Na^+(Na^{2+})(Ne^+)(Ne^{2+})$, keV energies, K vacancy production 4-47902
- $Ne + Na^+(Ne^+)(Ne^{2+})(F^+)(O^+)(N^+)$, K-vacancy production, inelastic energy loss 4-72098
- Ne + NaF (001), scatt. obs. 4-78360
- Ne + Ne, collision cross section meas., correl. photons in cascade transitions method 4-81718

atomic collision processes continued
- $Ne + Ne^+$, asymm. collision, K-shell vacancy sharing 4-74910
- $Ne + O^+$, Ne ionisation, K-shell fluorescence 4-59928
- $Ne + O^{5,6,7,8+}$, K X-ray emission from Ne ions 4-78373
- $Ne + O^{6+}(O^{7+})(C^{6+})(N^{7+})$, Ne multiple L-shell ionisation, nuclear screening effect 4-66344
- $Ne + O^{6+}(O^{8+})$ collision, Ne K-Auger electron spectrum 4-52004
- $Ne^+ + Cs \rightarrow Ne + Cs^+$, 1.72-40.2 keV, charge-exchange cross-section behaviour 4-59971
- $Ne^* + He(Ne)$, in He-Ne laser, 0.63 μ emission 4-51568
- $Ne^+(Ne^{2+}) + Ne(N_2)$ (NH_3), K-vacancy production, inelastic energy loss 4-72098
- $^{58}Ni^+ + Ni$, mol. orbital K X-ray emission spectra 4-69432
- O + alkali metal atom, single-electron excitation, charge transfer 4-72079
- O + Ar(Xe), metastable oxygen atom collision-induced emission rate consts. 4-74868
- O + CO, rot. and vibr. excitation cross sections, impulse approx. 4-60125
- $O + CS_2$ molecular beam reaction, prod. anal., kinetics investig., chem. laser appls. 4-73422
- $O + HF(\nu = 1)$, HF deactivation investig. by laser induced fluoresc. method 4-75045
- $O + O_2 + M \rightarrow O_3^* + M$, $M = O_2$ or N_2, recombination react., vibr. excitation investig., spectral diagnostic method 4-81806
- $O^+ \rightarrow O^-$, change exchange in Mg and Zn vapour 4-52010
- $O^+ + NO \rightarrow NO^+ + O$, energy dependence of rate const. 4-59960
- $O^+ + Ne(N_2)(NH_3)$, K-vacancy production, inelastic energy loss 4-72098
- $O_3{}^+$, deactivation by diluent gases, laser enhanced $O_3{}^+ + NO$ chemilumínesc. react. investig. 4-75044
- $O^n + H_2$, (n = −1 to +2), electron capture and loss, 100-500 keV 4-66339
- $O^{n+} + O_2$ (n = 4-8), secondary electron emission, 30 MeV 4-63371
- $O(^1D) + CO(N_2)$, electronic to vibr. energy transfer efficiency investig. 4-48142
- $O(^1D) + N_2$, quenching rate calcs. using collision complex model 4-81805
- $O^{6+}(O^{7+})(O^{8+}) + Ne(Ar)$, K X-ray transitions 4-72047
- Pb, $(6p7s)^3P_1{}^0$ state, impact approx. breakdown, Hanle effect, collision broadening 4-59930
- $Pb + H^+$, L-subshell ionisation cross section 4-59965
- $Pb + H^+(^3He$ ion), L-X-ray production 4-63373
- Rb, excitation transfer between 6 $^2P_{3/2}$ and 6 $^2P_{1/2}$, collision-induced 4-78356
- $Rb + CH_3I \rightarrow RbI + CH_3$, react. cross section, translational energy depend. investig. 4-73424
- Rb + Ne, fine struct. transitions, quantal close-coupling calcs. 4-72101
- $Rb^{87} + Rb^{85}$, depolarisation of Hanle effect spectra by collision broadening 4-74849
- ^{85}Rb, spin exchange interaction, ground state 0-0 transition, relaxation and freq. shifts 4-56006
- $^{87}Rb + ^{87}Rb^+$ collision, charge-exchange optical pumping expt. 4-63338
- $S^- + Be(C)(Al)(Cu)(Ge)$, lifetime meas. of ion inner shell vacancies 4-78340
- $^{121}Sb + ^{133}Cs$, spin exchange polarisation collision *(German)* 4-56033
- $Se + H^+(He^+)(Li^+)$, 300-500 keV, diff. cross sections 4-78375
- $Sm + H^+$, L-subshell ionisation cross section 4-59966
- Sr + inert gas atom, Sr spectral line broadening, Van der Waals interaction const. 4-66352
- Sr^+, $5p^2P_{3/2}$ level lifetime, Hanle effect obs., $Sr^+ + Sr$ alignment depolarization 4-72091
- $Ti + ^{252}Cf$ fission fragment, K X-ray prod. 4-59967
- $U + O(O_2)$ collisions, associative ionisation 4-53993
- Xe, $^3P_2$ state, at. scatt., depolarization effects 4-59976
- Xe, optically oriented, $^3P_2$ state collision depolarization 4-69431
- Xe + H collisions, orbiting resonances in integral cross section investig. 4-81725
- $Xe + H^+$, ionisation cross section, ejected electron energy distrib. 4-72097
- $Xe + He^*(Ne^*)$ collisions, XeII excitation 4-66323
- $2\ Xe + Rb^* \rightarrow RbXe^* + Xe$, terat. recombination rate determ. from fluoresc. meas. 4-61582
- $Xe + Xe^*$, afterglow of pulsed discharge, $Xe_2{}^*$ formation 4-47871
- $Xe^+ + Xe$, differential elastic scatt., 20-340 eV 4-74915
- $Y + He^+$, hybrid charge transfer/Penning reaction 4-66343
- $Zn + H^+$, K-X-ray production 4-63373

atomic collisions *see atomic collision processes*

atomic electric moment
- adsorbed atoms on metal surface, dynamic interaction model for induced dipole moments 4-67108
- hydrogen-like atom, relativistic electric and magnetic susceptibilities 4-51960
- ion + atom collision, polarisation in distant inelastic Coulomb collision 4-47907
- nonlinear optical processes due to Van der Waals interaction during collisions 4-77710
- Ba, D states, hyperfine struct., atomic beam mag. resonance 4-56015
- ^{193m}Hg, determ. of 6s6p $^3P_1$ h.f.s. electric and magnetic dipole constants by level crossing 4-59932
- $^{99,101}Ru$, hyperfine struct. meas. in ^5F ground states with atomic beam mag. reson. method 4-72019
- Tl, line width ang. depend. rel. to second moment, pseudodipolar and pseudoexchange interactions 4-47829

atomic electron configuration interactions *see atomic electron correlations*

atomic electron correlations
- alkaline earths, np^2 terms effect on singlets, quantum defect anal. 4-63325
- Be, correlation energy, Brenig's method *(Russian)* 4-74821
- configuration interaction, bonded function method 4-78418
- doubly-excited configurations, reduced interaction matrix and correlation energy obtained by partitioning method 4-47825
- electron repulsion integrals, general inequalities 4-72025

atomic electron correlations continued
Fermi hole in terms of distrib. function of interelectronic distance 4−74820
inert gas, photoionisation, correl. effects in simplified RPA-with-exchange 4−47867
inhomogeneous interacting electronic system, momentum density, Compton profile 4−72671
K X-ray emission exchange corrections, relativistic Hartree-Fock soln. 4−56012
lanthanides, $4f^n(5d+6s)$ configurations, parametric study *(French)* 4−51935
long-range interaction in many-electron systems, double perturbation theory 4−56045
many electron atom, state functions, J^2,S^2 for one open shell configs. 4−78323
many electron atom state functions, eigenfunctions of L^2 and S^2 for one open shell config. 4−78322
many-electron wavefunctions, method of successive approximations 4−63323
matrix elements in atomic configuration interaction calculations 4−78324
multiparticle correlations in third order of theory of perturbations 4−55997
optical transitions, correl. effect in upper and lower states 4−78326
pair energies from orbital overlaps in pairwise correlated generalised valence bond model 4−81762
radial correlation, calc. of energies and electron affinities for He, H^-, He-like ions 4−59902
rare earth atom, role of CI in calcs. of width of 4s and 5s multiplet components 4−74861
transition metal, multiplet component widths for $(3d)^n$ and $(4d)^n$ configs. 4−74862
two-electron system, ground state, autocorrelated field method *(French)* 4−47826
Al I, Al II, spectra, series perturbations, superposition of configurations calcs. 4−63334
Ar, momentum density, Compton profile 4−72026
Ar(e,2e), config. interaction anal., spectroscopic factor determ. 4−47894
B, atom, X-ray scatt. by bound electrons, form factors 4−74878
B, configuration interaction method, correlation energies, wave functions 4−47827
B, configuration interaction method, electron affinity 4−47828
B^+, pair distrib. functions calc. from Hartree-Fock and CI wave functions 4−51948
Ba, spectra, oscillator strengths using multi-config. Hartree Fock approx. 4−66285
Ba, spin-orbit coupling, multi-config. Hartree Fock wavefunctions 4−66279
Be, $1s^22s^2$ ground state, correlation study, multiconfig. Hartree-Fock calcs. 4−63326
Be, many-electron wavefunctions, method of successive approximations 4−63323
Be atom, pair distrib. functions calc. from Hartree-Fock and CI wave functions 4−51948
Be isoelectronic sequence, C I wavefunction oscillator strength calcs. 4−72033
C, approx. natural orbital description of 1_s, 1_d and ^3P states 4−51936
C, configuration interaction method, correlation energies, wave functions 4−47827
C, configuration interaction method, electron affinity 4−47828
C^-, doubly excited Feshbach states 4−74865
C^+, X-ray scatt. by bound electrons, form factors 4−74878
C^{2+}, correl. holes, pair distrib. functions calc. from Hartree-Fock and CI wavefunctions 4−51948
Ca, resonance line excitation, multi-config. wave functions 4−51953
Cd, vapour, high resolution Auger electron spectra, config. interaction effects 4−66331
Cd vapour, photoemission spectra, initial-state configuration-interaction satellites investig. 4−81705
Cs^+, nuclear quadrupole antishielding factor, electron correlation effects 4−55996
F, configuration interaction method, correlation energies, wave functions 4−47827
F, configuration interaction method, electron affinity 4−47828
Fe-group elements, $3d^n4s$-$3d^n4p$ transitions, oscill. strengths calc., CI method 4−69408
He, autoionization resonances, applic. of Fano CI theory 4−63352
He, long-range interactions, double perturbation theory 4−56045
He isoelectronic sequence, Coulomb hole in 2^3S state 4−59901
He isoelectronic sequence, scaling in S and P states, screening consts. 4−55998
He + He, $^1\Sigma_g{}^+$ potential, inter-intra coupling in ab initio CPMET calcs. 4−59977
He_2, intermolecular energy, perturbative ab initio calc., intraatomic correl. effects 4−56075
He(e,2e)He^+, n=1, 2 differential cross section ratios, CI versus HF wave functions 4−69437
Kr, momentum density, Compton profile 4−72026
Kr, Stark splitting calc., $6p_{10}$ level, overlapping configs. *(Russian)* 4−43717
Mg, resonance line excitation, multi-config. wave functions 4−51953
Mg photoionisation of (3s, 3p:^1P) state 4−66309
Mn^{2+}, relativistic 3d wavefunction generated by configuration interaction due to spin-orbit coupling 4−78325
N, configuration interaction method, correlation energies, wave functions 4−47827
N, configuration interaction method, electron affinity 4−47828
N, freq. depend. polarisability, R-matrix method 4−74842
Ne, configuration interaction method, correlation energies, wave functions 4−47827
Ne + Ne, ab initio MCSCF calc. of $^1\text{sigma}_g{}^+$ pot. at intermediate separations 4−47912
O, configuration interaction method, correlation energies, wave functions 4−47827
O, configuration interaction method, electron affinity 4−47828
O^-, doubly excited Feshbach states 4−74865
Rb IV, $4s4p^5$ distortion by $4s^24p^34d$ interaction 4−63330

atomic electron correlations continued
Rb^+, nuclear quadrupole antishielding factor, electron correlation effects 4−55996
Sr V, $4s4p^5$ distortion by $4s^24p^34d$ interaction 4−63330
Tl, line width ang. depend. rel. to second moment, pseudodipolar and pseudoexchange interactions 4−47829
Zn I, photoionisation of 4s subshell, perturbation theory 4−81724

atomic electron scattering
see also electron ionisation
adiabaticity coeff. asymptotics in modified adiabatic approximation *(Russian)* 4−74904
Balmer decrement, effect of inelastic electron-atom collisions 4−80452
Bethe surface construction using Stieltjes imaging of electron impact excitation profiles 4−69436
Born approximation modified by nuclear absorption model 4−51412
Born cross sections for highly excited state transitions *(Russian)* 4−74895
classical and quantum mechanical treatments, high vel. limit 4−56034
close coupling equations, integral form. appl. to atom-electron scatt. 4−66327
computer program for collision cross-section calcs. 4−74889
elastic scattering, fast electrons, optical model theory using second order optical potential 4−81729
electron optics, ideal transmission electron microscope calcs. 4−71239
electron spin polarization by scatt. on oriented atoms with spin s=1 *(Russian)* 4−74903
exchange interaction between two different atoms at large distances 4−59979
excitation to high orbital momentum states by electron scatt. 4−74888
impact radiation polarisation, Bethe theory 4−74886
inelastic, hole partticle vertex, partially summed 4−56035
inert gas ion engine, atomic excitation processes, influence of metastable states 4−59948
ionisation cross-section of L, M shells of Si, P, S, Cl, Ti, Br and Si 4−63368
ionization, absolute cross section meas. 4−43748
kinematic analysis, small angle scatt., applic. to beam-recoil method 4−75035
many-body scattering theory, orthogonality condition 4−47879
metal, excitation by intersecting electron beams, far vacuum u.v. *(Russian)* 4−66338
metastable atom beam, excitation mech. 4−43753
modulation technique to obtain high resolution energy differentiated electron transmission spectra 4−55109
multistate eikonal treatment, scattering amplitude 4−47882
numerical techniques for integrals eval. 4−59947
plasma, electron induced spectral line collision broadening, theory *(Russian)* 4−81977
polarized electron-polarized 2 electron atom collision, polarization states after collision 4−59958
positive ion, electron impact excitation, Born and Coulomb-Born approximations 4−47883
rare-earth atoms, 4d-shell ionisation, X-ray emission spectra *(Russian)* 4−45370
relativistic effects, Breit Pauli approximation 4−51992
screened Coulomb scatt., elec. polarisation calc. 4−66333
spectral lines, broadening, shifts, Debye screening 4−78364
spectroscopy and collision theory, Hartree-Fock-Roothaan eigenchannel calcs. 4−81712
threshold excitation spectroscopy, meas. technique 4−59949
transfer reactions into continuum, calc. of integrals over Coulomb functions 4−63122
Wigner law, violation in degenerate channels coupled by long-range pot. 4−51986
Ag, single atom elastic cross sections, SEM obs. 4−81732
Al, atomic field bremsstrahlung, cross section coincidence meas. 4−59954
Al XII, XIII, impact cross sections, rate coeffs., Gaunt factors 4−66328
Ar, elastic scatt., electron ang. distrib. 4−56036
Ar, elastic scatt. 4−74882
Ar, electron elastic scattering, cross section, optical potential method 4−47897
Ar, electron impact, energy distrib. of emitted electrons 4−78367
Ar, metastable, electron impact excitation cross section 4−59956
Ar, multi-ionisation, high energy electron impact 4−72087
Ar, photon emission, $3s3p^6nl$ excited states *(French)* 4−59944
Ar, ratio of forward to back scatt. 4−63367
Ar, spectroscopy and collision theory, Hartree-Fock-Roothaan calcs. 4−81712
Ar, vacuum u.v. emission, relativistic electron beam excitation 4−59955
Ar 3p electrons, photoelectron angular distrib. 4−47885
Ar-like gas, influence of electron-at. cross section uncertainties on shock wave struct. 4−66334
Ar^+, electron impact excitation of $3s3p^6$ ^2S and $3s^23p^44s$ ^2P levels 4−47873
Au, atomic field bremsstrahlung, cross section coincidence meas. 4−59954
Au, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Au, neutral atom, electron bremsstrahlung cross section calcs. 4−72085
Ba^+, electron-impact excitation 4−74900
Bi, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Cd, vapour, high resolution Auger electron spectra 4−66331
CdII, $4d^95s^2$ config. transition in He-Cd laser 4−65898
Ce, electron impact excited, $M\alpha$ and $M\beta$ X-ray emission lines 4−59951
Cu, elastic and inelastic scatt., 20 and 60 eV 4−63366
Fe I, reflected shock region, meas. of gf-values 4−43723
H, algebraic variational method analysis 4−59959
H, coupling effect in distorted wave polarized orbital approximation 4−47878

atomic electron scattering continued
H, elastic scatt., consistent phase conventions for scatt. cross section ang. distrib. 4−56038
H, elastic scatt., partial wave formalism, second order potentials 4−47875
H, elastic scatt., polarized Glauber approx. 4−59957
H, elastic scatt. and 2s, 2p excitations, multistate eikonal treatment 4−47882
H, elastic scatt. differential cross sections, 30-200 eV 4−74902
H, elastic scattering, eikonal-Born series method 4−47880
H, electron elastic scattering, low energy differential cross section 4−72088
H, electron impact ionisation, Coulomb-projected Born approximation 4−47877
H, excitation in presence of e.m. field 4−74892
H, excited atom collisions with charged particles, mixing of degenerate states *(Russian)* 4−72090
H, Faddeev equations 4−59950
H, Glauber approx. total cross section calc. 4−51997
H, in off-shell Coulomb T-matrix, long-range distortion effect 4−74887
H, intense e.m. field, slow electron, Reiss and Henneberger transforms. 4−56039
H, large angle, inelastic scatt., Gauber approx. calcs. 4−81730
H, one-state s-wave exchange state, channel T matrix 4−43747
H, rearrangement collision, scatt. cross sections 4−47895
H, S-wave elastic scattering, polarized orbital approx. 4−47156
H, S-wave scattering, J-matrix method 4−59249
H, second order diagonalization calcs. 4−51989
H, singlet elastic scatt., 10-27 eV 4−74901
H atom, electron beam scatt., low lying resonance investig. 4−66335
H spin exchange collisions in teflon containment with longitudinal mag. trap, polarised-electron source 4−55028
H + e, channel T operator approach 4−80179
H + e, use of contracted basis functions in algebraic variational scatt. calcs. 4−78365
H + e collisions, Balmer cross sections determ., high density at. beam source design 4−81737
H + e scattering, variational least squares method calcs. 4−74881
$H + e^-(e^+)$, calc. using integral form of close coupling eqns. 4−66327
$H + e^+$, annihilation rate below positronium threshold 4−47891
$H + e^+$, lower bound calc. adiabatic approx. 4−47892
$H + e^+$, rigorous lower-bound p-wave scatt. calc. 4−47890
$H + e \rightarrow H^- + h\omega/2\pi$, rate coeff. calc. electron temp. range 0 to 10000K 4−74896
H^-, H^+, 50-500 eV, coupled equation calc. 4−63369
H^- electron detachment by electron impact, field theory approach 4−63364
He, 1^1S-2^3S excitation by electron impact, high-energy approx. for exchange scatt. 4−59946
He, 2^3S, 3^3S and 4^3S states excitation 4−51994
He, complex excitation amplitudes and atomic orientation from electron-photon ang. correls. 4−72082
He, DWBA calc. of 2^1P excitation cross sections 4−56040
He, deactivation of 2^3S state by thermal electrons 4−47874
He, elastic scatt., partial wave formalism, second order potentials 4−47875
He, elastic scattering, ang. differential cross sections 4−74885
He, electron and positron elastic scatt., second Born approx. 4−66332
He, electron excitation, singlet-triplet mixing effect 4−47881
He, electron impact excitation cross-sections, low press. meas. 4−51991
He, electron impact excitation, singlet-triplet anticrossings 4−72054
He, electron impact excitation, first order many-body theory, cross section calcs. 4−74884
He, extreme u.v. ang. distrib. and polarisation fraction due to 25 to 150 eV electrons 4−47889
He, impact radiation polarisation, Bethe theory 4−74886
He, inelastic scatt., Eikonal distorted wave method 4−47876
He, intermediate and high energy, eikonal optical model 4−72089
He, laser induced breakdown, inelastic energy loss effects 4−44254
He, liquid, excited at. states, press. shifts, quenching, theory 4−78338
He, metastable, electron impact excitation cross section 4−59956
He, multichannel variational calc. 4−51995
He, positron scattering length, zero energy Kohn variational calc. 4−72083
He, ratio of forward to back scatt. 4−63367
He, second order diagonalization calcs. 4−51990
He, triplet state excitation on electron impact, secondary electron contrib. 4−72081
He II excitation, electron collisional cross sections 4−66337
He isoelectronic sequence, electron impact excitation of metastable ions 4−63361
He-Ar mixture, Ar elastic electron scatt. 4−74882
$He + e^+$, cross sections, phase shifts below 19 eV 4−59945
$He + e^+$, low energy scatt., variational calc. 4−51999
$He + e^+$, lower bound calc. adiabatic approx. 4−47892
$He + e^+$ scattering, annihilation rate parameters 4−51993
He^+, electron impact ionisation and excitation, cross section meas. 4−59952
He^+, resonance line excitation in electron-ion collisions *(Russian)* 4−72056
He^+ coupling effect in distorted wave polarized orbital approximation 4−47878
He^+ reson. level excitation in electron-atom, electron-ion and ion-atom collisions *(Russian)* 4−78368
He(^1P) electron impact excitation, Glauber cross section 4−72086
Hg, electron impact spectroscopy, Born model 4−48132
Hg, exchange scatt. by spin flip of polarised electrons, 5-20 eV 4−66336
Hg, single atom elastic cross sections, SEM obs. 4−81732
Hg atom, electron-impact excitation cross sections, $6^3P_{0,1,2}$ level mixing investig. 4−72084
Hg(6^3P), lifetime meas., electron-photon delayed coincidence method 4−74883
In, excitation by electron impact *(Russian)* 4−43749

atomic electron scattering continued
K, excitation functions for threshold-2.5 eV electron, resonance struct. obs. *(Russian)* 4−51998
K, Wigner law violation 4−51986
K + low energy electrons, collision investig., Penning-trap technique 4−74898
Kr, u.v. spectra, 250 keV electron excited, time depend. 4−47893
Kr 4p electrons, photoelectron angular distrib. 4−47885
Kr II, Kr III lines, electron impact excitation cross sections 4−47887
La, 4d-shell ionisation, X-ray emission spectra *(Russian)* 4−45370
La, electron excitation, M-series X-ray spectrum 4−47896
Mg, impact ionisation, K Auger spectra 4−52001
N, elastic scatt., cross section determ. 4−51996
N II to N V, electron impact excitation, effective Gaunt factors 4−47884
Na, impact ionization, K Auger spectrum 4−52000
Na, Wigner law violation 4−51986
Ne, electron impact excitation of 736 Å line 4−47873
Ne, high resolution electron spectrometry, electronic struct. 4−63363
Ne, K X-ray spectrum 4−56011
Ne, multi-ionisation, high energy electron impact 4−72087
Ne 0.63 μm line, broadening and shift by discharge current 4−72038
O, elastic scatt., cross section determ. 4−51996
O, electron impact excitation of $^3S^0$ and $^5S^0$ states, cross section determ. 4−66329
O, ratio of forward to back scatt. 4−63367
O, resonance meas. by electron transmission spectroscopy 4−74899
O II to O VI, electron impact excitation, effective Gaunt factors 4−47884
Pb, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Sr, excitation out of metastable states by intersecting beam method *(Russian)* 4−69424
Sr I, Sr II lines, electron impact excitation cross sections 4−47888
U, single atom elastic cross sections, SEM obs. 4−81732
Xe, multi-ionisation, high energy electron impact 4−72087
Xe, vacuum u.v. emission, relativistic electron beam excitation 4−59955
Xe I(II) levels, electron impact excitation, meas. of radiative lifetimes 4−78328
Zn, $L_{2,3}MM$ Auger electron spectrum 4−56037
atomic energy *see nuclear power*
atomic excitation
see also atomic collision processes; atomic metastable states; atomic spectra; Auger effect; ionisation of atoms; optical pumping
acceleration of atoms by light *(Russian)* 4−69397
alkali + N_2 collisions in flames, quenching cross section investig., energy transfer mechanism, model 4−74872
alkali meta ions, spectral line excitation functions in vacuum u.v., reson. transitions *(Russian)* 4−78353
alkali metal vapours, optically excited, ionising transition processes *(Russian)* 4−43746
atom-atom collision, molecular orbital X-ray emission, atomic line broadening anal. 4−56032
Ba I absorption spectrum, highly excited states in magnetic field 4−43732
Bethe surface construction using Stieltjes imaging of electron impact excitation profiles 4−69436
collisional, effects on structure of strong normal shock wave in monatomic gas 4−72323
collisional excitation and cascade repopulation, convolution into decay curve 4−47852
doubly excited configurations, reduced interaction matrix and correlation energy obtained by partitioning method 4−47825
electron impact Born cross sections for highly excited state transitions *(Russian)* 4−74895
electron impact radiation polarisation, Bethe theory 4−74886
electron scattering to high-l states near ionisation threshold 4−74888
excitation with simultaneous ionisation, photoelectron spectra, Green's function methods 4−66314
$H^+ + H$ collisions, elastic and inelastic diff. meas., direct excitation, charge exchange 4−66341
heavy ion + heavy atom, mol. orbital K X-ray emission theory 4−72074
heavy particle electronic excitation, cross section oscills., Born approx. 4−66318
hydrogenic atoms, beam-foil excited p-, s- and d-state populations 4−51970
hydrogenlike ions, excited, in distant collisions with charged particles, transitions between degenerate states *(Russian)* 4−63376
inert gas ion engine discharge, atomic excitation processes, influence of metastable states 4−59948
ion + atom, K-shell excitation outer shell config. 4−78370
ion + atom collisions, level matching enhancements in inner-shell vacancy prod., mol. orbital model 4−74912
laser produced, and ionisation 4−59938
lifetime measurement, Hanle signal correction 4−78341
metal, excitation by intersecting electron beams, far vacuum u.v. *(Russian)* 4−66338
metals coated on graphite hollow cathode, discharge excitation characts. investig. 4−56561
metastable atom beam, excitation mech. by electron impact 4−43753
multiphoton transitions in hydrogen-like atom induced by e.m. field *(Russian)* 4−78332
N-shell fluorescence and radiative yields for $38 \leqslant Z \leqslant 103$ 4−59934
optical pumping, light shifts, atomic density matrix power expansion 4−47861
Penning reaction, excited metal ion prod. 4−74908
platinum metals electrode crater and discharge zone processes in spectral determ. carrier effects *(Russian)* 4−68848
polarized electron-polarized 2 electron atom collision, polarization states after collision 4−59958
positive ion, electron impact excitation, Born and Coulomb-Born approximations 4−47883
radiative decay of pair of atoms 4−47858
resonance fluorescence, excitation and decay probabilities for coupled excited states 4−51962
resonance of discrete states on background of continuous spectrum *(Russian)* 4−74850

atomic excitation continued
spontaneous emission in intense field, rel. to noise in lasers 4−47855
sputtered particles, plasma excitation during ion beam bombardment *(French)* 4−53560
thermal energy atomic charge transfer, Penning reaction, excited metal ion prod. 4−74908
threshold excitation spectroscopy, meas. technique 4−59949
time of flight spectra obs., effect of electron gun pulse width 4−46890
transfer between fine structure levels, ang. depend. of sensitised fluoresc. 4−47851
two-level atom, reson. excitation in strong e.m. field *(Russian)* 4−69420
two-photon selective excitation, Doppler shift reduction and isotope separation 4−66282
two-quantum relaxation processes, perturbation theory calcs. *(Russian)* 4−72055
He, nuclear-radiation-induced excitation population inversion 4−81311
Al XII, XIII, electron impact cross sections, rates, Gaunt factors 4−66328
Ar, electron impact excitation, photon emission, $3s3p^6nl$ excited states *(French)* 4−59944
Ar, excited states formed by ionizing radiation 4−81736
Ar, half-life of $5d(7/2)_4$ level, delayed coincidence meas. *(Spanish)* 4−47850
Ar, lifetimes of 2p levels by Hanle effect and double resonance meas. 4−43733
Ar, metastable, electron impact excitation cross section 4−59956
Ar, multi step ionization relaxation behind shock wave, excited state equilib. 4−72080
Ar, vacuum u.v. emission, relativistic electron beam excitation 4−59955
Ar levels, lifetimes and g-factors from magnetic resonance measurements *(French)* 4−51961
Ar-like gas, influence of electron-at. cross section uncertainties on shock wave struct. 4−66334
$Ar+Ar(HCl)(Cl_2)$, K-shell X-ray production cross sections and spectra 4−72072
Ar + He*(Ne*) collisions, ArII excitation 4−66323
Ar^+, electron impact excitation of $3s3p^6\ ^2S$ and $3s^23p^44s\ ^2P$ levels 4−47873
As I, radiative lifetimes, 1850-3000 Å 4−74826
B^+, prod. by electron bombardment of BX_3, (X=halide), electronic states investig. 4−60105
Ba, laser selective excitation 4−74846
Ba, tunable laser pumped ^3D metastable state photoionisation cross section 4−51972
Ba^+, electron-impact excitation 4−74900
Be, 1s-hole condition, non-empirical calc. *(Russian)* 4−43709
Bi, absorption spectrum below 1000 Å, inner s-electron excitations 4−59909
Br* + HBr(HCl), laser excitation, electronic-to-vibr. energy transfer, i.r. emission obs. 4−51979
C^-, doubly excited Feshbach states 4−74865
Ca, resonance line excitation, Born cross sections 4−51953
Ce, electron impact excited, $M\alpha$ and $M\beta$ X-ray emission lines 4−59951
Cl, X-ray emission from foil-excited beam 4−47859
Cs, density of saturated vapour meas. using resonance absorption of 8521 Å radiation 4−42761
Cs, excitation transfer between $7^2P_{1/2}$ and $7^2P_{3/2}$ states, collision-induced 4−78357
Cs, multiphoton excitation and ionisation with tuneable dye laser 4−56023
Cs, spin relax. with $6^2P_{1/2}$ and $6^2S_{1/2}$ states, white-light pumping obs. 4−74875
Cs, static elec. field method, meas. lifetimes, Stark mixing coeff. 4−81710
Cs, two photon excitation by laser light 4−51971
Cs + Cs thermal collision, electron excitation doubling 4−69430
^{133}Cs, investigation of highly excited $^2D_{3/2}$ states using c.w. tunable dye laser 4−59914
Cu, electron elastic and inelastic scatt., 20 and 60 eV 4−63366
F II, radiative lifetime meas. using doubly differentially pumped gas target 4−74919
Fe I, reflected shock region, meas. of gf-values 4−43723
H, 1s-3d excitation in H^+ and He^{2+} collisions 4−56041
H, 2s and 2p excitations in H(1s) + H(1s) scattering, cross-section calc. 4−66324
H, electron impact, coupling effect in distorted wave polarized orbital approximation 4−47878
H, electron photoattachment 4−47862
H, electron scatt., 2s and 2p excitations, multistate eikonal treatment 4−47882
H, electron scatt. in presence of e.m. field 4−74892
H, excited, charged particle binary encounter theory, form factors 4−47845
H, highly excited states from H^+ + Xe collisions, multiphoton ionisation 4−69426
H, inelastic electron scatt., Gauber approx. calcs. 4−81730
H, photon emission induced by passing relativistic charged particle 4−56024
H Balmer spectra excited in dissociative H_2^+ collisions with rare gases, polarization 4−60126
H I, plasma, thermal excitation function calc. *(Russian)* 4−60318
H + e collisions, Balmer cross sections determ., high density at. beam source design 4−81737
H + H collisional excitation, eikonal distorted wave Born approx. 4−59943
H + He collision, H excitation, eikonal distorted wave approx. 4−72075
H(1s) + H(3s, 3p, 3d), potential energy curves, excitation transfer cross sections 4−74869
He, 2^41P_1 level lifetime determ., gas discharge alignment studies 4−74847
He, 1^1S-2^3S excitation by electron impact, high-energy approx. for exchange scatt. 4−59946
He, 2^3p state, lifetime meas. 4−74831

atomic excitation continued
He, $(2s3s)^1S$ state, energy and width calc., Hartree-type eqns. 4−74819
He, autoionization resonances, applic. of Fano CI theory 4−63352
He, electron excitation, singlet-triplet mixing effect 4−47881
He, electron impact, 2^3S, 3^3S and 4^3S states excitation 4−51994
He, electron impact excitation cross-sections, low press. meas. 4−51991
He, electron impact excitation, singlet-triplet anticrossings 4−72054
He, electron impact excitation, first order many-body theory, cross section calcs. 4−74884
He, electron impact radiation polarisation, Bethe theory 4−74886
He, electron scattering, DWBA calc. of 2^1P excitation cross sections 4−56040
He, lifetimes of non resonant levels, delayed coincidence meas., direct and cascade excitation *(Spanish)* 4−47849
He, liquid, electron bombard., press. shifts, quenching, theory 4−78338
He, metastable, electron impact excitation cross section 4−59956
He, multiphoton excitation and ionisation, in intense laser beam 4−59931
He, triplet state excitation on electron impact, secondary electron contrib. 4−72081
He afterglow, development of atom density and metastable molecule density *(French)* 4−69672
He I and II, beam-foil spectra, coherent orientation by asymmetric collision 4−72052
He II excitation, electron collisional cross sections 4−66337
He isoelectronic sequence, electron impact excitation of metastable ions 4−63361
He-Cd laser discharge, perturbation spectroscopy 4−59395
He-like atoms, Lamb shift contributions to ionisation potentials of ground states investig. 4−81708
$He+H_2$, electron-loss cross sections for excited He at 8-160 keV 4−74874
He^+, electron impact ionisation and excitation, cross section meas. 4−59952
He^+, resonance line excitation in electron-ion collisions *(Russian)* 4−72056
He^+ electron impact, coupling effect in distorted wave polarized orbital approximation 4−47878
He^+ reson. level excitation in electron-atom, electron-ion and ion-atom collisions *(Russian)* 4−78368
He^+ + Cd, charge exchange cross section meas. *(Russian)* 4−78377
$He(^1P)$ electron impact excitation, Glauber cross section 4−72086
$^3He+{}^3He$ collisions, disorientation of $^3He\ ^1D$ states 4−78355
$^4He^+$, excited states, fine struct. obs. by fast beam r.f. resonance 4−66275
$He(e,2e)He^+$, n=1, 2 differential cross section ratios, CI versus HF wave functions 4−69437
Hg, electron impact spectroscopy, Born model 4−48132
Hg, exchange scatt. by spin flip of polarised electrons, 5-20 eV 4−66336
Hg, excited level population in Hg + Hg collisions 4−69419
Hg atom, electron-impact excitation cross sections, $6^3P_{0,1,2}$ level mixing investig. 4−72084
Hg vapour, spontaneous radiation, noise spectrum *(Russian)* 4−69421
$Hg(6^3P)$, lifetime meas., electron-photon delayed coincidence method 4−74883
I^- + He, autoionising spectra of I^- 4−43751
I^+ + Au, mol. orbital X-ray emission spectra 4−69433
In, by electron impact *(Russian)* 4−43749
K, electron impact excitation, resonance struct. obs. *(Russian)* 4−51998
K, excitation by N_2, atomic-molecular collisions 4−66348
$K+Hg(N_2)(O_2)(CO_2)(NO_2)$, 2-50 eV collision, population of K fine struct. states 4−66320
K + inert gas, electronic excitation cross section meas. 4−66319
K + K, excitation collisions, first order Born calcs., pseudopot. model 4−74870
Kr II, Kr III lines, electron impact excitation cross sections 4−47887
Kr + He*(Ne*) collisions, KrII excitation 4−66323
La, electron excitation, M-series X-ray spectrum 4−47896
Mg, $^3P_1$ metastable state, dye-laser excited, lifetime meas. 4−47860
Mg, resonance line excitation, Born cross sections 4−51953
N, NIII to NVI, NIV to NVI transitions, beam foil obs. 100 to 400 Å 4−78329
N I, plasma, thermal excitation function calc. *(Russian)* 4−60318
N I to N IV, beam-foil lifetime meas. in vac. u.v., transition probabilities determ. 4−74830
N II, lifetimes of $2p^3(^1P^0$ and $^1D^0)$ and $2p3s\ ^1P^0$ levels, meas. by beam-foil technique 4−47831
N II to N V, electron impact excitation, effective Gaunt factors 4−47884
N plasma, low-temp., effect of A $^3\Sigma_u{}^+$ metastable level on step-wise excitation processes *(Russian)* 4−43729
Na, dye laser beam excitation, resonant Stark effect 4−47835
Na, highly excited states, fine and hyperfine struct. 4−69412
Na atom, laser beam excitation, h.f.s. of $5^2S_{1/2}$ level by two step excitation 4−66307
$Na+Na^+$ collisions, excitation, charge transfer, three-state description 4−78378
Ne, electron impact excitation of 736 Å line 4−47873
Ne, excited states formed by ionizing radiation 4−81736
Ne, high resolution electron spectrometry, electronic struct. 4−63363
Ne, lifetimes of 2p levels by Hanle effect and double resonance meas. 4−43733
Ne, metastable state population in Ne-Br_2 mixture 4−63344
Ne, Zeeman coherence effect in saturated absorpt. expt. *(French)* 4−74844
Ne I, meas. lifetime $2p_8$, $2p_9$ excited states, correl. photons in cascade transitions method 4−81718
$Ne+H^+$ collision, Ne excitation cross section, first order distortion method 4−66342
$Ne+He^*\rightarrow He+Ne^*$, resonant transfer cross sections, 400-600 K *(French)* 4−43745
Ni I, lifetime meas. of 18 excited levels, Hanle effect *(German)* 4−63362

atomic excitation continued
^{58}Ni$^+$ + Ni, mol. orbital K X-ray emission spectra 4−69432
O, autoionisation spectra of Rydberg states 3d'^{3}P$_{2,1}$'$_0$^{0} and 3s''^{3}P$_{2,1}$'$_0$^{0} and intershell transition 2s2p^5 P$_{2,1,0}$^{0} 4−66311
O, electron impact excitation of ^{3}S^0 and ^{5}S^0 states, cross section determ. 4−66329
O, resonance meas. by electron transmission spectroscopy 4−74899
O I, plasma, thermal excitation function calc. *(Russian)* 4−60318
O I 5577 Å line, N + NO reaction as possible excitation source in aurorae 4−68223
O II to O VI, electron impact excitation, effective Gaunt factors 4−47884
O + alkali metal atom, single-electron excitation, charge transfer 4−72079
O$^-$, doubly excited Feshbach states 4−74865
Pb, (6p7s)^{3}P$_1$^{0} state, impact approx. breakdown, Hanle effect, collision broadening 4−59930
Pb, metastable level excitation, population, ionisation mechanism investig. 4−72050
Rb, excitation transfer between 6 ^{2}P$_{3/2}$ and 6 ^{2}P$_{1/2}$, collision-induced 4−78356
Sb I, radiative lifetimes, 1850-3000 Å 4−74826
Sn, metastable level excitation, population, ionisation mechanism investig. 4−72050
Sr, excitation out of metastable states by intersecting beam method *(Russian)* 4−69424
Sr I, Sr II lines, electron impact excitation cross sections 4−47888
Sr$^+$, 5p^{2}P$_{3/2}$ level lifetime, Hanle effect obs., Sr$^+$ + Sr alignment depolarization 4−72091
Sr$^+$, lifetime of 5p^{2}P$_{1/2}$ level 4−78337
V, multiply ionised, excitation of spectra by capacitor discharges 4−59908
Xe, vacuum u.v. emission, relativistic electron beam excitation 4−59955
Xe I, Xe II, plasma, thermal excitation function calc. *(Russian)* 4−60318
Xe I(II) levels, electron impact excitation, meas. of radiative lifetimes 4−78328
Xe levels, lifetimes and g-factors from magnetic resonance measurements *(French)* 4−51961
Xe + Ar$_{g(l)}$, solvent shifts and excited state pots. 4−56003
Xe + He*(Ne*) collisions, XeII excitation 4−66323
Zn I absorption spectrum, structure associated with 3s^2 subshell photoexcitation, 70 to 105 Å 4−63336
atomic explosions *see nuclear explosions*
atomic forces
alkali halide diatomics, repulsive potential parameters, combination rules and correlations 4−74933
alkali-inert gas atom pairs, pot. model, excited mol. term effects 4−52013
angular pair correlation function derived for interacting systems, perturbation theory 4−63500
closed shell atoms and ions, unified theory 4−81738
composite particle symmetry conditions, Girardeau theory for electron exchanges 4−72100
Coulomb multiphoton bremsstrahlung T-matrix in Glauber approx. in low freq. e.m. field 4−59232
diatomic molecule, electrostatic binding in first row elements and hydrides, mol. dissoc. energy correl. 4−47913
Dirac-Breit-Pauli equation, orbit-orbit and spin-orbit interactions 4−59973
electron cloud following and preceding and shapes of mols. 4−52067
electron cloud of system undergoing change in nucl. config. 4−52066
exchange interaction between two different atoms at large distances 4−59979
heteronuclear bonds, length, polarity and electronegativity 4−60031
inert gas atom + ion (alkali and halide), repulsive interaction pot. curve calc. 4−66350
inert gas atoms, interat. pots. calc., combining rules for van der Waals coeff. 4−81739
inert gas atoms, mol. interaction pot., self-exchange correction 4−56046
inert gas crystal, high order multipole long range interactions between atoms 4−79110
inert gas ion + alkali metal ion interaction, molecular ion formation 4−66353
interaction potentials from depolarisation and collision broadening cross sections *(French)* 4−51983
ion scattering, wave nature of ion beams *(German)* 4−69439
kinetic isotope effects, in chem. reacts., computed using at. force consts., applic. to mechanism investig. 4−45902
L-shell ionisation by heavy ions, binding and Coulomb effects 4−81733
linear polarisability model, modification to perturbation expansion of Ursell-Mayer function, 4−48155
long-range interaction in many-electron systems, double perturbation theory 4−56045
long-range interatomic potential, dispersion coeff. ratios of inert gases 4−59974
positronium + H bound system, ground state, variational calc. 4−74925
short range, convergence of multibody expansion 4−52012
universal potential calcs. for ionised states by modified WKB 4−78380
van der Waals coefficients, second order optical props., random phase approx. 4−66302
Van der Waals constants, combined local linear response and inner projection approach 4−59975
Ar, test of 14-12-8-6 potential function 4−78381
Ar-Ar intermolecular potential, repulsive wall, rel. to high temp. thermal diffusion 4−78382
Ar-HCl, interaction pot. determ. 4−56047
ArClF, microwave and r.f. spectra obs. 4−78466
Cs, asymmetric self-broadening, interaction pots., quasistatic approach 4−59913
Fe, universal pot. calcs. for ionised states, modified WKB method 4−78380
H, electron scatt., in off-shell Coulomb T-matrix, long-range distortion effect 4−74887
atomic forces continued
H, partially ionised, pair correlation function 4−74923
H-H$_2$ system, diff. coeff. and interaction pot. 4−56348
H + H, high order interaction energy, pseudo state calc. 4−43756
H + H (excited) long-range interactions, first-order mixing 4−72102
H + H interaction, relativistic long-range coeff. 4−74921
He, atom, dynamic polarisability and long-range dispersion energy calcs. 4−56013
He, long-range interactions, double perturbation theory 4−56045
He-He, interatomic pot. from scatt., energy depend., unbound mol. 4−74924
He + He, $^1\Sigma_g{}^+$ potential, inter-intra coupling in ab initio CPMET calcs. 4−59977
He + He, intermolecular energy, perturbative ab initio calc. 4−56075
He*-He scatt., long range pots., metastability exchange 4−78383
Hg + Kr, Van der Waal's pot. calc. of intensity distrib., Jablonski theory 4−43755
K + K, excitation collisions, first order Born calcs., pseudopot. model 4−74870
Li + Li potential curves, asymptotic calcs. 4−52014
N$^+$ + Ar, elastic scatt., interaction pots. 4−69438
N$^+$ + Kr, elastic scatt., interaction pots. 4−69438
N$^+$ + Ne, elastic scatt., interaction pots. 4−69438
N$^+$ + Xe, elastic scatt., interaction pots. 4−69438
Na$_2$, induced atomic fluorescence determ. of electronic transition moment internuclear separation depend. 4−43860
Ne + Ne, ab initio MCSCF calc. of ^{1}sigma$_g{}^+$ pot. at intermediate separations 4−47912
Ne + Ne interaction potential 4−63466
^{20}Ne-^{22}Ne, thermal diffusion factor meas., interat. forces investig. 4−60146
^{20}Ne-^{22}Ne, thermal diffusion factor, interat. forces investig. 4−60147
O + O potential curves, asymptotic calcs. 4−52014
Rb + Rb potential curves, asymptotic calcs. 4−52014
atomic magnetic moment
see also gyromagnetic ratio
hydrogen-like atom, relativistic electric and magnetic susceptibilities 4−51960
magnetic dipole and spin-orbit integrals over Slater functions 4−74941
Dy I, atomic beam mag. resonance, hyperfine structure, nuclear ground state mag. dipole moments 4−81706
^{193m}Hg, determ. of 6s6p ^{3}P$_1$ h.f.s. electric and magnetic dipole constants by level crossing 4−59932
^{99,101}Ru, hyperfine struct. meas. in ^{5}F ground states with atomic beam mag. reson. method 4−72019
^{229}Th, Fourier spectroscopic measurements 1 to 3μ *(French)* 4−51952
atomic mass
see also isotopes; mass spectra; nuclear mass
determination, spectrometer design, techniques, nucleon binding energy 4−43448
nuclear droplet model formula 4−63088
^{128}Ba(p,t), at. mass determ. 4−71759
^{160}Er(p,t), at. mass determ. 4−71759
^{100}Pd(p,t), at. mass determ. 4−71759
^{72}Se(p,t), at. mass determ. 4−71759
^{82}Sr(p,t), at. mass determ. 4−71759
^{118}Te(p,t), at. mass determ. 4−71759
atomic metastable states
alkaline earths, metastable states prod. by discharge in heat pipe, absorpt. spectra 4−59911
beam production, neutral, and velocity distribution 4−43753
discharge, cold-cathode, effect of metastable atoms on current *(German)* 4−48454
inert gas ion engine, atomic excitation processes, influence of metastable states 4−59948
lifetime determinations by photomultiplier, He$^+$ afterpulse effects 4−80898
mean life measurements, beam-foil technique reliability 4−66308
negative ion excited states and energy determ. by electron detachment in elec. field *(Russian)* 4−78354
Ar, metastable, electron impact excitation cross section 4−59956
Ar, near-threshold photoionisation, autoionisation effect 4−72063
Ar ions, 6+ to 16+, 86 MeV, charge states in solids, assoc. X-ray prod. investig. 4−75552
Ar relaxation at pyrex walls during afterglow *(French)* 4−51982
Ar^{+m} + Ar charge transfer, metastable atom prod., method for metastable ion detection 4−82777
Ar*(^{3}P) + N$_2$(X$^1\Sigma_g{}^+$), electronic-energy exchange cross sections 4−78532
B$^+$, prod. by electron bombardment of BX$_3$ (X = halide), electronic states investig. 4−60105
Ba, D states, hyperfine struct., atomic beam mag. resonance 4−56015
Ba, laser selective excitation of 6s5d ^{3}D state 4−74846
Ba, photoionisation cross section of ^{3}D metastable states 4−51972
CO, electron impact dissoc. ionisation, obs. of high-Rydberg atomic metastable states 4−52274
Cl, X-ray emission from foil-excited beam 4−47859
Fe$^{+\ 24}$, radiative decay of 2^{3}S$_1$ and 2^{3}P$_2$ states, cascading effects 4−78339
H, 2S → 2P decay in mag. field, ion collision 4−78376
H, formation in Cs + H$^+$ charge exchange collision 4−59968
H, radiation quenched anisotropy, Lamb shift determ. 4−55999
He, (2s3s)^{1}S state, energy and width calc., Hartree-type eqns. 4−74819
He, deactivation of 2^{3}S state by thermal electrons 4−47874
He, ionisation of mol. gases in spark chamber 4−81824
He, ionising collisions with H$_2$O and D$_2$O mols. 4−43881
He, metastable, electron impact excitation cross section 4−59956
He, relaxation at pyrex walls during afterglow *(French)* 4−51982
He isoelectronic sequence, 2^{3}S$_1$ → 1^{1}S$_0$ transition rates, Dirac-Hartree-Fock calc. 4−63333
He metastable atomic beam source using nozzle 4−56044
He$^-$, long-lived doublet state, field detachment meas. 4−51932
^{4}He, optically oriented, parametric relaxation resonance in magnetic field *(Russian)* 4−78344
^{4}He*, in electron-bombarded liq. He, pressure quenching 4−44729

atomic metastable states continued
He*-He scatt., long range pots., metastability exchange 4−78383
He* + Ar(Kr)(Xe)(Hg)(CO)(N_2), Penning electron ang. distribs. 4−74880
He* + Ar(Xe)(Kr) collisions, ArII, XeII and KrII excitation 4−66323
He* + $H_2 \rightarrow HeH_2^+$ + e collision reacts., associative and rearrangement ionisation investig., cross sections determ. 4−72248
He* + H(D)→HeH(D)$^+$ + e, merging beam reacts. investig., effective cross sections determ. 4−61580
He* + O_2, chemisorption O_2^+, O^+ and O^- production 4−75022
He(2^3S) + He collision, ionisation of He*, diabatic mechanism 4−66322
He^+(2s), deexcitation rates in atomic and molecular collisions 4−72076
He($n^{1,3}P$), photoionization, absolute cross sections 4−51973
Hg, $^3P_2$ state, at. scatt., depolarization effects 4−59976
Hg, $6^3P_{0,2}$ state decay in afterglow 4−69552
Hg, 7^3S_1 state lifetime, 9^1P_1-7^3S_1-6^3P_1 cascade coincidence method 4−59893
Hg atom, electron-impact excitation cross sections, $6^3P_{0,1,2}$ level mixing investig. 4−72084
^{199}Hg (6 $^3P_0$) metastable atoms, optically pumped in vapour, mag. reson. obs. *(French)* 4−66306
I, $(5p^46s)^4P_{5/2}$ state, rare gas collisional broadening 4−59929
Kr, $^3P_2$ state, at. scatt., depolarization effects 4−59976
Kr, atomic state population in Kr-Br discharge 4−81721
Kr, near-threshold photoionisation, autoionisation effect 4−72063
Mg, $^3P_1$ metastable state, dye-laser excited, lifetime meas. 4−47860
N plasma, low-temp., effect of A $^3\Sigma_u^+$ metastable level on step-wise excitation processes *(Russian)* 4−43729
Ne, population in Ne-Br_2 mixture 4−63344
Ne + Br_2, discharge atomic state population of Ne metastables 4−56026
Ne + He*→He + Ne*, resonant transfer cross sections, 400-600 K *(French)* 4−43745
Ne* + Ar(Xe)(Kr) collisions, ArII, XeII and KrII excitation 4−66323
O ions, 6 + to 8 +, 40 MeV, charge states in solids, assoc. X-ray prod. investig. 4−75552
O + Ar(Xe), metastable oxygen atom collision-induced emission rate consts. 4−74868
O^5S^0 metastable state, lifetime meas. 4−47823
Pb, $(6p7s)^3P_1{}^0$ state, impact approx. breakdown, Hanle effect, collision broadening 4−59930
Pb, metastable level excitation, population, ionisation mechanism investig. 4−72050
S^{13+}, metastable $^4P^0$ state lifetime and binding energy, autoionizing decay after foil excitation 4−56022
Sn, metastable level excitation, population, ionisation mechanism investig. 4−72050
Sr, excitation out of metastable states by intersecting beam method *(Russian)* 4−69424
V^{+21}, radiative decay of 2^3S_1 and 2^3P_2 states, h.f.s. and relativistic effects 4−78339
Xe, $^3P_2$ state, at. scatt., depolarization effects 4−59976
Xe, optically oriented, $^3P_2$ state collision depolarization 4−69431
Xe*, decay in afterglow of pulsed discharge 4−47871

atomic orbitals
see also atomic structure; orbital calculation methods; wave mechanics
atomic ground state ds^2 electron config., electronic energy calcs. 4−72023
atomic oscillator strengths determ. using new valence and Rydberg orbitals generation procedure 4−51942
Bohr atom, book of radiation and quantum physics at pre-university level 4−59377
core-level binding energy shifts 4−47935
cusped-Gaussian wavefunctions, energy lower bound calcs. 4−72021
double type 2p atomic orbitals determ. for first-row ats. and ions 4−51941
doubly-excited configurations, reduced interaction matrix and correlation energy obtained by partitioning method 4−47825
education, relativistic corrections, Bohr model, atomic electron radii, energy levels 4−73946
electron energy eigenvalues for positive ion of finite size 4−71366
exchange interactions, indirect, between weakly-coupled open-shell atoms 4−72130
excitation to high orbital momentum states by electron scatt. 4−74888
expansion method calculations using basic sets of Gaussian functions 4−59899
Fermi hole in terms of distrib. function of interelectronic distance 4−74820
graphite AO pots. of C determ. 4−69983
halogen, neutral position of sp^6 config. 4−78318
Hartree-Fock calculations, inner shell mol. orbitals, represented by 1s atomic orbitals 4−47936
Hartree-Fock problem, finite difference Newton-Raphson soln. 4−63321
hole states of first row atoms, analyt. wave functions 4−51943
Hund's rules theory reformulation, SCF approximation 4−66280
hybridized valence state energy formulae, for s-p hybrid orbitals 4−59900
hydrogenic electron orbits, mean values of powers of the radius 4−55992
independant particle model calc. of electron potentials in ions with $Z \leqslant 18$ 4−59897
neutral atom, Z = 1 to Z = 120, relativistic Dirac-Fock expectation values 4−51937
one-electron space orbitals, population numbers variation 4−69403
pair energies from orbital overlaps in pairwise correlated generalised valence bond model 4−81762
photoemission spectra of adsorbates angular dependence rel. to symmetry of orbitals and site geometry 4−49523
photoionisation of positive ions, He to Ne isoelectronic series 4−56021
polarisability using SCF theory, for species with S^2 valence pair 4−43731
pseudopotentials, improved Hellmann-type 4−63320
radial integrals, O(2,1) transformation 4−72024

atomic orbitals continued
self-consistent analytic potential, ab initio calcs. 4−63322
Slater type, effective principal quantum number and screening consts. 4−51940
spin-orbit interaction parameters from spectral data for 19 elements 4−69405
transition metal atoms and ions, valence AO exponents, Slater-Condon parameters from spectra 4−69404
two-electron atomic system, variational perturbation calcs., nonrelativistic results for $1s3s^3S$ 4−74815
two-electron atomic systems, 1s2s ^3S state, nonrelativistic solns. of wave eq., variational perturbation technique 4−59895
universal potential calcs. for ionised states by modified WKB 4−78380
Waller-Hartree spin-free method 4−78316
wave function, represented by one- and two-electron orbitals 4−78319
$Z < 30$, photoelectric cross sections of valence levels, comparison with OPW calcs. 4−72058
AlN, cryst., AO pots. of Al and N determ. 4−69983
Ar^{16+}, origin of Hund's rule investig., energies of $1snl_{max}$ configuration calc. 4−47819
B, atom, X-ray scatt. by bound electrons, form factors 4−74878
BN, cryst., AO pots. of B and N determ., energy gap calc. 4−69983
Be, Fermi hole calcs. for ground state 4−74820
Be atom orthonormalised local energy method 4−59896
C, approx. natural orbital description of 1_s, 1_d and ^3P states 4−51936
C, evaluation of hybridized valence state energies for s-p hybrid orbitals 4−59900
C^+, X-ray scatt. by bound electrons, form factors 4−74878
C^{2+}, reduced-density-matrix variational principle G-matrix strength 4−72022
Cl, X-ray spectral study of role of 3d-orbitals in chemical bonding *(Russian)* 4−43817
Fe, universal pot. calcs. for ionised states, modified WKB method 4−78380
H, linear Bohr-Sommerfeld electron paths 4−74818
H, optimal parameters in expansion of 1s wavefunction in Gaussians 4−59898
H, partially ionised, pair correlation function 4−74923
H, radial wavefunction, matrix elements, new recurrence relation 4−55991
He, $(2s3s)^1S$ state, energy and width calc., Hartree-type eqns. 4−74819
He, electron propagator, photoelectron line spectra calc. 4−63389
He, Fermi hole calcs. for 2^3S state 4−74820
He, formal solution for three body problem in theoretical chemistry 4−55986
He, origin of Hund's rule investig., energies of $1snl_{max}$ configuration calc. 4−47819
He atom, integral-transform trial functions, shape function optimisation 4−74814
He isoelectronic series, variational perturbation calcs., nonrelativistic results for $1s3s^3S$ 4−74815
He to Ne, ground state wave function, Slater-orbitals of non-integral n *(French)* 4−69406
Li isoelectronic series, 1/Z expansion calcs. of $(1s)^22s^2S$ and $(1s)^22p^2P$ states 4−74860
Mn^{2+}, relativistic 3d wavefunction generated by configuration interaction due to spin-orbit coupling 4−78325
Mn^{2+}, zero-field splitting, effect of orbital variation of spin-orbit interaction 4−67171
N, evaluation of hybridized valence state energies for s-p hybrid orbitals 4−59900
Na + Ne^+, gas target, asymm. collisions, K-shell vacancy sharing 4−74910
Ne + Ne^+, asymm. collision, K-shell vacancy sharing 4−74910
Ne^{8+}, origin of Hund's rule investig., energies of $1snl_{max}$ config. calc. 4−47819
O, evaluation of hybridized valence state energies for s-p hybrid orbitals 4−59900
Rb IV, radial integrals from $4s^24p^4 \rightarrow 4s4p^5$ transitions 4−63330
S, X-ray spectral study of role of 3d-orbitals in chemical bonding *(Russian)* 4−43817
Sr V, radial integrals from $4s^24p^4 \rightarrow 4s4p^5$ transitions 4−63330
Tm^{2+}, Tm^{3+}, SCF wave functions ab initio ground state calc. 4−51939

atomic photoelectric effect *see photoemission*

atomic polarisability
alkali-like ion, atomic core polarisation effect on oscillator strengths 4−66292
depolarisation and collision broadening cross sections giving info. on interaction potentials *(French)* 4−51983
dynamic polarisability, approximate methods comparison 4−74843
electric-dipole, Hartree-Fock values for He to No neutral atoms 4−51938
electron-2 electron atom scatt., polarization analysis 4−59958
open shell static dipole polarisability and shielding factors, Hartree-Fock calc. 4−56014
open-shell system, dynamic polarizability by coupled Hartree-Fock perturbation theory 4−59923
random phase approximation, second order optical props. and van der Waals coeffs. 4−66302
SCF perturbation theory using simple model pot., for species with S^2 valence pair 4−43731
Ar, third depolarization virial coeff. calc. 4−60141
Ar ions, static polarisability, calc. and shock tube expt. 4−66303
Ba I, 6s6p $^3P_1$ level, tensor polarizability 4−81717
Be isoelectronic sequence, calc. by finite difference methods 4−59922
C, i.r. spectral determ. of polar tensors in organic mols. 4−74989
D, effect on isotope shift of H and D levels 4−51954
H, i.r. spectral determ. of polar tensors in organic mols. 4−74989
He, atom, dynamic polarisability and long-range dispersion energy calcs. 4−56013
$(^4He\mu)^+$ muonic atom, polarisability contribution to energy levels 4−59980
N, freq. depend. polarisability, R-matrix method 4−74842
O, i.r. spectral determ. of polar tensors in organic mols. 4−74989
^{87}Rb, polarised by optical pumping 4−63338

atomic polarisability continued
^{87}Rb^{+}, polarised in collisions with ^{87}Rb optically pumped atoms 4−63338
^{121}Sb + ^{133}Cs, spin exchange polarisation collision *(German)* 4−56033
Ti IV spectrum, 2000 to 8000 Å, polarisability, ionisation limit 4−51957

atomic power *see nuclear power*

atomic reactors *see nuclear reactors*

atomic scattering factors *see crystal atomic structure; crystallography; lattice dynamics*

atomic spectra
see also atomic excitation; atomic structure; relativistic corrections; Russell-Saunders coupling; Stark effect; Zeeman effect
alkali meta ions, spectral line excitation functions in vacuum u.v., reson. transitions *(Russian)* 4−78353
alkali-like ion, atomic core polarisation effect on oscillator strengths 4−66292
alkaline earths, metastable states prod. by discharge in heat pipe, absorpt. spectra 4−59911
alkaline earths, np^{2} terms effect on singlets, quantum defect anal. 4−63325
atomic transition probabilities, bibliography 4−59919
autoionisation states producing radiative transitions 4−47837
chromospheric type stellar atmospheres effect of redistribution on emission peaks 4−50550
close line resolution for transition freq. difference $\ll$ radiative linewidth *(Russian)* 4−66297
coated bulb technique for atomic r.f. spectroscopy, Zeeman shifts to contaminants 4−42803
collision broadening and depolarisation cross sections, info. on interaction potentials *(French)* 4−51983
conference, European Group for Atomic Spectroscopy 4−43712
Coulomb integrals, free-free integrals in Coulombic field, tables and sum rules 4−71309
emission, absorption and scattering of waves, ambient medium effect 4−59907
excitation transfer between fine structure levels, ang. depend. of sensitised fluoresc. 4−47851
fixed atom, spontaneous radiation in strong field, spatial anisotropy *(Russian)* 4−78343
gauge invariance and relativistic radiative transitions 4−72027
group II elements, $^{3}P_{1} \rightarrow {}^{1}S_{0}$ transition probabilities, relativistic effects 4−56004
Hartree-Fock method, time-depend., excited state-excited state transition densities 4−66287
high resolution spectroscopy with strong Doppler broadening, theoretical aspects 4−63328
highly ionised atoms, astrophysical applications, solar atmosphere 4−43743
I, Pauli violating L- to K-shell transition, anal. 4−43711
inert gas, atoms and ions, Grotrian charts 4−43720
inert gas, plasma afterglow, microwave and mass spectroscopic obs., ion densities 4−60321
inert gas + H^{+}, outer s-shell ionisation, 125-1200 keV 4−59962
i.r. spectral positions determ. from digitally recorded spectra using minicomputer 4−72030
K X-ray emission exchange corrections, relativistic Hartree-Fock soln. 4−56012
L$_{2}$-subshell Coster-Kronig yields at high Z 4−72044
Lamb shift nonrelativistic calc. including retardation effects in photon emission and absorption 4−59905
Lamb-dip, inverted, recoil effects 4−74823
laser spectroscopy, suitable N$_{2}$ dual dual channel Blumlein laser construction details 4−55472
level width effect on Ge(Li) X-ray and γ-ray line shapes 4−78334
light-shift of hydrogenic states 4−59916
line formation in turbulent media, transfer eqn. for profile computation, rel. to stellar spectra 4−50549
line formation in turbulent media rel. to stellar spectra 4−50548
magnetic effects at high quantum number, extended Bohr model 4−51955
magnetic resonance saturation effects r.f. field effects on optically pumped paramagnetic atoms 4−47854
mesic atom transitions, residual muon polarisation, depend. on Z *(Russian)* 4−81741
metals, Xe^{+} bombardment of solid targets, optical radn. spectra 4−74838
momentum-translation approximation, validity for bound states in radiation field 4−55457
multi-level atom, non-LTE line source functions, velocity gradient effect, level coupling 4−43708
multiphoton absorption in e.m. field, perturbation theory 4−69413
multiphoton transitions in hydrogen-like atom induced by e.m. field *(Russian)* 4−78332
multiplet spectra, quasistatic and impact theory in classical limit 4−66295
muonic, $2S_{1/2} \rightarrow 1S_{1/2}$ + one photon decay, and parity violating neutral current interactions 4−74926
N-shell fluorescence and radiative yields for $38 \leqslant Z \leqslant 103$ 4−59934
optical transitions, electron correl. effect in upper and lower states 4−78326
plasma, nonequilibrium, effect on linewidth *(Russian)* 4−81977
radiation emission in external e.m. field *(Russian)* 4−69400
radiative corrections to levels of non-relativistic system 4−66274
random phase approximation, second order optical props. and van der Waals coeffs. 4−66302
rare earth atom, calcs. of widths of 4s and 5s multiplet components 4−74861
rare gas, field induced translational absorpt. theory 4−81711
rare-earth, line spectra evaluation 4−43728
rare-earth, multiweave structure of X-ray and electronic spectra *(Russian)* 4−45377
red shift from quantum electrodynamics in a photon sea 4−51693
resonance combinatorial scattering and fluorescence excited by powerful e.m. pulse *(Russian)* 4−78345
resonance fluorescence, excitation and decay probabilities for coupled excited states 4−51962

atomic spectra continued
self-energies and radiation reaction, all-order perturbation theory of generalized non-relativistic Lamb shift 4−71512
spectral line shape, combined Doppler and press. broadening, classical theory 4−47836
spectroscopy and collision theory, Hartree-Fock-Roothaan eigenchannel calcs. 4−81712
sputtered species, emitted radiation obs. 4−72042
Stieltjes imaging of photoabsorption and dispersion profiles 4−78346
synchrotron radiation application 4−43713
thin vapour, optical absorption line, quasistatic theory 4−43722
threshold excitation spectroscopy, meas. technique 4−59949
transition metal, multiplet component widths for $(3d)^{n}$ and $(4d)^{n}$ configs. 4−74862
transition metal atoms and ions, valence AO exponents, Slater-Condon parameters from spectra 4−69404
transition probabilities, beam-foil spectroscopy 4−43726
tunable dye laser application 4−43727
two-level atoms, intense monochromatic wave propagation *(Russian)* 4−47832
two-photon selective excitation, Doppler shift reduction and isotope separation 4−66282
two-photon X-ray emission, second order matrix element 4−66301
Weisskopf-Wigner type theories, existence 4−71513
X-ray intensity variations in K^{-} mesonic atoms 4−59981
X-ray satellites, $K_{\alpha 1}$, L_{α} and L_{β}, screening consts. 4−66299
Al I, Al II, spectra, series perturbations, superposition of configurations calcs. 4−63334
Al I absorption spectrum, theoretical analysis 4−43734
Al I autoionization lines in solar spectrum, centre-to-limb profiles for 1929-1941 Å region 4−65065
Al III, oscillator strength, photoionisation cross section calcs. 4−66292
Al IV, triply ionised, 2p^{5}3s, 3p, 3d and 4s configs., revised anal. 4−43718
Al XII, Al XIII, X-ray spectra in laser plasma, satellites to resonance transitions 4−51959
Al^{3+}, in laser-produced plasma, intensity anomalies in extreme vacuum u.v. spectrum 4−72031
Ar, 1048 Å resonance radn. transport, correlation effect of absorbed and emitted freq. 4−56007
Ar, excited states formed by α-particle irradiation, near i.r. obs. 4−81736
Ar, spectroscopy and collision theory, Hartree-Fock-Roothaan calcs. 4−81712
Ar, spectrum in 1.2-4.0 μm region 4−43725
Ar discharge, enhancement of light emission by addition of CO 4−60352
Ar I, transition probability between 3p^{5}ns-3p^{5}4p configs., calc. from gyromag. ratio 4−69410
Ar I transition probabilities meas. using new plasma-oven 4−82041
Ar II, plasma, Stark shifts of singly ionised lines 4−59912
Ar II, spectral lines from hollow cathode discharge, interferometric anal. 4−44416
Ar-Ne discharge positive column, cataphoresis, spectra meas. 4−78841
Au, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Au in noble gas matrix, resonance transitions energies and oscillator strengths 4−51951
B I, absorption spectrum, 1350-1900 Å 4−74825
B IV, far u.v. spectrum *(French)* 4−78327
B IV, spectrum and term system 4−72034
Ba, K hypersatellite line energy determ. 4−74841
Ba, oscillator strengths using multi-config. Hartree Fock approx. 4−66285
Ba, spectral line broadening by inert gas 4−66352
Ba I, series of autoionisation resonances in Schumann u.v. converging on Ba II 6^{2}P 4−78347
Ba II, first diffuse series doublet, Ar and the pressure effects 4−43721
Ba II, oscillator strength, photoionisation cross section calcs. 4−66292
BaI, magnetic effects at high quantum number, extended Bohr model 4−51955
Be isoelectronic sequence, bound-bound radiative transition probabilities 4−72060
Be isoelectronic sequence, C I wavefunction oscillator strength calcs. 4−72033
Be-like ion line ratios rel. to electron density in chromosphere-corona transition region 4−73614
Bi, absorption spectrum below 1000 Å 4−59909
Bi, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Bi, equilibrium partial pressure of atoms in gas phase, atomic absorption method *(Russian)* 4−69904
C, relativistic electron beam discharge, near u.v. emission 4−63689
C I multiplets, transition probabilities, visible and u.v., arc-plasma emission 4−47841
C I sequence, dipole and quadrupole integrals for transition probabilities 4−56001
C II, C III line intensities in h.p. plasma *(German)* 4−51974
C III 977 and 1176 Å solar emission and chromosphere-corona transition region 4−76786
C sequence, Z expansion of 1s^{2}2s^{2}2p^{2}-1s^{2}2s^{2}2p^{3} transition 4−51931
CI, absolute transition probability determ. 4−72040
Ca, excitation of spectral lines in discharge tube with hollow cathode 4−63418
Ca, resonance line excitation, Born cross sections 4−51953
Ca, spectral line broadening by inert gas collisions 4−66352
Cd, vapour, high resolution Auger electron spectra 4−66331
Cd II He-Cd laser discharge, perturbation spectroscopy 4−59395
Cd^{+} + He collision, Cd $5^{2}P_{3/2}$, $5^{2}P_{1/2}$ states lifetime and depolarisation, Hanle effect meas. *(French)* 4−47904
Cl II, 500-11000 Å, energy level anal. 4−43719
Cl VI, Cl VII, lifetime meas., beam foil spectra 4−51969
Cl^{n+} + Ne collision, n = 5-15, X-ray emission and fluorescence yield 4−47905

atomic spectra continued
Cs, 8521 Å resonance line perturbed by Ar, semiclassical formalism 4−56009
Cs, asymmetric self-broadening, interaction pots., quasistatic approach 4−59913
Cs, collisional broadening of level crossing signals in $6^2P_{3/2}$ and $7^2P_{3/2}$ states 4−47853
Cs, spectral lines from autoionisation states 4−47837
Cs, width, shift, asymmetry and satellites of D lines perturbed by Xe 4−59915
Cs $6S_{1/2} \rightarrow 6^2P_{1/2}$ perturbed by Ar, effect of ternary collisions on pressure broadening 4−51975
Cs + He(Ar), press. broadening, resonance line shape moment analysis using WKB wave functions 4−51976
^{133}Cs, $6^2P_{1/2}$ state, g_j-factor and magnetic h.f.s. interaction const. 4−78336
^{133}Cs, h.f.s. laboratory expt. 4−73950
^{133}Cs, hyperfine struct. of 10 $^2S_{1/2}$ and 11 $^2S_{1/2}$ states by r.f. spectroscopy 4−59892
Cu, sputtered atoms, light emission props. 4−79824
Cu I, oscillator strengths for spontaneous transitions 4−66286
D, Balmer α line, Rydberg constant determ. 4−56005
D, deuteron polarisation effect on isotope shifts 4−51954
Eu, spectral line broadening in inert gas collisions 4−66293
F, beam-foil meas. of lifetime of $2S_{1/2}$ state 4−63343
F, highly ionised, new lines in x.u.v. spectra 4−47857
F, laser-plasma X-ray spectra of highly ionized atoms 4−43735
F I isolectronic sequence, $2s^22p^k$-$2s2p^{k+1}$ transitions rel. to solar flare spectra 4−43736
F II, radiative lifetime meas. using doubly differentially pumped gas target 4−74919
F VII, F VIII, emission lines obs. in grazing-incidence region, ionisation potentials 4−66284
F VII, laser produced plasma, forbidden transitions 4−78330
F + Xe(H$^+$), collision induced fine struct. transitions in F, semiclassical theory 4−74867
Fe, hollow cathode lamp, spectral atlas *(Russian)* 4−65434
Fe, X-ray spectra, effect of 3-d electrons *(Russian)* 4−47846
Fe I, reflected shock region, meas. of gf-values 4−43723
Fe I and II u.v. lines in shock tube, hook method meas. of transition probabilities 4−59906
Fe I high resolution meas. of z $^5F^0$ and y $^5F^0$ lifetimes 4−74832
Fe I line formation in models of solar-type giants and dwarfs 4−46234
Fe I line statistics 4−66289
Fe II, 4d-4f transition spectrum anal. 4−74837
Fe II interstellar absorption lines in u.v. spectra of four bright stars 4−46218
Fe matrix isolated atoms, Fe(CO)$_5$ in N$_2$, Ar, methane, u.v. and i.r. spectra, 20K 4−43724
Fe solar flare emission lines in 66-171 Å range, transitions, wavelengths and intensities 4−76784
Fe V-Fe VI spectral classification 4−74855
Fe XI number density in excited states, solar coronal conditions 4−70876
Fe XIII and XIV forbidden solar coronal lines, depolarization by proton impact, fine structure cross sections 4−54369
Fe XIV, depolarization cross-sections in proton collision 4−54370
Fe XIX-XXIII, spectral classification, ions in laser produced plasma 4−59910
Fe XIX-XXIV solar flare spectra and S isoelectronic spectra, theory and obs. 4−46155
Fe-group elements, $3d^n4s$-$3d^n4p$ transitions, oscill. strengths calc., CI method 4−69408
Ga V, VI, VII, ground-state term intervals, spectra obs. 180 to 500 A 4−63329
Ge, excited in Xe$^+$ bombardment, optical spectrum 4−74838
H, 2S→2P decay in mag. field, ion collision 4−78376
H, Balmer α line, Rydberg constant determ. 4−56005
H, deuteron polarisation effect on isotope shifts 4−51954
H, Lamb shift nonrelativistic calc. including retardation effects in photon emission and absorption 4−59905
H, multiphoton transitions, correction to Reiss amplitude 4−59917
H, plasma, radiative transfer in Lyman α spectra, self-consistent electron velocity distrib. 4−56514
H, radiative level shift in neoclassical theory 4−56000
H, radiative relax. behind strong shock waves 4−72043
H, spectral line excitation in positive column of stratified discharge 4−66294
H, Stark effect, weak, strong and ultrastrong fields, wave function construction 4−47843
H, transitions in ultrastrong laser field 4−74835
H Balmer spectra excited in dissociative H$_2^+$ collisions with rare gases, polarization 4−60126
H-like atom, relativistic, Stark effect on hyperfine struct. calc. 4−59904
H-like atoms, energy spectrum in strong magnetic field 4−69415
H-like ions in plasma, satellite line spectra in 2-12A range 4−78333
H + e collisions, Balmer cross sections determ., high density at. beam source design 4−81737
^{1}H, Zeeman transitions in hyperfine spectrum, ^{1}H/^{3}H g_j-factor ratio 4−63339
^{3}H, Zeeman transitions in hyperfine spectrum, ^{1}H/^{3}H g_j-factor ratio 4−63339
He, 2^41P_1 level lifetime determ., gas discharge alignment studies 4−74847
He, 2^3p state, lifetime meas. 4−74831
He, dipole oscillator strengths, upper and lower bounds, Hylleraas wavefunctions 4−47844
He, extreme u.v. ang. distrib. and polarisation fraction due to 25 to 150 eV electrons 4−47889
He, in gas discharge at 1 atmosphere, resonance broadening of 7281 Å and 6678 Å lines 4−43757
He, ion continuum in plasma, Lyman step meas., plasma diagnostics 4−75315
He, moderately ionized plasma, emission profiles of laser-induced optical satellite lines 4−51956
He, multiphoton transitions in intense e.m. field 4−74833
He discharge, pulsed, in hollow cathode, spectral lines excitation *(Russian)* 4−63725

atomic spectra continued
He I, laser produced plasma, obs. of forbidden transitions 4−74836
He I, spectral line broadening, including ion dynamic correction 4−72035
He I, Stark profiles of neutral lines, forbidden components 4−47842
He I 4471 Å profiles for B-type stars, improved line-broadening theory 4−65148
He II, plasma line broadening, relaxation theory 4−44171
He II excitation, electron collisional cross sections 4−66337
He II resonance lines, plasma polarization shifts in Z-pinch plasma 4−47834
He isoelectronic sequence, $2^3S_1 \rightarrow 1^1S_0$ transition rates, Dirac-Hartree-Fock calc. 4−63333
He-like ions, magnetic dipole transition probability, leading radiative correction 4−72029
He-like ions in plasma, satellite line spectra in 2-12 A range 4−78333
He-Ne mixture collision-induced i.r. absorption 4−72032
He$^+$, D-F transitions, r.f. induced, n=4 state 4−81720
He$^+$ + Ar, inelastic collisions, vac. u.v. spectral obs. 4−74916
^{3}He + ^{3}He collisions, disorientation of ^{3}He ^{1}D states 4−78355
Hf IV, spectra, obs. of new lines and ionisation pot. calc. 4−63348
Hg, crossing effects in selective reflection in transverse mag. field 4−81719
Hg, in inert gas matrices, v.u.v. absorpt. spectra 4−81709
Hg atom, electron-impact excitation cross sections, $6^3P_{0,1,2}$ level mixing investig. 4−72084
Hg + Kr collision, broadening of Hg resonance line−2537 Å, Jablonski theory 4−43755
^{193m}Hg, determ. of 6s6p $^3P_1$ h.f.s. electric and magnetic dipole constants by level crossing 4−59932
I$^-$ + He, autoionising spectra of I$^-$ 4−43751
In, anti-Stokes Raman scatt., depolarisation ratios 4−72037
In, Raman scatt. cross sections 4−72036
K + N$_2$(H$_2$)(O$_2$)(H$_2$O), 4^2P-doublet quenching and mixing cross sections 4−72073
^{39}K, hyperfine struct. of 7 $^2S_{1/2}$ state meas. by r.f. spectroscopy 4−59892
Kr, Beutler lines, appl. of vacuum u.v. spectroscopy with continuum source 4−42797
Kr, u.v. spectra, 250 keV electron excited, time depend. 4−47893
Kr II, Kr III lines, electron impact excitation cross sections 4−47887
LaI, isotope shift determ. 4−72041
Li, ground state quadrupole oscillator strength distrib., pseudo-spectral method 4−69409
Li, isotopic concentration determ. by emission spectrometry 4−68834
Li isoelectronic sequence, 3s→3p transition, oscillator strengths 4−56002
Li isoelectronic series, 1/Z expansion calcs. of 2s-2p resonance transitions oscill. strength 4−74860
Li$^+$, dipole oscillator strengths, upper and lower bounds, Hylleraas wavefunctions 4−47844
Li$^+$, third harmonic coeff. fully coupled H-F calc. 4−55993
^{5,6}Li II, hollow cathode discharge, h.f.s. and isotope and Lamb shifts 4−78331
^{175}Lu, muonic, pionic, X-ray transitions, quadrupole moments, strong interaction in pionic atoms *(German)* 4−78387
Mg, K Auger spectra, electron ionisation 4−52001
Mg, resonance line excitation, Born cross sections 4−51953
Mg I 4571 A line formation, empirical and synthetic analyses 4−58230
Mg II, oscillator strength, photoionisation cross section calcs. 4−66292
Mg II 2795 and 2803 Å solar resonance line profiles, centre-to-limb analysis *(French)* 4−83176
Mg II equatorial dayglow intensity distrib. TD1-A satellite obs. in 2796-2803 Å range 4−64936
Mg III, excitation of $2p^6$ config. in Mg$^+$ + He collisions 4−74918
Mg XI, Mg XII, X-ray spectra in laser plasma, satellites to resonance transitions 4−51959
Mn, K hypersatellite line energy determ. 4−74841
Mn II interstellar absorption lines in u.v. spectra of four bright stars 4−46218
Mn XVIII, MN XIX, spectral classification, ions in laser produced plasma 4−59910
N I isoelectronic sequence, $2s^22p^k$-$2s2p^{k+1}$ transitions rel. to solar flare spectra 4−43736
N I sequence, dipole and quadrupole integrals for transition probabilities 4−56001
N II, lifetimes of $2p^3$($^1P^0$ and $^1D^0$) and 2p3s $^1P^0$ levels, meas. by beam-foil technique 4−47831
N II, radiative lifetime for cascade-free transitions at 1085 Å 4−63335
N VI, emission lines obs. in grazing-incidence region, ionisation potentials 4−66284
Na, 3S-5S two-photon transition obs. using c.w. dye laser 4−74834
Na, 3s-4d transition, two-photon spectra without Doppler broadening using c.w. dye laser 4−47838
Na, D-doublet, o.t.f., image correction 4−80894
Na, dye laser beam excitation, resonant Stark effect 4−47835
Na, induced atomic fluorescence determ. of electronic transition moment internuclear separation depend. of Na$_2$ 4−43860
Na, K Auger spectrum, electron ionisation 4−52000
Na, Zeeman effect in weak mag. field on S-D transition by two-photon absorpt. *(French)* 4−72048
Na I D-lines, spatial extent of emission around Jupiter's satellite Io 4−68350
Na isoelectronic sequence, 3s→3p transition, oscillator strengths 4−56002
Na vapour, absorpt. spectrum, student expt. 4−77019
^{23}Na, reson. detection, hyperfine struct., isotope shift *(French)* 4−77082
^{23}Na hyperfine structure of $3^2P_{3/2}$ level, time-resolved level-crossing spectroscopy 4−59926
Ne, excited states formed by α-particle irradiation, near i.r. obs. 4−81736
Ne, high resolution electron spectrometry, electronic struct. 4−63363
Ne, metastable state population in Ne-Br$_2$ mixture 4−63344

atomic spectra continued
Ne, spectrum in 1.2-4.0 μm region 4−43725
Ne 0.63 μm line, broadening and shift by discharge current 4−72038
Ne II, radiative lifetime for cascade-free transitions at 462 Å 4−63335
Ne II spectral lines from hollow cathode discharge, interferometric anal. 4−44416
Ne^{8+} in plasma, radiative-Auger transitions, X-ray emission spectra 4−59921
^{21}Ne nuclear alignment observation by changes in linear polarisation of optical transitions 4−51966
Ni I and II experimental oscillator strengths 4−74854
O, beam-foil meas. of lifetime of $2S_{1/2}$ state 4−63343
O, highly ionised, radiative transitions obs. by foil excitation method 4−51968
O I 5577 Å line, N+NO reaction as possible excitation source in aurorae 4−68223
O I forbidden lines, solar temp. and O abundance 4−46170
O I isoelectronic sequence, $2s^2sp^k$-$2s2p^{k+1}$ transitions rel. to solar flare spectra 4−43736
O I lines in tropical nightglow, radiative cascade model for recombining O plasma 4−64935
O I sequence, dipole and quadrupole integrals for transition probabilities 4−56001
O II 7319 Å doublet emissions, Fabry-Perot interferometric meas. 4−58061
O VII, emission lines obs. in grazing-incidence region ionisation potentials 4−66284
O+Ar(Xe), metastable oxygen atom collision-induced emission rate consts. 4−74868
O^+, afterglow, vacuum u.v. detection of electronic states 4−48463
O_2 photoelectron spectrum of forbidden autoionising states on LS coupling basis 4−66311
O^{6+} in plasma, radiative-Auger transitions, X-ray emission spectra 4−59921
OI 6300 Å emission line contamination by OH (9-3) band, night sky high resolution meas. 4−46030
Os, X-ray spectra, effect of 3-d electrons *(Russian)* 4−47846
P V, oscillator strength, photoionisation cross section calcs. 4−66292
P VIII to XIII, optical spectra, intrashell transitions 4−47839
Pb, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Pb, K hypersatellite line energy determ. 4−74841
Pb, L shell ionization in ^{210}Po alpha-decay 4−55797
Pb, metastable level excitation, population, ionisation mechanism investig. 4−72050
Pb II, theoretical oscillator strengths and transition probabilities 4−51950
Rb, optical emission spectra in Kr isolation matrix 4−76313
Rb IV, $4s^24p^4 \rightarrow 4s4p^5$, radial integrals determ. 4−63330
Rb+Ne, fine struct. transitions, quantal close-coupling calcs. 4−72101
$Rb^{87}+Rb^{85}$, depolarisation of Hanle effect spectra by collision broadening 4−74849
^{85}Rb, spin exchange interaction, ground state 0-0 transition, relaxation and freq. shifts 4−56006
^{99,101}Ru, hyperfine struct. meas. in ^5F ground states with atomic beam mag. reson. method 4−72019
Ru, X-ray spectra, effect of 3-d electrons *(Russian)* 4−47846
S ions He-like and Li-like, X-ray, emission spectra, lifetimes of states and transition energies 4−59933
SI, SII, absolute transition probability determ. 4−72040
Si, excited in Xe^+ bombardment, optical spectrum 4−74838
Si, relativistic electron beam discharge, near u.v. emission 4−63689
Si I, II and III, u.v. spectra, radiative lifetimes, absolute oscillator strengths 4−63335
Si I isoelectronic sequences, multiplet oscillator strengths, $3s3p^3$ lifetimes *(French)* 4−66296
Si IV, oscillator strength, photoionisation cross section calcs. 4−66292
Sm soft X-ray appearance potential spectra of M_5 and N_5 levels 4−66300
Sn, metastable level excitation, population, ionisation mechanism investig. 4−72050
Sn II, theoretical oscillator strengths and transition probabilities 4−51950
Sr, multiphoton processes 4−72036
Sr, spectral line broadening by inert gas collisions 4−66352
Sr I, Sr II lines, electron impact excitation cross sections 4−47888
Sr V, $4s^24p^4 \rightarrow 4s4p^5$, radial integrals determ. 4−63330
Sr^+, $5p^2P_{3/2}$ level lifetime, Hanle effect obs., $Sr^+ + Sr$ alignment depolarization 4−72091
Th, Fourier transform spectroscopy, 0.9 to 3 μm, standard wavelengths 4−74828
Th II, energy levels and classified lines in second spectrum 4−74827
^{229}Th, 1 to 3μ, hyperfine structure, magnetic and quadrupole moments *(French)* 4−51952
Ti IV spectrum, 2000 to 8000 Å, polarisability, ionisation limit 4−51957
Ti XVII, spectral classification, ions in laser produced plasma 4−59910
TiXV-TIXIX, intrashell transitions, 110-220 Å spectrum 4−66291
Tl, anti-Stokes Raman scatt., depolarisation ratios 4−72037
Tl, hyperfine filter for 3776 Å reson. line 4−77081
Tl, K hypersatellite line energy determ. 4−74841
Tl, line width ang. depend. rel. to second moment, indirect coupling consts. 4−47829
Tl, Raman scatt. cross sections 4−72036
V, multiply ionised, excitation of spectra by capacitor discharges 4−59908
V XVII-XX, spectral classification, ions in laser produced plasma 4−59910
V XXI, in laser plasma, transitions identification, doubly excited layer *(Russian)* 4−66298
V_V, quadrupole-ionised, spectrum and energy levels, 450-8500Å 4−47833
W IV, sliding-spark discharge, spectrum, ionisation levels 4−72039
Xe, photo-absorption meas. in vacuum u.v. 4−66290

atomic spectra continued
Xe, spontaneous decay investig. by particle-hole model, rate calc. 4−48072
Xe I arc spectrum in visible and i.r. regions, isotope shift obs. 4−47840
Xe I(II) levels, electron impact excitation, meas. of radiative lifetimes 4−78328
$Xe+Ar_{g(l)}$, solvent shifts and excited state pots. 4−56003
^{136}Xe, spectrum in 1.2-4.0 μm region 4−43725
Zn, sputtered atoms. light emission props. 4−79824
Zn I absorption spectrum, structure associated with $3s^2$ subshell photoexcitation, 70 to 105 Å 4−63336
Zn V, Zn VI, ground-state term intervals, spectra obs. 180 to 500 A 4−63329

atomic structure
see also atomic electron correlations; atomic metastable states; atomic orbitals; atomic polarisability; atomic spectra; Hartree-Fock method; Russell-Saunders coupling
actinide series atoms and free ions, low-lying electron configs., relative energies 4−63324
alkali metals, quadrupole shielding and antishielding factors calc. for nd states 4−59894
atomic ground state ds^2 electron config., electronic energy calcs. 4−72023
compressed matter, oscillations of elastic parameters *(Russian)* 4−69402
dispersion energy including effect of size, semi-classical theory 4−59903
electron density in Thomas-Fermi theory, derivation for students 4−62380
electron gas approximation applicability 4−43710
electron shell collective oscillations effective interaction with exchange RPA calc. 4−72016
electron transitions, relativistic effects, theoretical *(Russian)* 4−74822
even-tempered orbitals, molecule-optimised Gaussian bases, applics. 4−52034
even-tempered orbitals, molecule-optimised Gaussian basis 4−52033
excitation energies of closed fermion systems, direct perturbation calc., Green's function approach 4−51947
f-shell, selection rules for G_2 vectors 4−43714
fine and hyperfine structure, beam-foil spectroscopy 4−43716
ground state energy, improved first order perturbative calc. 4−81707
group VIIIA elements, minimum effective radii 4−69398
Hartree-Fock values of coupling constants, polarizabilities, susceptibilities and radii for He to No neutral atoms 4−51938
Hartree-Fock wave functions for neutral atoms from He to Xe 4−55990
heavy atoms, TF model for pat. between charge and neutral atom 4−78320
high resolution spectroscopy with strong Doppler broadening, theoretical aspects 4−63328
hydrogenic atoms, p-, s- and d-state populations, cascading 4−51970
hyperfine constant, exchange polarisation effects 4−63327
hyperspherical coordinate formulation, exact soln. of coupled diff. eqn. set 4−51949
hyperspherical coordinate formulation 4−51946
inertia characteristic approach *(French)* 4−81136
intersecting band model for interaction between closely approaching atomic particles *(Russian)* 4−74879
irreducible tensor operator methods in intermediate-field coupling 4−62660
lanthanide series atoms and free ions, low-lying electron configs., relative energies 4−63324
lanthanides, $4f^n(5d+6s)$ configurations, parametric study *(French)* 4−51935
lanthanides, $4f^n(5d+6s)$ configurations, spectral analysis *(French)* 4−51934
low-lying states, Hylleraas-Undheim-Pekeris method, convergence, orthogonality conds. 4−74817
metallic atoms and ions, Na to Ga, screening effects, electronic densities and energies by Hartree-Fock method *(French)* 4−51944
model potential calcs. 4−55989
multi-level atom, non-LTE line source functions, velocity gradient effect, level coupling 4−43708
multipole screening of hydrogen-like atom nuclei, containing relativistic corrections, effect on proton g-factors *(Russian)* 4−47447
muonic atom, highly excited, energy levels 4−78384
one-particle tensor operator reduced motion elements evaluation for jj-coupling configs., computer program 4−55304
pseudopotentials, improved Hellmann-type 4−63320
radii, identification of atomic radii with internuclear electronic density minima 4−72017
rare earth metals, multipler splittings of 4s and 5s core levels 4−81715
recoil corrections for strong nuclear field 4−51958
self-consistent analytic potential, ab initio calcs. 4−63322
student experiments 4−73957
superheavy atoms, reduced Hamiltonian description 4−66354
Thomas-Fermi model, two centre, for adiabatic ion atom collisions 4−63358
Thomas-Fermi-Dirac electron density, oscillations 4−51945
three particle model, bound states and resonances investigated by complex rotation method 4−63360
two electron system, independ. particle model, Ten Hoor type function 4−74812
wavefunction representation, one- and two-electron orbitals, energy of system expression, structure appl. 4−78319
X-ray spectra, $K_{\alpha1}$, L_α and L_β satellites, screening consts. 4−66299
zero parameter formula for atomic K-levels 4−74840
Al, free neutral atom, internal partition function, 0-15000K 4−47820
Al and Al^{n+}, s, p, d valence states, energy evaluated *(French)* 4−55985
Al IV, triply ionised, $2p^53s$, 3p, 3d and 4s configs., revised anal. 4−43718
Ar excited levels, lifetimes and g-factors from magnetic resonance measurements *(French)* 4−51961
Ar^{16+}, origin of Hund's rule investig., energies of $1snl_{max}$ configuration calc. 4−47819

atomic structure continued
- Ar(e,2e), config. interaction anal., spectroscopic factor determ. 4−47894
- Be, 1s-hole condition, non-empirical calc. *(Russian)* 4−43709
- Co, free neutral atom, internal partition function, 0-15000K 4−47820
- Cr, free neutral atom, internal partition function, 0-15000K 4−47820
- ^{133}Cs, $6^2P_{1/2}$ state, g_j-factor and magnetic h.f.s. interaction const. 4−78336
- Dy I, atomic beam mag. resonance, hyperfine structure, nuclear ground state mag. dipole moments 4−81706
- F, atom, double quantum transition in e.p.r. 4−63340
- Fe, free neutral atom, internal partition function, 0-15000K 4−47820
- Fe porphyrin complexes, relative sizes of high and low spin states 4−69399
- Fe^{3+}, nuclear quadrupole antishielding factor, many-body perturbation theory 4−47822
- Ga V, VI, VII, ground-state term intervals, spectra obs. 180 to 500 A 4−63329
- H, energy levels, group O_4 representations 4−51930
- H, energy levels in quantum mech. with nonneg. distrib. function in phase space, Lamb shift *(French)* 4−72015
- H, hyperfine, magnetic displacement, effect of linear transitions 4−73971
- H, partially ionised, ground state density 4−74923
- H, symmetry, factorization of group O_4 4−51929
- H^-, energy spectrum in strong magnetic field, binding energy calc. 4−47824
- He, energy levels, group O_4 representations 4−51930
- He, ground-state energies, Brillouin-Wigner perturbation calc. 4−78402
- He, origin of Hund's rule investig., energies of $1snl_{max}$ config. calc. 4−47819
- He 2^3P^- state, eigenenergy calc. with Faddeev equations 4−63331
- He degenerate magnetic sublevels, scattered electron-photon ang. correl. obs. 4−72082
- He isoelectronic sequence, electrostatic pot. boundary at nucleus, nuclear diamag. screening 4−51933
- $^4He^+$, excited states, fine struct. obs. by fast beam r.f. resonance 4−66275
- Hg, 7^3S_1 state lifetime, 9^1P_1-7^3S_1-6^3P_1 cascade coincidence method 4−59893
- ^{193}Hg, hyperfine structure, isotope shift, Zeeman-scanned optical pumping method 4−59918
- Ho II, $4f^n5d$ configuration, $f^{11}d$ energy levels *(French)* 4−51934
- K vapour, $4P_{1/2}$ level, influence on stimulated parametric scattering *(Russian)* 4−66305
- Li, energy level lower bounds, intermediate hamiltonian method 4−55987
- Li I, interaction energy of photoelectron with nucleus, ionisation potential 4−47821
- Li isoelectronic sequence, electrostatic pot. boundary at nucleus, nuclear diamag. screening 4−51933
- Mg and Mg^{n+}, s, p, d valence states, energy evaluated, electron affinity estimated *(French)* 4−55985
- Mg photoionisation of (3s, $3p{:}^1P$) state, autoionising states 4−66309
- Mn, free neutral atom, internal partition function, 0-15000K 4−47820
- Mn III $3d^5$, spin-dependent interactions, energy level calcs. 4−66276
- Na atom, laser beam excitation, h.f.s. of $5^2S_{1/2}$ level by two step excitation 4−66307
- Na I, interaction energy of photoelectron with nucleus, ionisation potential 4−47821
- ^{23}Na hyperfine structure of $3^2P_{3/2}$ level, time-resolved level-crossing spectroscopy 4−59926
- Ne, high resolution electron spectrometry, electronic struct. 4−63363
- Ne^{8+}, origin of Hund's rule investig., energies of $1snl_{max}$ config. calc. 4−47819
- Ni. free neutral atom, internal partition function, 0-15000K 4−47820
- O, resonance meas. by electron transmission spectroscopy 4−74899
- Rb, 4^2D state hyperfine Hamiltonian, cascade anticrossing spectroscopy 4−56017
- ^{99,101}Ru, hyperfine struct. meas. in ^5F ground states with atomic beam mag. reson. method 4−72019
- Si and Si^{n+}, s, p, d valence states, energy evaluated *(French)* 4−55985
- Sr, level lifetimes, oscillator strengths 4−47830
- Tb II, $4f^n5d$ configuration, $f^{11}d$ energy levels *(French)* 4−51934
- Th II, energy levels and classified lines in second spectrum 4−74827
- ^{229}Th, Fourier spectroscopic study, 1 to 3 μ, configuration mixing *(French)* 4−51952
- Ti, free neutral atom, internal partition function, 0-15000K 4−47820
- V_V, quadrupole-ionised, spectrum and energy levels, 450-8500Å 4−47833
- Xe excited levels, lifetimes and g-factors from magnetic resonance measurements *(French)* 4−51961
- Zn V, Zn VI, ground-state term intervals, spectra obs. 180 to 500 A 4−63329

atomic structure, crystals *see crystal atomic structure*

atomic weight *see atomic mass*

atoms
- *see also exotic atoms; helium atoms; hydrogen neutral atoms; mesic and muonic atoms; positronium*
- No entries

attaching *see joining processes*

attenuation *see absorption*

attenuation measurement
- *see also loss measurement*
- adjustable slot length coupler as calculable attenuation standard 4−65357
- millimetre and submillimetre waves, propagation through atmosphere 4−64927
- rain, at 15.3 GHz, using transportable earth station 4−61760

attenuators
- automatic, digital, for use with potentiometric chart recorders 4−51105

attenuators continued
- laser beam attenuator, variable, propylene or propane gas cell, for TEA CO_2 laser 4−46710
- quartz i.r. attenuator with water-cooled Fresnel reflection cuvettes 4−54960

attitude control
- Algonguin Park 46 m radiotelescope, data acquisition and control system 4−62255
- Effelsberg 100 m radiotelescope computer control system 4−62256
- radio-telescope control in automated observatory 4−62220
- radioastronomy automation, telescope and receiver control, data processing 4−62221
- radiotelescope and receiver control, Charlottesville, USA, conference 4−62219

audio acoustics
- *see also audio recording; hearing; speech*
- binaural interactions in cat and man, masking level differences, interaural correlation 4−73899
- binaural masking level differences, pulse train signals of differing interaural correl. 4−73902
- binaural masking-level difference, interaural delays in complex waveforms, lateralization 4−73898
- concert hall transparency and spatial comparison based on reverberation time *(German)* 4−71143
- impulse measurement device, outer ear transfer functions *(German)* 4−65553
- intensity and frequency discrimination in humans, decision-making processes 4−73900
- interaural phase differences, lateral discrimination 4−73903
- loudness summation beween tones from two loudspeakers 4−80790
- perceived sound quality, judgements and dimension analysis 4−54759
- signal onset and offset time disparities, interaural difference thresholds expts. 4−73901
- sound localization, strong and weak sounds, front/rear discrimination 4−76953
- tones and noise, aversion levels, sound press. levels in humans 4−76951

audio equipment
- *see also gramophones; loudspeakers; microphones; pick-ups*
- No entries

audio recording
- laser light modulator designing for photographic sound recording *(Russian)* 4−77117
- photographic sound records, variable area, math. models *(Russian)* 4−65477

auditory activity *see hearing*

auditory perception *see hearing*

Auger effect
- *see also atomic spectra*
- adsorbed layer analysis, S on Ni(111), comparison with ion backscatt. 4−56966
- atomic L and M shell electron spectroscopy of Si, P, S, Cl, Ti, Br and Sn 4−63368
- Auger electron energy shifts in heavy-ion collisions 4−66346
- Auger satellite energy shifts 4−63349
- ceramic, fracture surface examination 4−67921
- chrome steel oxide films, Auger emission analysis profile 4−67689
- Coster-Kronig transitions in ionisation of surface atoms 4−76346
- electron emission anal. in model with incomplete relaxation 4−76350
- electron escape depth energy depend. 4−67687
- electron images in SEM 4−77308
- electron spectroscopy, review 4−79828
- electron spectroscopy appl. to surface studies, review 4−76362
- excited atom near solid surface, many body effects in Auger deexcitation 4−64128
- ferro-alloy surfaces, chemisorption and oxidation exam. using AES with proton-excited X-ray emission 4−73224
- gating circuit for Auger electron spectroscopy 4−58954
- glass film, spin-on, Auger determ. of O_2/Si ratio 4−58992
- K-spectra edge shape of free-electron metals, broadening mechanisms 4−45383
- LEED-Auger apparatus, u.h.v. cleavage device 4−52665
- light metals, plasmon satellites in Auger spectra 4−53556
- materials testing, Auger spectroscopy *(Polish)* 4−70597
- metal, origin of non-induced Auger electron emission 4−82781
- metal oxide surfaces, chemical shifts in photo-excited Auger spectra 4−53574
- molybdenite, surface deformation caused by abrasion, electron techniques *(Japanese)* 4−52970
- N-shell transition rate calc. for $38 \leqslant Z \leqslant 103$ 4−59934
- polar solids and gases, phonon broadening of electron spectra 4−82788
- polymer films formed on metals in sliding contact 4−75567
- rare earth atom, calcs. of widths of 4s and 5s multiplet components 4−74861
- scanning Auger microanalysis applics. 4−77306
- secondary-electron yield meas. using cylindrical Auger spectrometers 4−68799
- signal strength corrections for modulation amplitude distortion in 4-grid pot. energy analyser 4−74183
- spectrometer, improvement employing concentric hemispheres 4−46945
- spectroscopy, literature review, including techniques, instrumentation, struct. determ., surface chem. 4−81066
- stainless steel and Bi/Cu samples Auger analysis *(German)* 4−81036
- steel, surface chem., ion scatt. and Auger electron spectrometry comparison 4−77310
- surface analysis by combined X-ray photoelectron and Auger electron spectra 4−42960
- surface atomic densities determination technique 4−49510
- surface characterisation by Auger electron spectrometry 4−76349
- three-dimensional analysis by Auger electron and secondary ion mass spectra 4−53628
- three-dimensional elemental analysis by ion sputter etching with scanning Auger microprobe electron spectroscopy 4−51219

Auger effect continued
transition metal atom, $(3d)^n$ and $(4d)^n$ configs., calcs. of widths of multiplet components 4−74862
X-ray ionisation cross-sections, ionisation equilib. eqns. modified by Auger transitions 4−69425
Ag-Au, work function meas., comp. depend. 4−75946
Al, damage characteriz. by photoemission, ellipsometry and Auger spectra 4−53781
Al, electron escape depths meas. 4−76345
Al, internal photoemission contrib. to KLM Auger spectra determ. 4−76365
Al, $L_{2,3}$ emission band satellites, double ionisation process 4−70383
Al, valence-band Auger-electron spectra investigation 4−49517
Al_2O_3, photoelectron and Auger electron line attenuation meas. 4−57669
Al(100), Al(111), adsorption of Na obs. 4−75695
^{241}Am, K-Auger spectra meas. 4−78001
Ar, multi-ionisation, high energy electron impact 4−72087
Ar electron emission energy distrib., L-shell excitation 4−78367
$Ar + H^+$, 22-300 keV collisions, $L_{2,3}$ Auger emission 4−81734
$Ar + He^+(D^+)(H_2^+)$, L-shell ionization by 50-600 keV ion impact 4−74913
Au, (111) and (110) faces, adsorpt. and surface alloying of Pb monolayers 4−52992
Au, condensed on NaCl and amorphous C, thickness depend. 4−61269
Au, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Au, ion plated on Cu, composition profile anal. by AES and SIMS during Xe ion bombard. 4−74174
Be, on polycryst. Cu, excited by backscatt. electrons 4−53554
Be surface, and oxidation effects 4−79831
Bi, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Bi_2Te_3, u.v. photoemission, matrix element depend. of Auger decay 4−79848
C, atomic, KLL Auger energies calc. 4−72057
C_3O_2 molecule, Auger electron spectrum 4−52252
Cd, vapour, high resolution Auger electron spectra 4−66331
$^{57}Co^{2+}$, in $FeCl_3$, Auger cascade investig. by ^{57}Fe Mossbauer spectroscopy 4−49280
Cu, atomic M-shell vacancy states, X-ray photoelectron and Auger spectra 4−57668
Cu:S surface, Pb deposition, quantitative Auger electron spectroscopy using co-adsorption 4−67100
Fe, intergranular fracture obs. by Auger spectroscopy 4−45672
Fe(100), Fe(110) faces LEED-AES investigation of oxidation 4−75720
Fe(100), initial oxidation process 4−48868
$Ga_{1-x}Al_xAs$ superlattice, profiling by Auger electron spectroscopy 4−57692
GaAs, (100) surface, clean and Cs-coated *(Russian)* 4−48822
GaAs, (111) annealed surfaces, AES obs. of As vacancies 4−67690
GaAs, surface stoichiometry and struct. during growth 4−56947
Ge, Auger recomb. rate calc. 4−69984
$H^+ + He$, parametrization of electron energy spectra anal. of reson. profile of $2s^2\,{}^1S$ 4−52002
$Hg_{0.8}Cd_{0.2}Te$, Auger limited carrier lifetimes, photocond. meas. 4−60828
InAs, epitaxial, minority carrier lifetime meas., Auger recombination 4−45024
Kr, electron impact ionisation, 3d inner shell alignment obs. 4−74897
Li, soft x-ray transition rates, orbital relax. calcs. 4−61266
Mg, internal photoemission contrib. to KLM Auger spectra determ. 4−76365
Mg, oxidised, interfacial Auger transitions obs. 4−57656
Mg atom, K Auger spectra, electron ionisation 4−52001
$Mo{:}NH_3$, chemisorption, K-LL Auger spectra 4−73225
N_2, K vacancy production, keV collisions with Na^+, Na^{2+}, Ne^+ and Ne^{2+} 4−47902
Na, atom, K Auger spectrum, electron ionisation 4−52000
Na, effects of extra atomic relax. 4−53562
Na, electron interaction effect on spectra 4−76351
Na, internal photoemission contrib. to KLM Auger spectra determ. 4−76365
Na, oxidised, interfacial Auger transitions obs. 4−57656
NaF, effects of extra atomic relax. 4−53562
Ne, K vacancy production, keV collisions with Na^+, Na^{2+}, Ne^+ and Ne^{2+} 4−47902
Ne, K-Auger electron spectrum, O^{6+} and O^{8+} collisionally induced 4−52004
Ne, multi-ionisation, high energy electron impact 4−72087
$Ne^+ + Na(Ne)(O_2)(N_2)$, gas targets, asymm. collisions, K-shell vacancy sharing, electron spectra obs. 4−74910
Ne^{8+} in plasma, radiative-Auger transitions, X-ray emission 4−59921
Ni, adsorption of H_2, obs. 4−67097
Ni alloys, intergranular embrittlement by sulphur, Auger spectra obs. 4−76505
Ni surface, CO adsorpt., build-up of surface carbon layers investig. 4−75692
Ni-C alloys, surface C segregation, surface phase transition obs 4−56948
NiO(100), temp. depend. of low energy Auger electron spectrum 4−67692
Ni(100), diffraction peaks in secondary-electron energy spectra 4−76347
Ni(100), interaction with O_2, kinetics 4−48869
Ni(111), interaction with O_2, kinetics 4−48870
O atom, KLL Auger energies calc. 4−72057
O/Cr surface ratio determ., correl. with wetting behaviour of liquid Na on Nimonic PE16 4−81618
O^{6+} in plasma, radiative-Auger transitions, X-ray emission 4−59921
$O^{n+} + O_2$ (n=4-8), secondary electron emission, 30 MeV 4−63371
P, $L_{2,3}$ emission band satellites, double ionisation process 4−70383
Pb, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Pd_2Si film, growth kinetics and comp., Auger electron spectra obs. 4−76391

Auger effect continued
Pt surface, adsorpt. of O_2, LEED, Auger spectroscopy, work funct. investigs. *(French)* 4−56988
Pt-Si system, composition profiles of CVD Pt and PtSi 4−67137
Si, $L_{2,3}$ emission band satellites, double ionisation process 4−70383
SiO_2 on $Al_xGa_{(1-x)}As$, deposition and Auger anal. 4−57720
$SiO_2{:}P$, concentration profile, by Auger spectroscopy 4−45453
Si(100), adsorption, of Cs and O_2, struct. obs. 4−56982
Si(111) and (100), adsorption of O_2, surface struct. and adsorbate coverage determ. 4−75699
SnO, substrate for nematic liq. crystals, impurity layer obs. 4−78902
Ta(100), chemisorption surface struct. 4−48856
Ti and TiO surface comparison using AES and soft X-ray APS 4−73223
TiO_2, spectral changes due to incident electron beam interaction 4−77309
W, coadsorption of Cs and O on (100) single crysts. *(French)* 4−45392
W, surface state Auger emission 4−53561
W(100) surface, internal adsorption of S and P atoms obs. 4−56919
W(110), adsorbed I_2 4−48844
W(112) surface, O adsorption, p(1 × 4) surface struct., combined LEED/RHEED Auger obs. 4−63983
Xe, multi-ionisation, high energy electron impact 4−72087
Xe, solid state broadening effects in $M_{4,5}N_{4,5}N_{4,5}$ Auger spectrum 4−67691
Zn, atomic M-shell vacancy states, X-ray photoelectron and Auger spectra 4−57668
Zn, effects of extra atomic relax. 4−53562
Zn, free atoms, $L_{2,3}MM$, electron impact excitation 4−56037
ZnF_2, effects of extra atomic relax. 4−53562
Auger electrons *see Auger effect*
Auger showers *see cosmic ray showers and bursts*
Auger spectra *see Auger effect*
Auger spectroscopy *see Auger effect*
aurora
see also airglow; atmospheric electron precipitation; atmospheric proton precipitation; atmospheric spectra
absorption storms, HF propagation, field strengths 4−54253
auroral spectrum emissions theory 4−64928
breakup aurora, low altitude acceleration of electrons 4−50315
conjugate stable subauroral red arcs, 1967, Sept. 28-30 obs. 4−64932
coruscation of auroral particle flux at College, Alaska, correlation with radiowave absorption 4−46059
current systems in auroral oval and polar cap during moderate magnetospheric activity 4−73562
Dapp satellite photographic aurora detect. 4−68210
dayside activity rel. to substorm expansion 4−76735
electron and proton spectrometry apparatus for meas. in 0.4 to 30 keV range *(French)* 4−65533
electron interaction with atmosphere, spectral degradations backscatter, optical emission, ionization 4−50316
electron precipitation and auroral oval position determ. method of representation 4−46050
field aligned currents and auroral electrojet 4−83111
IBC class II aurora, ion composition meas. 4−70761
IBC class II aurora, ion composition model 4−70762
infrasonic wave obs., in Antarctica, using 7 microphone system 4−83140
interplanetary magnetic field sector structure, effect on auroral activity 4−68216
ionospheric ion flow and related convective electric fields near auroral arc 4−70776
i.r. processes in auroral zone, band enhancement due to electron precipitation or electric fields 4−50321
longitudinal component in auroral activity 4−64931
low latitude, spectrometer for physico chemical reactions, obs. *(French)* 4−73578
magnetic substorm, 1968, December 24, magnetic disturbance due to auroral electrons 4−54264
magnetospheric physics, history and recent progress 4−64973
magnetospheric substorm, plasma processes and auroral breakup 4−50360
midday red aurora at South Pole, 1972 August 5 4−70764
night sky brightness 4−54507
non-uniform glow aurora, rocket meas. of electron precipitation intensities 4−70768
north polar region, auroral substorm obs. from DAPP satellite 4−50314
orientation of auroral arcs 4−54254
particle collimation by time varying acceleration 4−76733
photometry, ground based meas., calibration, 3200-7500 Å 4−54330
planetary wave struct. in auroral region 4−76731
radio aurora backscatter, HF and VHF obs. 4−50322
radio auroral backscatter signals, Doppler shift 4−73565
radio emissions in auroral ionosphere, bursts and SVC type 4−54262
rocket borne mechanical flying spot scanner for aurora imaging 4−65003
SAR arc altitude determ., Rees' method 4−46058
SAR arc formation by magnetospheric heat conduction, VHF ionospheric scintillation obs. 4−83112
stable auroral red arc properties from measurable parameters 4−46123
visual aurora, v.h.f. radar backscatter and electron trapping boundary 4−64966
X-ray modulation by atmospheric sound waves 4−54245
X-ray spectra, Monte-Carlo simulation *(French)* 4−57996
$H\beta$ emission in postbreakup auroral glow and proton precipitation 4−61827
$H\beta$ signal contamination sources in interference filter scanning photometry 4−58062
$H\beta$ variations rel. to prebreakup H arc 4−58063
^3He, origin in atmosphere 4−61835
O I 5577 Å line, N + NO reaction as possible excitation source in aurorae 4−68223
auroral ionisation *see aurora*
austenite *see iron alloys; steel*

autoionisation
see also Auger effect
anthracene, molecular crystals, data, for bandgap determ. 4−79285
atomic spectroscopy and collision theory, Hartree-Fock-Roothaan eigenchannel calcs. 4−81712
atomic systems, weakly bound electron detachment in slow collisions *(Russian)* 4−66325
molecule, radiative and nonradiative processes, review 4−48078
Na^+-Ne collisions 80-320 eV relative energy of motion, production of autoionizing states 4−47903
Penning ionisation, review of theory and experiment 4−72069
positron, exotic at. phenomena, high Z-elements, quantum electrodynamics 4−78385
spectra obs. from atomic autoionisation states 4−47837
tetracene, data, for bandgap determ. 4−79285
Ar, metastable, near-threshold photoionisation, autoionisation effect 4−72063
Ar, spectroscopy and collision theory, Hartree-Fock-Roothaan calcs. 4−81712
Ba I, series of autoionisation resonances in Schumann u.v. converging on Ba II 6^2P 4−78347
Ba^+, electron ionisation cross section, autoionisation threshold 4−74894
Br,Br^-, collisional excitation, autoionisating and autodetaching states 4−78361
CO, photoelectron spectra, vibr. transitions, autoionisation contrib. 4−56292
Cs, spectral lines from autoionisation states 4−47837
D_2 autoionisation final states energy distributions 4−69527
DBr, u.v. spectra, 800-1000Å, assignment of autoionising Rydberg states 4−48002
F^-, autodetaching states, collisional excitation method 4−66317
F^-, autoionising states, collisional excitation method 4−66317
H^-, autoionisation states, stabilization method 4−47865
H^-, autoionisation states, stabilisation method 4−78350
H^- photodetachment spectrum rel. to diffuse interstellar lines 4−80651
H^- + He(Ar)(H_2), collisionally produced autodetaching states, electron energy spectra 4−56042
H_2 autoionisation final states energy distributions 4−69527
H_2^- resonance state energies calc. by stabilization method 4−43738
HBr, u.v. spectra, 800-1000Å, assignment of autoionising Rydberg states 4−48002
He, autoionisation states, stabilization method 4−47865
He, autoionisation states, stabilisation method 4−78350
He, autoionization resonances, applic. of Fano CI theory 4−63352
He, electron impact ionisation, reson. features of autoionising states, theory 4−78366
He, resonant structures associated with low-lying ^1S, ^1P, ^3P and ^1D states 4−63351
He^- resonance state energies calc. by stabilization method 4−43738
^{203}Hg beta-decay, K-shell autoionization 4−59718
I^- + He, autoionising spectra of I^- 4−43751
^{114}In β^- decay, K-shell autoionization probability 4−63113
Kr, metastable, near-threshold photoionisation, autoionisation effect 4−72063
Li isoelectronic sequence, decay of $^4P^o5/2$ states 4−74859
Mg photoionisation of (3s, 3p:^1P) state, autoionising states 4−66309
N, autoionising states, electron spectroscopy 4−66310
N_2, photoelectron spectra, vibr. transitions, autoionisation contrib. 4−56292
O_2, slow electron attachment at very high pressures of N_2, ethane and ethylene 4−52273
O_2, vibration of autoionizing states in the electroionization spectrum 4−60120
O_2 photoelectron spectrum of forbidden autoionising states on LS coupling basis 4−66311
^{210}Po, alpha decay, K- and L-shell autoionisation probabilities 4−63116
S^{13+}, metastable $^4P^0$ state lifetime and binding energy, autoionizing decay after foil excitation 4−56022
^{204}Tl→^{204}Pb(^{204}Hg), K-shell autoionisation during β-decay 4−66145

automata theory
see also finite automata
biologically motivated, and automaton motivated biological research 4−80678
biologically motivated automata theory, conf., McLean, Va., USA (19-21 June 1974) 4−80677
dynamics and language in biology 4−80681
L systems in their biological context 4−80679
neural network behind the basilar membrane, subsystem study 4−80718
unary algebras, parallel configuration operations *(Russian)* 4−71079

automatic checkout *see automatic testing*

automatic control
activation analysis, automatic counting system 4−55146
amateur film camera with preset delay on starting *(German)* 4−77114
attenuator, for use with potentiometric chart recorders 4−51105
automated computer-controlled meas. systems, review 4−65552
chemical analysis, instant interfacing, multiphasic design discussed 4−55131
clinical laboratory automation, trends *(German)* 4−81073
Czochralski crystal growth equipment *(German)* 4−67717
diagnostic ultrasonics, automatic sensitivity control 4−68532
electroheat processes, a.c. plasma torch, dynamic electroheat model 4−56529
film measuring apparatus KAMA, bubble chamber appl. 4−77209
gas chromatography, integration of temp. programmer with automatic sample injector using relay circuit 4−42950
leucocyte metabolism, meas. system 4−68523
machine tools height control using gas laser *(German)* 4−80931
pressure, in gas solubility meas. apparatus 4−54856
Raman spectrophotometer, programmed sample carrier 4−58967
scanning electron microscope of high resolution power, features 4−81034
space light and radiation distrib. photometry, with computer-aided analysis *(German)* 4−46654

automatic control continued
spectrochemical analysis, determ. of As in atm. particulate matter 4−51202
targets alignment 4−77156
Toepler pumps, photoconductive cells as mercury level sensors 4−46615
Tokamak TO-I, automatic system for equil. control 4−44352
Van de Graaff generator, 500 kV automatic running system 4−68735
viscometer, timer for *(Russian)* 4−46978
waveguide power standards, automated calibration system 4−65355
X-ray spectrometer, multichannel, fully automatic, for air pollution meas. *(German)* 4−83353
CO_2 laser, automatic freq. stabilized, control circuit parameters determ. *(German)* 4−43307

automatic data processing *see data processing*

automatic frequency control
atomic clock resonant cavity, automatic tuning devices *(French)* 4−65331
beat frequency detector, for cyclotron control, error sources *(Italian)* 4−42854
He-Ne laser freq. stabilisation at $\lambda=0.63\mu$ w.r.t. generation freq. $\lambda=3.39\mu$ 4−55470

automatic gain control
plastic scintillator, control circuit for scintillation probe 4−55086
spectrophotometer, i.r. grating, SPECORD 75 IR 4−74051

automatic test equipment
colour test apparatus 4−74177
for corrosion cracking under static or pulsating load 4−67975
Instron Model 1122 machine *(German, English)* 4−53950
materials testing, review 4−64664
semiconductor concentration profiles obs. *(Czech)* 4−64512
servo-controlled machines for stress state simulation during plane wave loading 4−76558
standard cell test facility, 12 years' performance of automatic system 4−65340

automatic testing
standard cell test facility, 12 years' performance of automatic system 4−65340
standard cell voltage meas. automation, prototype crossbar switching system 4−65339
stress state simulation during plane wave loading using servo-controlled testing machines 4−76558
u.s. flaw detection, false signal probabilities, effect of noise 4−57806

automobiles
a.c. generators, e.m. parameters selection *(Russian)* 4−47264

avalanche diodes
see also electron avalanches; IMPATT devices
injection laser, with simple avalanche transistor modulator, subnanosecond rise time pulse 4−47358
radiation monitoring, description of large area reach-through device 4−46812
GaAs, Schottky barrier avalanche photodiodes, obs. of unequal electron and hole impact ionisation coeffs. 4−60800
GaAs:Zn bolometric detection of 35 GHz u.s. radiation 4−68625

avalanches, electron *see electron avalanches*

avogadro's number *see constants*

axicons *see lenses*

backscatter
see also particle backscattering
atmospheric molecular and aerosol backscatter, laser determ. *(Russian)* 4−61941
atmospheric near i.r. radiation, backscatter by artificially-formed clouds *(Russian)* 4−54218
auroral backscatter signals, Doppler shift 4−73565
e.m. near-field measurement, probe backscattering effect, scalar model 4−43230
e.m. stimulated Brillouin backscattering from laser produced plasma 4−72360
e.m. wave, linearly polarised, h.f. backscattering from elliptic metal plate 4−55434
gamma ray, surface density gauge, eqn., count rate rel. to density 4−73982
gamma-ray, density meas., comp. errors, elimination possibilities 4−73983
gamma-ray backscatter in special geometry, approx. calcs. *(Czech)* 4−69396
h.f. scattering from finite circular cylinder 4−71483
mesospheric v.h.f. backscatter studies using Jicamarca incoherent-scatter radar 4−64939
ocean wave slope spectra determ. by airborne radar 4−80420
plasma, laser produced, Brillouin backscattering and parametric double resonance 4−48425
positrons, from thick targets, coeff. calc. using segment model, Z=6-79, 0.1-20 MeV 4−55035
radio aurora backscatter, HF and VHF obs. 4−50322
short gravity-capillary wind waves, microwave c.w. Doppler spectra 4−80312
short pulse response for surface waves from dielectric spheres 4−71481
statistically uneven surface, acoustic scattering diagrams *(Russian)* 4−42738
Venus, radar backscattering at oblique incidence at 70 cm 4−54407
v.h.f. radar backscatter, electron trapping boundary and visual aurora 4−64966

backward wave oscillations *see backward wave tubes; electromagnetic oscillations*

backward wave tubes
see also carcinotrons
No entries

bagging *see packaging*

balanced amplifiers *see differential amplifiers*

balanced input amplifiers *see differential amplifiers*

balances
see also weighing
bakebale vacuum microbalance, metal oxidation kinetics determ. 4−67121

balances continued
friction coefficient of polymer monofilaments determ. using ADV-200 analytical balance 4−42727
Knudsen-effusion-torsion dynamic balance, Ag v.p. at 1160 to 1360K 4−65407
magnetic, for mag. susceptibility meas. *(Bulgarian)* 4−51116
microbalance techniques, conference, New York (1973) 4−65377
microbalances, use of radioactive source in discharging e.s. build-up 4−65480
microthermobalance coupled with X-ray diffraction apparatus 4−65581
piezoelectric quartz crystal, r.f. voltage 4−42702
quartz crystal microbalance, use as deposition rate monitor for high-temp. matrix isolation studies 4−68805
single pan analytical and microanalytical, appl. to density meas. 4−71294
thermomicrobalance use in determ. nonstoichiometry in complex oxide systems 4−65582
vacuum microbalance applications 4−65410

ball lightning *see lightning*

ballistics
see also Impact; military equipment
launching problems, oscillatory motion of object in planetary atmosphere *(Russian)* 4−51310
minimum ballistic factor missile shapes for variable skin friction coeff. 4−75125
multistage rockets, eqn. of motion and maximum speed, optimum staging 4−58683
perforation of projectile in metallic targets, experimental investigation 4−45614
perforation of projectiles in metallic plates, mathematical model 4−45613
projectile motion expt. for classroom 4−68595

balloons
see also aircraft
satellite balloon 1963-30D, radiation pressure and atmospheric effects on orbit 4−61980
sounding, automatic tracking radar, portable Zephyr system *(French)* 4−64991
swing meas. of payload rel. to rate of ascent 4−65002
tethered, multi-stage 4−59081
trajectories, numerical prediction based on radiosonde 4−58025
wind measurement accuracy limitations 4−61932

band gap *see energy gap*

band model of magnetism
actinide compounds, electron delocalisation model 4−57249
actinide metals and alloys, d-f hybridisation 4−45087
Anderson localised magnetic moment model, partition function 4−60936
antiferromagnet, itinerant electron, impurity effect on transition temp. 4−60957
antiferromagnetism in insulators, Slater's split-band theory rel. to Anderson's superexchange theory 4−49149
antiferromagnetism in insulators, split-band, correlation effect 4−49150
binary alloy, charge transfer and spin susceptibility, Wolff model 4−57248
charge transfer molecular solid, Hubbard model 4−48890
dilute alloy, single magnetic impurity, absence of conduction electron polarisation 4−79485
disordered alloys, single band model, magnetic susceptibilities, paramagnetic 4−64186
ferromagnet, itinerant, critical exponents 4−53201
ferromagnetic alloys, multilevel coherent-potential approximation with orbital degeneracy 4−49148
ferromagnetic semiconductor, conduction electron energy determ. near Curie point by short range magnetic ordering 4−67345
ferromagnetic transition metals, Fermi surfaces, review 4−72681
ferromagnetism, single electron spectrum, electron-hole pairing *(Russian)* 4−67348
Hubbard chain, low density thermodynamics 4−45088
Hubbard Hamiltonian, arbitrarily filled band 4−79490
Hubbard Hamiltonian, zero-bandwidth, effect of interatomic interactions 4−57246
Hubbard model, disordered mag. insulator, proof of existence of band tails 4−57251
Hubbard model, electron-magnon bound states 4−57245
Hubbard model, high temp. thermodynamics 4−79488
Hubbard model, linear half-filled-band, static thermodynamic props. 4−53204
Hubbard model, mag. anisotropy *(Russian)* 4−72948
Hubbard model, numerical results in simple approx. 4−70134
Hubbard model, one-dimensional, excitation spectrum 4−53203
Hubbard model, orbital susceptibility, s.c. lattice 4−53206
Hubbard model, phase separation instability 4−79489
Hubbard model, single band, stability of itinerant ferromagnetism versus antiferromagnetism 4−70135
Hubbard model, spin waves in helical single-band antiferromagnet 4−82571
Hubbard model, strong correlations, theory based on generalized Hartree-Fock scheme 4−72949
Hubbard model, two-band, thermodynamics 4−75753
Hubbard model, two-bands, antiferromagnetism and insulator-metal transition 4−79306
Hubbard model chain, extended, thermodynamics, atomic limit for half-filled band 4−57023
itinerant electron antiferromagnet, effect of spin fluctuations 4−57244
itinerant electron ferromagnet, magnetovolume effects press. depend. of Curie temp., theory 4−76046
itinerant electron ferromagnetism, functional integral approach, mol. field theory 4−45086
itinerant ferro and antiferromagnets, proximity effect 4−64181
itinerant ferromagnets with Hund's coupling, spin wave dispersion relns. 4−67343
itinerant theories of ferromagnetism, rel. to expt. data for Ni-Pt alloys 4−72957
itinerant-electron antiferromagnetism of alloys, theory 4−76048

band model of magnetism continued
Landau-Peierls formula for orbital magnetism of many-body systems, spin fluctuation effects 4−64182
Mott insulators, Hubbard model, small hopping probability, quasiparticle energy calc. 4−79487
orbital susceptibility of low density electron gas 4−67346
semiconductor, degenerate, hot-electron mag. susceptibility at low temp., effect of non-parabolicity 4−57247
spectral moments, approximation, Green's function decoupling comparison 4−67344
spin susceptibilities, longitudinal and transverse 4−76047
TCNQ, charge transfer molecular solid, Hubbard model 4−48890
transition metal, Hubbard model, sp. ht. and mag. susceptibility anomalies *(Russian)* 4−67347
transition metal compound, magnetic insulator-metal transitions in simple model 4−60751
CeSn$_3$, anomalous mag. susceptibility, Fermi liq. model 4−67355
Co origin of ferromagnetism and hyperfine fields 4−57250
Co-Ni ferromagnetic alloys, multiband coherent-potential approximation with orbital degeneracy 4−49148
Cr, antiferromag.-paramag. transitions, spin density wave harmonics 4−64207
Cr, static strain wave, simple itinerant electron model 4−79486
CrAl$_7$, rigid band model, n.m.r. and mag. susceptibility obs. 4−64278
Cs$_2$(TCNQ)$_3$, trimer approx. to electronic struct. 4−67342
Fe, itinerant ferromagnet with Hund's coupling, spin wave dispersion relns. 4−67343
Fe, origin of ferromagnetism and hyperfine fields 4−57250
Fe$_x$Mn$_{1-x}$, itinerant-electron antiferromagnetism, theory 4−76048
Fe$_3$O$_4$, Cullen and Callen model, rel. to Verwey transition 4−75932
Ni, itinerant ferromagnets with Hund's coupling, spin wave dispersion relns. 4−67343
Ni, mag. anisotropy, band theory, review 4−72984
Ni, origin of ferromagnetism and hyperfine fields 4−57250
Ni-base f.c.c. alloys, high field susceptibility meas. up to 300 kOe, rigid band model 4−76060
Ni-Pt alloys, itinerant-electron model explanation of ferromag. props. 4−53256
NiS, itinerant-electron antiferromagnet, mag. susceptibility and neutron scatt. obs. 4−53202
No, rel. to electronic sp. ht. and entropy, 0-1200K 4−76075
UAs, electron delocalisation model explanation of mag. props. 4−53205
ZrZn$_2$ polycryst., weak itinerant ferromag., elastic moduli, sound velocity meas. 4−82594

band-pass filters
acoustic transmission loss, ocean meas. by explosives, choice of processing filter 4−77034
geophysical time series with red spectrum, band-pass filtering *(German)* 4−70807
noise spectrum shaper, one-third octave 4−68581
vibration amplitude meas. by optical heterodyne method with narrow-band filter 4−46578

band structure
see also Brillouin zones; conduction bands; energy gap; Fermi surface; valence bands
alkali metal compounds, M$_2$Sb$_x$Sn$_{1-x}$Cl$_6$, electron and Mossbauer spectra, packing and nearest neighbour arrangement model 4−49273
alloy, narrow band, electron correlation 4−57029
alloy, optical conductivity, optical effective mass derivation 4−67153
anthracene, mol. cryst., hole cyclotron reson. obs. 4−79287
atomic pseudopotentials, ionicity parameter 4−48907
Bloch electrons in electric field, Wannier's auxiliary eqn., existence, props. 4−82347
chalcogens, amorphous and cryst., high energy photoemission 4−82791
correlated crystal potentials in band structure calcs. 4−75769
crystal potentials calculation, computer program 4−57017
cubic crystal, quasi-localised representation of electronic band struct. 4−67151
cyclotron resonance of polarons in ellipsoidal bands, general case 4−72728
degenerate semiconductor, low temp. hot electron mag. susceptibility 4−60733
diamond, matrix elements in semi-empirical equivalent orbital method 4−69469
diamond, p-type semicond., thermoluminesc., pre-excitation and excitation investig., energy level model 4−76324
diamond, reln. to excitons and impurity states efective mass theory 4−75806
dielectric thin film, current characts. under slow electron impact 4−79426
double injection theory for compensated semicond. with deep acceptors in forbidden band 4−82474
double injection theory for compensated semiconductor with deep acceptors and electron traps *(Russian)* 4−57162
electron-hole liquid, quasi particle props. 4−75824
ethynyl radical, e.s.r., optical spectra, extended INDO calcs. and band assignments 4−61017
ferromagnetic metal, band structure and band-gap effects for photoelectron spin polarisation 4−64473
free-electron lattice Green's function, numerical eval. 4−67141
n-GaAs, three band model 4−72704
graphite, Huckel LCAO calc., X-ray and photoemission 4−49489
inhomogeneous interacting electronic system, momentum density 4−72671
n-InSb, low temp. hot electron susceptibility 4−60733
insulator, Raman scatt., electron and exciton-phonon couplings investig. 4−70303
metal, d-band, clean and caesiated, photoemission spectra obs. 4−45408
metal, d-band, model calc. rel. to photoemission spectra 4−45409
metal, d-band, rel. to photoemission spectra, f.c.c. interpolation schemes 4−45407
metal, electronic struct. and deform. depend. of elec. resist. and cond. *(Russian)* 4−53076
metal, positron trapping meas., labelling technique 4−48648

band structure continued
metal based dilute alloys, electronic structure, charge oscill., Knight shift, pair interaction 4−79275
metals, non-selfconsistent calculation of potential 4−79278
methane, solid, ab initio calcs. of electron band struct., comment 4−75780
methane, solid, electron band struct. calc., inclusion of intermolecular self-consistency 4−75781
nonmetallic solid, energy level measurement, rel. to photosensitisation 4−54072
one-dimensional, struct. *(Russian)* 4−57027
optical absorption edge, photoemission edge distinction 4−60737
polaron model, localised states versus band states 4−69997
polymer, LCAO density matrix calc. precision 4−60138
relativistic quantum defect method 4−72684
semiconducting binary alloy, coherent pot. approx., two band model 4−44825
semiconductor, cubic, band struct. changes induced by local press. 4−57039
semiconductor, degenerate, diffusivity-mobility ratio, magnetic field oscillatory dependence rel. to magnetic quantisation 4−79370
semiconductor, degenerate, having non-parabolic energy bands, generalised Einstein rel. for diffusivity-mobility ratio 4−48980
semiconductor, degenerate, longit. magnetoresist. in quantizing mag. field, scatt. inelasticity and band nonparabolicity effects 4−49015
semiconductor, electric dipole spin flip resonance 4−75788
semiconductor, nonparabolicity effect on helicon damping 4−60822
semiconductor, nonparabolicity effect on spin-flip Raman scatt. 4−62864
semiconductor, shallow acceptor states, spherical model, cubic contrib. 4−44868
semiconductor, small-gap, transport processes, review 4−64070
semiconductor, transverse effective charge calc., tight binding 4−48908
semiconductor, with discrete impurity level, low-temp. screening limit determ. 4−69990
semiconductor, zero-gap, symmetry-induced, elastic electron scattering by phonons 4−82364
semiconductor with anisotropic energy bands, magnetoabsorpt., longit. elec. field influence 4−79751
semiconductor-ferroelectric, temp. depend. investigation 4−64020
semiconductor-metal contact, stress effects, barrier height changes 4−44994
semiconductors, gapless with linear dispersion law, behaviour in strong mag. fields *(Russian)* 4−79295
semimetal, e.m. excitation of ultrasound and resonant transparency *(Russian)* 4−67167
Si, Harrison's first principle pseudopotential method appl., band struct. calcs. 4−79255
single particle excitations, narrow energy bands, nondegenerate and degenerate band models 4−67149
Slater-Koster tables, tight binding calc., extension to f electrons 4−60740
stability, effects of external mag. field using spectral density/operator 4−53046
tight binding in electric field, Stark ladder 4−44857
transition d-metals, effects of pressure, review 4−48899
transition metal, binary compound, Mott transition 4−64033
transition metal, ferromag., majority, minority spin band structs. 4−72681
transition metal, multi-ion interactions 4−72688
transition metal alloy, dil., electronic struct. change. oscill., knight shift, pair interaction 4−79275
transition metal alloys, ordered binary, model approach to electron structure *(Russian)* 4−60724
transition metal alloys, ordered binary, model approach to electron structure *(Russian)* 4−64010
transition metal halides, from X-ray photoemission spectra 4−49521
transition metal monoborides, iron-group, energy bands, K-spectra 4−53546
transition metals, Green's function calc. of zone struct. *(Russian)* 4−49481
zinc blende type semiconductors, temp. depend.. 4−75777
Ag-Pd alloys, virtual bound levels model approach to electronic struct. *(French)* 4−72680
$AgInS_2$, in chalcopyrite and orthorhombic phases, electrorefl. meas., cryst. field splitting 4−44851
Ag_2S, $Ag_2S_{0.5}Te_{0.5}$, elec. props., at high temp., electron mobility and effective mass 4−44911
Al, electron momentum density distribution by positron annihilation *(Russian)* 4−82197
Al, form factors determ. from a.p.w. calc. 4−53039
Al quasi particle energy band calcs. 4−75794
$Al_xGa_{1-x}P$, epitaxially grown, donor-acceptor pair and bound exciton recomb. 4−73179
Ar, liq. average electron energy loss per ion pair, calc. and obs. 4−56785
Ar-Ne, cathodoluminesc., cryst. field effects 4−67667
As_2O_3, photoemission, band edge smearing 4−76367
Au, temp. modulated thermoreflectance spectra, synchrotron source 6 to 35 eV 4−73132
Au-Pd alloys, virtual bound levels model approach to electronic struct. *(French)* 4−72680
AuSn, augmented plane wave calc., partially relativistic 4−72687
Ba, rel. to Knight shift, temp. depend. 4−76177
$BaCl_2$, Kβ-emission and K-absorpt. X-ray spectra obs. 4−61248
BaF_2, X-ray spectra determ. of energy zone struct. *(Russian)* 4−49483
BaO, excition and low energy interband structure, freshly cleaved single crystal 4−64046
Be, evaporated film, optical absorption 4−64458
Bi, angular correlation obs. of electron positron pair annihilation quanta 4−60732
Bi, band parameters, temp. depend., 4-280K, magnetorefl. obs. 4−79293
Bi, Lifshits electronic phase transitions 4−75787
Bi, nonellipsoidal nonparabolic, effect on longitudinal magnetoacoustic effect 4−61011
Bi:Sn(Pb), impurity effects, mag. susceptibility meas. 4−79281

band structure continued
Bi-Sb alloys, nonlinear band parameters investig. using Shubnikov-de Haas oscill. meas. 4−64015
BiOBr laminated crystals, energy struct. and optical props. *(Russian)* 4−73094
BiOCl, laminated crystals, energy struct. and optical props. *(Russian)* 4−73094
BiSb alloy, gapless state transition in mag. field, galvanomag. meas. rel. to band edge motion 4−57115
Bi_2Se_3, melt-grown, electronic props. 4−82360
BiSeI, mag. susceptibility meas., chain like struct. anal. 4−72700
BiSeI, Shubnikov-de Haas oscillations 4−67157
Ca, K X-ray absorption spectrum calc. using self consistent energy band calc. 4−57644
$CaCl_2$, Kβ-emission and K-absorpt. X-ray spectra obs. 4−61248
CaF_2, X-ray spectra determ. of energy zone struct. *(Russian)* 4−49483
$CdCr_2Se_4$, ferromag. semicond., prep. and basic props. 4−79878
CdS, biexciton energy level spectra and related optical transitions 4−82381
CdS, sulphur Kβ emission spectra and electronic struct. 4−79809
CdS, wurtzite, rel. to polarised vac. u.v. photoemission 4−73239
n-$CdSnAs_2$, elec. cond. and complex band struct., pressure depend. to 10 kbar 4−75856
CdTe, rel. to thermorefl., 4-9 eV 4−53466
Ce, α-γ transition, considered as Mott transition 4−82373
Ce, electron momentum density distribution by positron annihilation *(Russian)* 4−82197
CoF_2, electronic Raman transitions, rel. to mag. susceptibility 4−53433
Co_2GeO_4, electronic Raman transitions, rel. to mag. susceptibility 4−53433
Co_2P, symmetrised augmented plane wave method 4−44842
CoS, sulphur Kβ emission spectra and electronic struct. 4−79809
Co_2Si-Ni_2Si, rel. to elec. props., interband s→d transition *(Russian)* 4−60725
Cs, f.c.c., continuous s-d transition at high pressure, neutron diffr. obs. to 43 kbar, 298K 4−44826
$Cs_2(TCNQ)_3$, trimer approx. to electronic struct. 4−67342
Cu, expt. X-ray form factors, charge distrib. model 4−60432
Cu, quasi-localised representation of electronic band struct. 4−67151
Cu, rel. to third- and fourth-order elastic consts., calc. 4−66957
Cu, structure calc. for nonlocal screened exchange potentials using MAPW method 4−75770
Cu, u.s. attenuation and velocity near open-orbit reson., 4.2K 4−44830
Cu_3Au, ordered and disordered, refl. spectra and band struct. 4−45323
CuCl, energy level spectra of biexcitons and related optical transitions 4−82381
$CuCr_2Se_4$, X-ray photoelectron spectra, Cu valence state 4−73240
$CuFeS_2$, electronic struct. calcs., absorpt. band edge 4−53042
$CuInSe_2$-2ZnSe, reflectivity, 3d electron contrib. to struct. 4−69985
CuS, sulphur Kβ emission spectra and electronic struct. 4−79809
Cu_2S-CdS, heterojunction photovoltaic effects, transport mechanisms 4−60824
Cu_2STe, effective meas. of carriers, refl. spectra 4−72701
α-CuZn, electronic struct., average-t-matrix approx. 4−53036
Dy_2S_3, transport props. and mechanism, single crysts. 4−48969
Eu monochalcogenides, press. induced electronic transform. 4−60741
EuO, comparison of photoelec. and optical characts. *(German)* 4−49526
EuO, electronic energy band struct. investigation using APW method 4−67164
EuO(S)(Se)(Te), EuO:Gd, mag. semiconds., optical props., band struct. investig. 4−64400
EuSe, comparison of photelec. and optical characts. *(German)* 4−49526
Fe, binding energy determ. from appearance-pot. spectra and X-ray photoemission 4−79277
Fe:^{119}Sn, hyperfine interactions, Mossbauer spectroscopy, 4.2-972K, electronic struct. temp. depend. 4−45213
Fe-Ni, invar alloy, positron annihilation ang. correlation, mech. props. rel. to electronic structure 4−79280
FeF_2, electronic Raman transitions, rel. to mag. susceptibility 4−53433
Fe_2GeO_4, electronic Raman transitions, rel. to mag. suceptibility 4−53433
FeS, sulphur Kβ emission spectra and electronic struct. 4−79809
GaAs, line shapes in donor spectra at high magnetic fields 4−76289
GaAs, nonlocal pseudopotential calc. 4−44849
GaAs, pseudopotential calc. of piezoelectric constant 4−79676
n-GaAs:Cr, optical absorpt. meas., extrinsic transitions localised levels investig. 4−64413
GaAs(P), rel to thermorefl., 4-9 eV 4−53466
GaN, band struct., props. and possible applications, review 4−75783
p-GaP, hole mass, sub mm cyclotron reson. in pulsed mag. field 4−72698
GaSb, amorphous, Kohn variational method 4−69976
Gd_2S_3, transport props. and mechanism, single crysts. 4−48969
Ge, amorphous film, ideal random network 4−75987
Ge, cyclotron reson. in quantised mag. field on inelastic scatt. by acoustic phonons *(Russian)* 4−82368
Ge, Harrison's first principle pseudopotential method appl., form factor calcs. 4−79254
Ge, Harrison's first principle pseudopotential method appl., band struct. calcs. 4−79255
Ge, in mag. field, rel. to energy level calc. for indirect exciton 4−57063
Ge, nonlocal pseudopotential calc. 4−44849
Ge, rel. to Auger recomb. rate calc. 4−69984
Ge, rel. to thermorefl., 4-9 eV 4−53466
p-Ge, uniaxially stressed, calc. of Landau levels 4−48905
Ge type semiconductors, temp. depend. 4−75777
H_2 metallic, eqn of state anal. for pressures from 0 to 110 Mbar 4−75615
$Hg_{1-x}Cd_xTe$, press. induced gapless state obs. *(Russian)* 4−67168
HgSe, strain depend., Shubnikov-de Haas effect obs. 4−53045

band structure continued
HgTe, zero-gap semiconductor, mag. sub-band struct. calc., anisotropic effects 4−67163
In-Cd, dilute alloy, band-struct. effects on supercond. 4−64156
InAs, acoustic deformation pots. calc. 4−64024
InAs, amorphous, Kohn variational method 4−69976
n-InAs:Se, modulated reflectance meas. at fundamental gap at 85K 4−45337
$(InAs)_x$-$(CdTe)_{1-x}$, solid soln., extremal conditions for interband interaction 4−67166
InAs(Sb), rel. to thermorefl., 4-9 eV 4−53466
p-InP, hole mass, sub mm cyclotron reson. in pulsed mag. field 4−72698
InSb, acoustic deform. pot. calc. 4−64024
InSb, electron effective mass determ. 4−75786
InSb, Landau levels obs. by electroreflectance at E_1 and E_1 + $delta_1$ edges 4−76270
n-InSb, longit. magnetoresist. in quantizing mag. field scatt. inelasticity and band nonparabolicity effects 4−49015
n-InSb, surface defects and mag. freezing, Hall and cond. meas. *(German)* 4−70037
InSb p-n junction, tunnelling, uniaxial stress effects, deformation pot. consts. detn. 4−53140
$(InSb)_x$-$(CdTe)_{1-x}$, solid soln., extremal conditions for interband interaction 4−67166
Ir, clean and caesiated, photoemission spectra obs. 4−45408
Ir, electron field emission energy distrib. spectra meas. for (111) plane, d-band contribs. 4−53576
K, structure calc. for nonlocal screened exchange potentials using MAPW method 4−75770
LaX(X=s,Se,Te), monochalcogenides, electron energy spectrum, energy zones using group theory 4−44837
Li, cryst., electronic struct. calcs., Hartree-Fock method 4−64016
Li, LCAO calc. using Gaussian orbitals 4−72689
LiF, optical props. investig., Hartree-Fock band struct. calcs. 4−70320
LiF, self-consistent Hartree-Fock calc. of energy bands 4−75754
$MgCl_2$, Kβ-emission and K-absorpt. X-ray spectra obs. 4−61248
MgO, optical absorpt., X-ray spectra, one electron model 4−44847
Mo-Re alloy, electron struct. by X-ray spectroscopy *(Russian)* 4−82351
MoS_2, layer structure, anomalous effective mass 4−44840
$MoSe_2$-$TaSe_2$, quasibinary alloys, mechanism of electrical conductivity 4−67217
$(NH_4)_2Sb_xSn_{1-x}Cl_6$, electron and Mossbauer spectra, packing and nearest neighbour arrangement model 4−49273
NaCl, electron momentum density distribution by positron annihilation *(Russian)* 4−82197
Na_2KSb, photocathode, threshold wavelength and band-bending effects compared with K_2CsSb 4−45401
Nb, L_{III} X-ray emission band, fine struct. *(Russian)* 4−49476
Nb, mag. breakdown in strong field *(Russian)* 4−67156
Nb, non-muffin-tin effects, 4-d level, energy shift 4−60729
Nb, rel. to electronic susceptibility 4−60731
NbC, band struct. and charge densities, nonlocal pseudopotential calc. 4−79289
NbC, electron-phonon mass enhancement theory 4−72890
NbN, band struct. and charge densities, nonlocal pseudopotential calc. 4−79289
NbN, electron-phonon mass enhancement theory 4−72890
$NbSe_2$, anisotropic props., APW calcs. *(Japanese)* 4−69986
$4HNbSe_2$, thermoreflectance spectra 4−57563
Nd_2S_3, transport props. and mechanisation, single crysts. 4−48969
Ne, crystalline, self-consistent Hartree-Fock calc. of energy bands 4−75754
Ni, binding energy determ. from appearance-pot. spectra and X-ray photoemission 4−79277
Ni, clean and caesiated, photoemission spectra obs. 4−45408
Ni, ferromag., momentum density distrib. for positron annihilation and Compton scatt. 4−53038
Ni, photoelectron spin polarisation, band struct. and band-gap effects 4−64473
Ni, spin-orbit coupling effect in energy band calcs. 4−72686
$NiCl_2$ and $NiBr_2$ crystals, reflectivity spectra 4−67605
$Ni_{1-x}Fe_x$-C, (x=0-0.65), C impurity and Fe conc. effects on props., mag. and electronic struct. 4−45111
NiS, sulphur Kβ emission spectra and electronic struct. 4−79809
Pb chalcogenides, band struct. and characts., irregularity of PbTe, calcs. 4−79286
$Pb_{0.995}Ge_{0.005}Te$, heavy hole localisation, rel. to transport props. 4−72770
Pb_3O_4, electronic transitions, structural breakdown effect *(Russian)* 4−79772
PbS-CdSe heterojunction, rel. to elec. and photovoltaic props. 4−49062
PbS(Se)(Te), photodiode, quantum efficiency and impact ionisation 4−75957
p-PbSe, p-$Pb_{0.94}Sn_{0.06}Se$, rel. to mag. susceptibility anomalies *(Russian)* 4−67354
PbSe, photoelectric spectra discussion, struct. similarity with PbTe spectra 4−82786
PbSe electroreflectance, spin-orbit splitting meas. 4−73129
$Pb_{0.94}Sn_{0.06}Se$, p- and n-type, meas. of mag. susceptibility 4−49155
$Pb_xSn_{1-x}Se(Te)$, photodiode, quantum efficiency and impact ionisation 4−75957
n-$Pb_{1-x}Sn_xTe$, band parameters determ. from magnetoplasma expts. 4−79667
$Pb_{1-x}Sn_xTe(Se)$, mag. susceptibility, band inversion effect 4−76051
PbTe, Jones zone role in optical props. 4−61186
PbTe, pseudopot. methods for band struct., comparison of optical and photoelec. expt. data with theory 4−48904
Pd, clean and caesiated, photoemission spectra obs. 4−45408
Pd, electron field emission energy distrib. spectra, d-band contribs. 4−53576
Pd, non-muffin-tin effects, 4-d level energy shift 4−60729
Pd, rel. to electronic density of states and reflectivity, pseudopotential calc. 4−53033
Pd dilute alloys, resistance minima, Matthiessen's rule deviations, impurity resistivity 4−44887

band structure continued
PdH(D), PdAgD, supercond. mech., electron-phonon coupling, isotope effects 4−53175
$PdTe_2$, electronic props. determ. using Korringa-Kohn-Rostoker method 4−67165
Pt, clean and caesiated, photoemission spectra obs. 4−45408
Pt, electron field emission energy distrib. spectra, d-band contribs. 4−53576
$Pt(CN)_4^{2-}$, electronic struct., ScF Xα scattered wave calcs., solid state props. 4−56121
Rb, non-muffin-tin effects, 4-d level, energy shift 4−60729
Rh, clean and caesiated, photoemission spectra obs. 4−45408
Rh, electron field emission energy distrib. spectra meas. for (111) plane, d-band contribs. 4−53576
S, film, electronic structure, photoelectric yield and energy distribution curves 4−79850
Sb, angular correlation obs. of electron positron pair annihilation quanta 4−60732
SbSI, calc. in para- and ferroelectric phases 4−44844
SbSI, photoemission, energy gap states 4−76367
Se, cryst. and amorphous, electronic spectra calc. 4−44845
Se, ordered and disordered, photoemission, electronic struct. obs. 4−70393
Se, trigonal cryst., self-consistent symmetrized OPW calc. 4−64004
Si, (100) and (111) f.e.t.s, p-type inversion layers, quantum oscills. 4−70078
Si, amorphous film, rel. to field induced conductance changes 4−64143
Si, electroreflectance data anal. 4−61183
Si, Harrison's first principle pseudopotential method appl., form factor calcs. 4−79254
Si, polarisation effects in electroabsorption, theory 4−67556
Si, quantized inversion layers with many occupied elec. subbands, elec. cond. 4−44920
Si, rel. to thermorefl., 4-9 eV 4−53466
Si, X-ray K_β- and $L_{2,3}$-emission bands obs., electronic struct. investigation 4−61249
n-Si accumulation layers, energy levels and optical absorpt. at low temps. 4−82362
Si_xGe_{1-x}, alloy, Harrison's first principle pseudopotential method appl., band struct. 4−79255
SiO_2 inversion layer on Si, subharmonic structure of cyclotron resonance 4−67284
Si_2ON_2, Kβ X-ray emission spectra, energy states assignment 4−49488
Si_2Se_3, cryst. and amorphous, photoemission energy distrib. curves, band struct. investig. 4−64480
Si(111), faces, pseudopotential calc. 4−75941
Sn, electron momentum density distribution by positron annihilation *(Russian)* 4−82197
α-Sn, magnetic sub-bands, Raman spectrum calc. 4−64388
Sn, metallic, electronic and optical properties 4−79272
α-Sn, zero-gap semiconductor, mag. sub-band struct. calc., anisotropic effects 4−67163
SnO_2, calc. by self consistent APW method 4−60738
SnTe, photoelectric spectra discussion, struct. similarity with PbTe, PbSe spectra 4−82786
$SrCl_2$, Kβ-emission and K-absorpt. X-ray spectra obs. 4−61248
SrF_2, X-ray spectra determ. of energy zone struct. *(Russian)* 4−49483
SrO, exciton and low energy interband structures, freshly cleaved single crystal 4−64046
1T-TaS_2, layer compound, mapping energy bands from ang. depend. of u.v. photoemission 4−67161
1T-$TaSe_2$, layer compound, mapping energy bands from ang. depend. of u.v. photoemission 4−67161
Te, cryst. and amorphous, electronic spectra calc. 4−44845
Te, ordered and disordered, photoemission, electronic struct. obs. 4−70393
Te crystals, with vacancies, LCAO calcs. 4−75809
Ti, augmented-plane-wave calc. 4−48901
Ti carbonitrides and oxycarbides, X-ray spectra investig. of energy structure *(Russian)* 4−67672
Ti-Nb alloys, influence on supercond. props. *(Russian)* 4−49125
TiB_2, MO-LCAO calc. 4−44853
TiO_2, low temp. electroreflectance, crit. points 4−76278
Ti_2O_3, free energy model, high temperature transition 4−64034
TiS_2, muffin tin approx. for electronic struct. and crystal pots. 4−53043
$TiSe_2$, muffin tin approx. for electronic struct. and crystal pots. 4−53043
Tl-Bi alloys, f.c.c.-h.c.p. transform. rel. to T_c and electron struct. effects 4−61333
VO, calc. by APW-LCAO method 4−75782
V_2O_3, ^{17}O n.m.r., covalent spin distrib. 4−70231
V_2O_3, free energy model, high temperature transition 4−64034
VS, energy band calc. by k.k.r. method 4−48912
VS, hexagonal phase electronic struct. 4−60735
V_3Si, superconductor, ab inito calc. 4−69981
W, spin-orbit induced surface resonance 4−60845
YZn, energy bands, Fermi surface, calc. 4−64019
Yb and cpds. X-ray L_{III} absorpt. discontinuity 4−73212
Yb monochalcogenides, press. induced electronic transform. 4−60741
Zn-Cd, dilute supersaturated alloy, electronic struct. changes with room temp. ageing 4−53030
$ZnGeAs_2$, electrorefl. spectra obs. 1.1-4.5 eV 4−61189
ZnS, reln. to excitons and impurity states effective mass theory 4−75806
ZnS, sulphur Kβ emission spectra and electronic struct. 4−79809
ZnS_xSe_{1-x}, mixed crystals, optical refl. and electronic struct. 4−76276
p-$ZnSiAs_2$, thermoelectric power and effective mass of holes 4−67241
ZnTe, rel. to thermorefl., 4-9 eV 4−53466
Zr-Si, X-ray K_β- and $L_{2,3}$-emission bands obs., electronic struct. investigation 4−61249
$ZrZn_2$, calc. using combined interpolation scheme 4−53037

band theory models
see also band model of magnetism; band structure
- alloy, random binary, two-sites coherent pot. approx. of one-band model 4−44823
- Anderson's model for disordered lattices, new criterion for localisation 4−75757
- augmented plane wave method, generalization, trial wave functions 4−44813
- augmented plane wave theory calc. of superconducting transition point 4−49113
- biexciton states, electron-hole exchange contribs. 4−60763
- chalcogenide glass/Si heterojunction, on-state characts. 4−79405
- coherent potential approximation, two band case 4−44825
- correlated crystal potentials in band structure calcs. 4−75769
- effective mass approx. for excitons and impurities in diamond and ZnS 4−75806
- electron correlation, linear lattice 4−67142
- ferromagnetic metal, photoelectron spin polarisation, band struct. and band-gap effects 4−64473
- n-GaAs, three band model 4−72704
- Hamiltonian matrix elements, hydrostatic press. depend. 4−75749
- Hartree-Fock, localised canonical wave function, nonexistence conditions 4−64005
- Hubbard model, chem. potential 4−75801
- Hubbard model, Coulomb correl. energy calc. for transition metals 4−60720
- Hubbard model, finite, one dimens., local impurity states 4−75810
- Hubbard model, generalised, summation of perturbation series 4−75758
- Hubbard model, half-filled-band, single-particle spectrum 4−82547
- Hubbard model, insulating state criteria 4−72669
- Hubbard model, new many body perturbation method 4−48889
- Hubbard model, one-dimensional, thermodynamic props. 4−72673
- Hubbard model, pseudospin representation, high density theory 4−60728
- Hubbard model, self-consistent approx. procedure 4−69974
- Hubbard model, two-band, thermodynamics 4−75753
- Hubbard model chain, extended, thermodynamics, atomic limit for half-filled band 4−57023
- infinite crystal in electric field, crystal momentum representation 4−60721
- metal, struct. expansion for ground state energy 4−53035
- metal-insulator transition, one dimens. Hubbard model 4−72716
- metallic atom array, band energy calc. 4−57018
- multilayer periodic structure, energy spectrum *(Russian)* 4−82343
- noble metal alloys, ternary, electron cell model approach to thermodynamic and elastic props. 4−45484
- Peierl's transition in quasi-one dimensional system 4−67177
- rock salt type crystal, antiferroelectric ordering, interband vibronic interactions 4−70261
- self-consistent symmetrized OPW method 4−64004
- semiconductor, bilinear optical susceptibility, nondispersive part, Jha-Bloembergen approach 4−57502
- semiconductor, bond orbital model, photoelectric threshold calc. 4−70397
- semiconductor, quasi energy spectrum, Kane dispersion law 4−72703
- semiconductor, shallow acceptor states, spherical model, cubic contrib. 4−44868
- semiconductor Weaire model, density of states and random walks 4−75762
- semiconductors, tetrahedrally coordinated, bond orbital model, cohesive energy calc. 4−82130
- single particle excitations, narrow energy bands, nondegenerate and degenerate band models 4−67149
- superconductor, two-band model, softening effect temp. depend. *(Russian)* 4−49099
- Thorpe-Weaire transformation derivation 4−75755
- tightly bound electrons, Stark ladder 4−44857
- transition metal alloys, ordered binary, model approach to electron structure *(Russian)* 4−60724
- transition metal alloys, ordered binary, model approach to electron structure *(Russian)* 4−64010
- virtual bound levels model, applic. to Au-Pd and Ag-Pd alloys *(French)* 4−72680
- Weaire's tight-binding Hamiltonian for tetrahedrally coordinated networks 4−57035
- Weaire's tight-binding Hamiltonian in CPA, fluctuating bond interaction 4−57021
- Weaire-Thorpe model, band edge determ., spectral limits 4−82344
- BiSeI, rel. to piezoresist. *(Russian)* 4−82440
- n-InSb, mechanism of resistivity decrease by mm microwave irradiation 4−64092
- InSb, thickness dependence of galvanomagnetic props. 4−79369
- KCl, contact electrification by metals, band model 4−79402
- $NbSe_2$, transport props., variation with temp. and purity 4−53105
- (Ni,Cu)Al, β-phase, rigid band model approach to electron transport props. 4−67197
- Ni, photoelectron spin polarisation, band struct. and band-gap effects 4−64473
- $(Ti,V)_2O_3$, low temp. mag. props., model behaviour 4−60958
- VO, metal-insulator transition in two-band Hubbard model 4−67175
- $W_{1-x}Nb_xSe_2$ quasi-binary alloys, elec. cond. mechanism and band model 4−60791
- YZn, field depend. sign reversal in Hall effect 4−44900
- Zn, electron-phonon interaction, temp. depend. calc. using band struct. models 4−75771

band theory of solids *see band theory models*

bands (kink) *see dislocations*

bang-bang control
- linear systems, multidegree-of-freedom, transient response to forcing functions, inequality constraints 4−77386

Bardeen-Cooper-Schrieffer theory *see BCS theory*

barium
- abundance in K supergiants from Ba I lines 4−46223
- adsorption on Y and Sc films, influence on film resistance and work function *(Russian)* 4−52999
- Antarctic and Pacific ^{226}Ra and Ra-Ba relationships 4−73508

barium continued
- appearance potential spectrum, obs. of Ba contamination of Fe 4−57655
- appearance potential spectrum meas., 20-150 eV, many-body effects 4−67677
- atom, K hypersatellite line energy determ. 4−74841
- atom, laser selective excitation 4−74846
- atom, oscillator strengths using multi-config. Hartree Fock approx. 4−66285
- atom, photoionisation cross section of ^3D metastable states 4−51972
- atom, spectral line broadening by inert gas collisions 4−66352
- atomic beam photoionisation to produce monoenergetic 17 meV electron beam 4−58913
- atomic metastable D states, hyperfine struct., atomic beam mag. resonance 4−56015
- atomic spectrum, np^2 terms effect on singlets, quantum defect anal. 4−63325
- Ba I absorption spectrum, highly excited states in magnetic field 4−43732
- contamination in gunshot residue collection kits 4−71278
- diffusion on W(011) face, activation energy meas. 4−72627
- fission product, rapid aqueous radiochemical separation from mixture using gas-jet recoil transport 4−55003
- isotope separation, on-line, at JINR heavy-ion cyclotron 4−77280
- $KCl=Ba^{2+}$, Ba^{2+} distrib., lattice defects, distortions investig. using X-ray diffuse scatt. 4−56762
- Knight shift, temp. depend. 4−76177
- laser, Ba vapour in He buffer gas, stimulated emission at 1.2478 μ 4−51566
- magnetic susceptibility, temp. depend., 0-525°c *(German)* 4−70140
- metastable states prod. by discharge in heat pipe, absorpt. spectra 4−59911
- muonic atom, muon-neutron interaction 4−72106
- plasma, ion heating by electrostatic ion cyclotron instability investig. 4−75288
- spin-orbt coupling, multi-config. Hartree Fock wavefunctions 4−66279
- vapour, laser pulse emission, reson. to metastable level transitions 4−69050
- $B^+ + D_2 = D + BD^+$, reaction cross section 4−76588
- Ba I, 6s6p $^3P_1$ level, tensor polarizability 4−81717
- Ba I, series of autoionisation resonances in Schumann u.v. converging on Ba II 6^2P 4−78347
- Ba II, first diffuse series doublet, Ar and the pressure effects 4−43721
- Ba II, oscillator strength, photoionisation cross section calcs. 4−66292
- $Ba + LiCl \rightarrow BaCl + Li$, crossed beam react., internal states investig., laser fluoresc. method 4−83020
- $Ba + N_2O$, gas phase chemiluminescence obs. of excited state BaO prod. efficiency 4−68000
- $Ba + N_2O$, gas phase chemiluminescence, BaO excited state vibr. to electronic energy transfer 4−68001
- $Ba + O_3(NO_2)$ chemiluminescent spectra 4−76586
- $Ba + X_2(Cl_2,Br_2,I_2) = BaX_2^*$, chemiluminescence 4−73413
- Ba^+, electron ionisation cross section, autoionisation threshold 4−74894
- Ba^+, electron-impact excitation 4−74900
- Ba^+, resonance charge transfer cross sections, energy depend., 6-1000 eV *(Russian)* 4−72099
- BaI, magnetic effects at high quantum number, extended Bohr model 4−51955
- $Ba(g) + N_2O(NO_2)$, $A(^1\Sigma) \rightarrow X(^1\Sigma)$ photon yield 4−76585
- Cs-Ba mixture, thermal electron scatt. under thermionic convertor conditions 4−60325
- $KCl:Ba^{2+}$, low temp. creep, derivation of thermal activation parameters *(German)* 4−44592
- $NaCl:Ba^{2+}$, cryst., jump freq. of cations, ionic radius effect 4−69933

barium compounds
see also barium titanate
- behenate film, light refl., expt. test of Schopper's formulas 4−61256
- ferrite layer structs., M_nY_m type, electron microscopy obs. of domain struct., stacking sequence 4−52777
- margarate film, light refl., expt. test of Schopper's formulas 4−61256
- myristate and stearate, multilayer systems, low angle X-ray diffr., electron-density functions determ. 4−66889
- palmitate film, light refl., expt. test of Schopper's formulas 4−61256
- periodates with ordered perovskite struct., synthesis, vibr. spectra, force consts. 4−53420
- stearate, Langmuir-Blodgett layers, Raman scatt. using total reflection method 4−49508
- stearate film, light refl. and transmittance, expt. test of Schopper's formulas 4−61256
- zirconates, synthesis of capacitor materials with aqueous solutions of acid 4−70540
- $2Al_2O_3 \times 5B_2O_3 \times 3BaO:Ce$, Ba aluminoborate, irradiation, colour centres, growth and decay 4−69805
- BCl_3, visible luminescence in field of CO_2 laser 4−48182
- $(Ba,Sr)UO_3$ and $(Ba,Sr)ZrO_3$ pseudo-fission products in oxide fuel, phase study and lattice parameters 4−51886
- $Ba:TiO_2.P_2O_5 + Ba_2P_2O_7$ luminophor, interactions with phosphoric and perchloric acids *(Russian)* 4−73417
- Ba-Fe-S system, infinitely adaptive structures $Ba_{1+x}Fe_2S_4$ 4−75618
- $Ba_2AgNb_5O_{15}$, cryst. growth, lattice consts., ferroelectric props. and microtwin struct. 4−70409
- Ba_2Bi, cryst. struct., X-ray diffr. 4−66869
- $Ba_4Bi_3LiO_{12}$, prep. and struct., X-ray data 4−60436
- $BaBr_2$, cryst., vibr. Raman spectrum determ. 4−76245
- $Ba_2Ca_{0.5}Al_5Si_{11}O_{32}.12H_2O$, harmotome, cryst. struct. 4−78978
- $BaCl_2$, Kβ-emission and K-absorpt. X-ray spectra obs. rel. to band struct. 4−61248
- $Ba(ClO_3)_2$, X-ray diffr., hydration effect on struct. *(French)* 4−69777
- $Ba_3Co_2Fe_{24}O_{41}$, microstruct. changes during sintering 4−76522
- $BaCrO_4$, Raman and i.r. spectra 4−57531

barium compounds continued
BaF, violet and u.v. spectra, mol. vibr., Franck-Condon factors, r-centroid 4−56186
BaF_2, figure of merit calc. for appl. as small diam. i.r. window, 2-6 μm 4−58845
BaF_2, i.r. transmitting, laser-induced thermal lensing, vidicon obs. 4−46700
BaF_2, planar channelling of 0.9 MeV protons 4−79077
BaF_2, radiolysis, first stage coloration 4−66911
BaF_2, Raman spectra meas. rel. to press., phase transform, Gruneisen coeff. investig. 4−76246
BaF_2, synthesis and hot pressing in air, optical ceramics 4−70546
BaF_2, X-ray emission and absorpt. spectra, energy zone struct. *(Russian)* 4−49483
BaF_2 substrate, epitaxial deposition of $Pb_xSn_{1-x}Te$, sputtering technique 4−61291
$BaF_2:Gd^{3+}$, e.s.r. superhyperfine struct. for cubic centre 4−53301
$BaF_2:Gd^{3+}$, electrostatically correlated crystal field interaction, B_0^0 term 4−48917
$BaF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4−44880
$BaF_2:Mn^{2+}$, hyperfine coupling const., temp. var. 4−44865
$BaF_2:Pu^{3+}$, crystal field model of hyperfine interaction 4−48919
$BaF_2:Sc^{2+}$, e.p.r., dynamic Jahn-Teller effect 4−79589
$BaFX:Eu^{2+}(X=Cl,Br)$, luminescence 4−64429
$BaFe_{12-x}Al_xO_{19}$, sublattice magnetisation, temp. depend. 4−57441
$Ba(Fe_xGa_{1-x})_2O_4$, X-ray, neutron diffraction and Mossbauer study *(French)* 4−53240
$BaFeO_3$, mag. props. and Mossbauer effect 4−49174
$BaFe_{12}O_{19}$, elastic moduli from 80-303K, rel. to hysteresis effect 4−82595
$BaFe_{12}O_{19}$, prep. by wet method *(Japanese)* 4−45414
$BaFe_{12}O_{19}$ powder, milling effect on intrinsic coercivity 4−64245
$BaFe_{12-x}Ti_xO_{19}$, $BaFe_{12-y}Sb_yO_{19}$, mag. anisotropy and saturation 4−82579
$Ba_3Gd_2WO_9$, 1:2 ordered perovskite, i.r. and Raman spectra 4−57520
$BaGe_2(Si_2)$, elec. resist., 20-800°C 4−60795
$BaLaBB'O_6$, B=Li, Na, K, B'=Mo, W new ordered perovskites 4−72455
$Ba_xLi_{5-2x}Nb_{5(1-y)}Ta_{5y}O_{15}$, crystallographic, dielectric and nonlinear optical properties *(French)* 4−64353
$BaMoO_4$, external lattice vibr. modes calc. 4−48714
$Ba(N_3)_2$, polarised i.r. and Raman spectra, internal vibr. and N_3^- asymm. 4−76247
$Ba_2NaNb_5O_{15}$, continuous optical parametric oscill. 4−59449
$Ba_2NaNb_5O_{15}$, ferroelec. and ferroelastic transitions, DTA obs. 4−61114
$Ba_2NaNb_5O_{15}$, fluorine substitution effect on ferroelec. Curie pt. and dielec. const. *(French)* 4−76230
$Ba_2NaNb_5O_{15}$, opt. second harmonic generation rel. to growth and thermally-induced homogeneities 4−59451
$Ba_2NaNb_5O_{15}$, phase transition, phenomenological theory 4−67537
$Ba_2NaNb_5O_{15}$, second harmonic generation, electrooptic props. 4−77716
$Ba_2NaNb_5O_{15}$, sintered, SEM obs. of morphological changes 4−61495
$Ba_4Nb_3LiO_{12}$, ordered perovskite-like compound, prep. 4−56682
$BaNb_2O_6$-$SrNb_2O_6$ pseudo-binary system, new crystalline form, struct. 4−75493
$BaNb_{0.8}S_3$, prep., elec. and mag. props. 4−60455
$BaNi_2Sc_2Fe_{14}O_{27}$, noncollinear spin ordering, 80 and 293K *(Russian)* 4−67381
Ba_2NiTeO_6, i.r. spectrum, vibr. assignments, cryst. struct. 4−64375
BaO, cation diffusion and defect struct. 4−48787
BaO, exciton and low energy interband structure, freshly cleaved single crystal 4−64046
BaO, lowest $^3\pi$ and $^1\pi$ state assignment 4−56125
BaO, strengthening of sapphire rods 4−45745
BaO gas phase microwave optical double resonance spectroscopy, rot. transitions investig. 4−48045
$BaO:Dy^{3+}(Yb^{3+})$, e.p.r. 4−57362
BaO-$(Nb,Ta)_2O_5$-Al_2O_3, glass form., struct. 4−63764
BaO-Al_2O_3-SiO_3, lattice constants, anisotropic thermal expansion coeff. *(German)* 4−44684
BaO-Na_2O-Nb_2O_5, cryst. growth, compositional control 4−82807
BaO-SiO, amorphous film in m.i.m. struct., electron emission 4−61279
BaO-SiO_2 containing ternary glass systems, struct. and optical characts. 4−75460
BaO-ZnO-V_2O_5 system, glass forming regions and phys. props. *(Japanese)* 4−48515
BaO_x, ozone matrix reaction, i.r. spectra, isotope shifts 4−48025
$3BaO.5SiO_2$ glass-ceramics, mech. props. w.r.t. microstruct. 4−49894
$BaO.6Al_2O_3$:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
$BaO.6Al_2O_3$:Eu, Mn, phosphor depreciation under u.v. irrad. 4−61213
$Ba(PO_3)_2$, $[(PO_3)_2]_\infty$ chain vibration calc. 4−44611
$90Ba(PO_3)_2.10BaF_2$ glass, γ-irradiated existence of tetrametophosphate radical, e.s.r. obs. 4−57379
BaPd, struct. determination, comparison with EuPd 4−76417
$BaRFe_2O_7$ mixed ferrites, R=rare earth, mag, props. *(French)* 4−60951
$BaSO_4$, γ-irradiated, thermoluminescence 4−57640
$BaSO_4$, impurity doped, thermoluminesc. and e.s.r., trapping and emission centres 4−70372
$BaSO_4$, in lung, fluorescent excitation meas. of clearance mechanism 4−50820
$BaSO_4$, luminescence of V and rare earth ions 4−76297
$BaSO_4$, optically stimulated exoelectron emission 4−53582
$BaSO_4$, surface, adsorpt. of water, rel. to hydrophilic sites 4−52997
$BaSO_4$, thermally stimulated exoelectron emission trap spectroscopy 4−53579
$BaSO_4$, whiteness standards, their achievement and meas. *(German)* 4−54926
$BaSO_4$, whiteness standard, spectrophotometric investigations *(German)* 4−54927
$BaSO_4$:Dy, thermoluminescence 4−46481
$BaSO_4$:Sm(Eu), thermoluminesc. mechanism 4−82761

barium compounds continued
$Ba(SO_3F)_2$, i.r. spectra 4−49334
$BaS_3(S_2)$, struct., at. positions, bond lengths *(German)* 4−66884
$Ba_4Sb_3LiO_{12}$, struct., powder neutron diffr. 4−60436
$BaSeO_4$, Raman and i.r. spectra 4−57531
$BaSnO_3$ Mossbauer source, recoil-free fraction meas. 4−57435
$Ba_{1-y}Sr_yFe_{12-x}Al_xO_{19}$, sublattice magnetisation, temp. depend. 4−57441
$(Ba_xSr_{1-x})FeO_{3-\delta}$ solid solns., high oxygen press. effects 4−48590
$Ba_{0.25}Sr_{0.75}Nb_2O_6$, ferroelectric, photosensitivity investigation 4−57141
$Ba_{0.5}Sr_{0.5}Nb_2O_6$, temp. depend. of forbidden-band width in phase transition region 4−79754
$Ba_4SrNb_{10}O_{30}$, growth spirals form. mechanism 4−63774
$Ba_{0.4}Sr_{1.6}Zn_2Y$ ferrite, antiferromag. order, mag. struct. 4−76095
$Ba_4Ta_3LiO_{12}$, prep., cryst. struct., powder neutron diffr. obs. 4−56682
$BaTa_{0.8}S_3$, prep., elec. and mag. props. 4−60455
$BaTa_{0.8}Se_3$, prep., elec. and mag. props. 4−60455
BaTe, and isoelectronic series, ionic radii and electronic polarizabilities 4−78945
$Ba_5Te_3Li_2O_{15-x}$, prep. and struct., X-ray data 4−60436
$BaTi_2Fe_4O_{11}$, (R block), synthesis, cryst. struct. determ. *(German)* 4−56665
$Ba_5U_3Li_2O_{15-x}$, prep. and struct., X-ray data 4−60436
$Ba(VO_3)_2.H_2O$ crystals, optical consts. and differential thermal anal. 4−53389
$BaWO_4$, crystal growth by flux evaporation, large, high quality crystals 4−76385
$BaWO_4$, external lattice vibr. modes calc. 4−48714
$BaWO_4$-II, high pressure form., cryst. struct. 4−69761
$BaYF_5$:Yb,Ho luminophors, thermodynamic limits on efficiency *(Russian)* 4−53526
$BaYF_5:Yb^{3+}$-Er^{3+} base, anti-Stokes luminesc. *(Russian)* 4−73152
$BaY_2F_8:Er^{3+}$, i.r. quantum counter, GaAs laser pumped 4−74047
$Ba_2ZnS_3:Mn^{2+}$ phosphor efficiency obs. 4−57603
α-$Ba[AlO(OH)_2]_2$, and deuterated analogue, i.r. spectra, H-bonds, vibr. 4−45282
Bao-Al_2O_3-SiO_2 system cpds., anisotropic thermal expansion and solid soln. obs. *(German)* 4−52911
K_2O-BaO-V_2O_5 system, glass forming regions and phys. props. *(Japanese)* 4−48515
$Sr_xBa_{1-x}Nb_2O_6$, dislocation etch pits, use of hydrofluoric acid etchant 4−52771
$Y_2O_3.4BaO.B_2O_3$ phase, micro-X-ray spectral anal. investigation 4−48736

barium titanate
ceramic, grain-size effects on ferroelec. props. 4−76222
composite ceramics, two-step positive temp. coeff. of resist. 4−48986
crystal structure, neutron powder diffr., rhombohedral phase 4−69763
cubic phase, lattice dynamic theory dispersion curves calc. *(French)* 4−75586
dielectric dispersion investigation in ferroelectric phase 4−64341
dislocation distribution investigation by means of etch pits 4−56752
dispersion of soft E-mode polariton, Raman spectra obs. 4−49363
domains, 180° α-type, secondary effects accompanying movement 4−49314
electrical conductivity mechanism 4−64076
electron microscope obs. of shear surface decoration patterns *(Russian)* 4−73082
film, obtained by cathode sputtering, ferroelec. props. investigation 4−49098
film, vacuum condensates, spontaneous deformation in reln. to ferroelectric props. 4−57013
film with bulk ferroelectric properties, r.f. sputtering 4−49560
heat capacity near electrical critical point *(Russian)* 4−49315
i.r. absorption spectra and ferroelectricity investigation 4−76252
mobility anisotropy in small polaron model 4−64075
nondestructive pyroelectric display of antiparallel polarisation distrib. 4−53359
paraelectric, dynamical determ. of higher order elastic coeffs. *(German)* 4−82667
permittivity dispersion at ferroelec. transition, obs. at 7 to 15 cm^{-1} 4−57490
photoconductivity, review 4−64112
photoconductivity and u.v. illumination effect on switching processes 4−64342
sintering kinetics, influence of Ba/Ti ratio 4−45748
solubility of H using $H_2/H_2O(H_2S)$ gas mixtures 4−48762
spontaneous electrooptical absorption 4−76237
structure-sensitive photoelectric effect 4−57139
surface layer anal. from X-ray diffractometer line profiles 4−52976
synthesis of capacitor materials with aqueous solutions of acid 4−70540
unipolar crystal, state of polarisation in surface layer and pyroelectric responses 4−64334
X-ray critical scattering around [005] reciprocal lattice point 4−60585
X-ray diffraction examination, temp. depend. 4−53383
X-ray photoelectron spectra, satellite phenomena, ca 13.6eV 4−79842
$(Ba,Pb)TiO_3$, and pure single cryst., 90° domain wall thickness meas. 4−61115
$(Ba,Sr)TiO_3$, solid soln., dielectric dispersion investigation in ferroelectric phase 4−64341
$Ba_{0.97}Sr_{0.03}TiO_3$, growth, struct., dielec. and opt. props. 4−49573
$BaTiO_3$: ^{89}Zr, electron capture decay lifetime rel. to antiferroelec.-paraelec. transition investig. 4−73081
$BaTiO_3$:Al, electromechanical props., transverse coupling coeff. 4−49305
$BaTiO_3$:CuO, semicond., PTC effect below the Curie temp. *(German)* 4−82412
$BaTiO_3$:Gd, drift mobility, doping conc. depend. 4−75863
$BaTiO_3$-MoO_3 system, dielec. const., loss tangent, ferroelec. props. and elec. conductivity 4−45226

Barkhausen effect
ferromagnet, irreversible magnetisation processes, Barkhausen jumps 4−72996

Barkhausen effect continued
ferromagnetic, mag. field intensity, eddy currents *(Russian)* 4−67392
fluxgate magnetometer, Barkhausen noise 4−58869
Fe, oriented transformer sheets, ferromagnetism for electronic engineers *(German)* 4−67404
Fe-FeSi, ferromag. material, Barkhausen noise power spectrum, surface effect 4−72993
Fe-Si(3%), grain oriented strips, Barkhausen noise after plastic deform. 4−72994
Barnett effect *see gyromagnetic effect; magnetisation*
barometers
No entries
barometric pressure *see atmospheric pressure and density*
barrages *see dams*
barrel distortion *see aberrations*
baryon-baryon interactions
see also hyperon-nucleon interactions; nucleon-nucleon interactions
quark model, repulsion due to parallel spins *(Russian)* 4−81424
baryon-baryon scattering
see also hyperon-nucleon scattering; nucleon-nucleon scattering
low-energy, in triplet state, potential model, SU_3 symmetry 4−69186
urbaryon rearrangement amplitudes, universality 4−71696
baryon decay
see also baryon hadronic decay; baryon leptonic decay; hyperon decay
angular decay distributions of $3/2^+$ isobars, quark model predictions 4−71673
CPT invariance, experimental tests 4−47458
generalised semileptonic, S-operator theory 4−47478
Pi-ness quantum number, oscillator theory of baryon structure 4−74641
semileptonic, e.m. corrections for e.m. corrections to semileptonic decays 4−71671
n, polarised, beta decay, triple-correl. coeff., T invariance limit 4−55595
n β-decay in intense e.m. field *(Russian)* 4−55594
n lifetime, comparison with μ lifetime in Weinberg's gauge field model 4−51707
p and possible higher mass metastable particles lifetime determ. using parton model 4−47535
baryon hadronic decay
$\Delta I=1/2$ rule in unified theories of weak and e.m. interactions 4−66021
hyperon, hadronic and radiative weak non-leptonic decays, vector-meson dominance 4−77797
neutron oscillator model of decay scheme 4−66139
pionic decay, application of coplanar breaking of $SU(6)_w$ 4−71655
resonance pionic decays in quark model, partial waves, $SU(6)_w$ relations 4−59583
resonances, naive quark-pair-creation model 4−59582
strong decays in $SU(6)\times O(3)$ quark model, crossing-symmetric form factor formalism 4−59664
$\Delta\to p_s\pi$ in pd reaction at 5.55 GeV/c, search for Δ-Δ component in ^2H wave function 4−69193
$K^-\Delta^+(1230)\to K^-p\pi^0$ in K^-p interactions, 1915 to 2170 MeV, partial wave analysis 4−55669
$NN\rho$ amplitudes, leading divergencies, diagrammatic technique 4−71656
$\Omega^-\to K^-\Lambda$ produced in K^-p interaction of 10 GeV/c, α-decay parameter determ. 4−69152
$\Sigma^+\to p\gamma(\pi^0)$, asymmetry parameter, transition amplitudes *(Russian)* 4−62922
$\Xi^-\to\Lambda\pi^-$, decay parameters, lifetimes, spin, T invariance, P violation 4−47484
$\Xi^0\to\Lambda\pi^0$, decay parameters, lifetimes, spin, T invariance, P violation 4−47484
$\Delta I=1/2$ rule in asymptotically free field theories 4−62920
baryon interactions
see also baryon-baryon interactions; hyperon interactions; meson-baryon interactions; nucleon interactions
No entries
baryon leptonic decay
hyperon, role of second-class contribs., theoretical considerations 4−71653
baryon photoproduction
see also hyperon production; neutron production; proton production
matter antimatter symmetry, obs. on universal mag. field polarisation effects 4−68325
resonance prod., non-additive contrib. to constituent quark calc. 4−77819
resonances, above 1.5 GeV, data compilation 4−81416
$\gamma N\to\Lambda(\Sigma)\pi$, weak production near threshold, cross section estimates in Born approx. *(Russian)* 4−43415
$\gamma N\to V^0\Delta(1236)$, absorption model study *(Russian)* 4−47518
$\gamma p\to K^+\Lambda(\Sigma^0)$, exchange degeneracy 4−74605
$\gamma p\to\pi\Delta$ (1236), discussion of recent experimental data 4−77829
$\gamma_{(\nu)}p$ inclusive reactions, p, n distributions, review of data 4−77851
baryon production
see also baryon photoproduction; hyperon production; neutron production; proton production
astronomical objects, and resonances in equilib. config. *(Russian)* 4−83171
electroproduction of $3/2^+$ isobars, quark model predictions of angular decay distributions 4−71673
exotic exchange, triple Regge formalism 4−77886
pair production in pp interactions in ISR region, contribution to rising inelastic cross section 4−55719
$pp\to\Delta^{++}(1236)$ + anything, π- and ρ-Regge exchange analysis, absorption effect 4−66105
$\pi\Delta$ electroproduction 4−77848
$\pi^+p\to(\rho^0,\omega)\Delta^{++}$, 13 GeV/c, cross-sections, density matrix elements and statistical tensors determ. 4−47588
baryon resonances
see also hyperon resonances
astronomical objects, and production in equilib. config. *(Russian)* 4−83171
baryon resonances continued
baryon-antibaryon threshold resonances, role in high energy interactions 4−74651
coherent production, Primakoff and polarization effects *(Russian)* 4−71669
decay, naive quark-pair-creation model 4−59582
electroproduction of $3/2^+$ isobars, quark model predictions of angular decay distributions 4−71673
electroproduction of higher spin resonances within generalized Joos-Weinberg formalism 4−59547
inclusive decay amplitudes, lower bound for total cross section 4−47617
multibaryon, with zero and nonzero strangeness, search 4−51744
neutron star matter, correlation effects on energy shifts of Δ^- particles 4−65156
in nuclei, coupled-channel treatment 4−55800
photoproduction, above 1.5 GeV. data compilation 4−81416
photoproduction, non-additive contrib. to constituent quark calc. 4−77819
pionic decays in quark model, partial waves, $SU(6)_w$ relations 4−59583
resonance coupling suppression in dual resonance model 4−62987
review of particle properties, particle data group 4−51743
spin-parity grouping 4−74641
strong decays in $SU(6)\times O(3)$ quark model, crossing-symmetric form factor formalism 4−59664
SU_6 quark model, nucleon resonance electroprod. and spin depend. electroprod. structure functions 4−81408
SU(3) breaking mass formulae, linear or quadratic validity 4−77868
$D_{13}(1520)$ deep inelastic electroproduction in resonance region, cross section ratio σ_n/σ_p determ. 4−74615
$\Delta(1220)$ resonance with background addition, application to pole model 4−63059
$\Delta(1236)$, in nuclei, coupled-channel treatment 4−55800
$\Delta(1236)$-$\Delta(1236)$ component of deuteron, search for evidence in $md\to m\pi^+\pi^-pn$ reaction 4−69194
Δ exchange amplitudes in πN backward scattering, dual absorptive model 4−55674
$\Delta\to p_s\pi$ in pd reaction at 5.55 GeV/c, search for Δ-Δ component in ^2H wave function 4−69193
$\Delta^+(1236)$, $\Delta^0(1236)$, production in π^+n interactions at 12 GeV/c, Van Hove anal. 4−77924
Δ^{++}, production in π^+p interactions at 11.7 GeV/c 4−81443
$\Delta^{++}(1236)$, photoproduction by positron-annihilation radiation, cross sections 4−55623
$\Delta^{++}(1236)$ production in pp inclusive reaction at 303 GeV/c, pion exchange 4−59657
$ep\to eN^*$, symmetric quark model with modified Woods-Saxon potential 4−62939
$ep\to eN^*$, two body baryon model with modified Woods-Saxon potential between quark and diquark 4−74609
$F_{15}(1690)$ deep inelastic electroproduction in resonance region, cross section ratio σ_n/σ_p determ. 4−74615
$\gamma N\to V^0\Delta(1236)$, absorption model study *(Russian)* 4−47518
$\gamma p\to\pi\Delta$ (1236), discussion of recent experimental data 4−77829
$K^-\Delta^+(1230)\to K^-p\pi^0$ in K^-p interactions, 1915 to 2170 MeV, partial wave analysis 4−55669
N and N* exchange model in unified treatment of $pd\to dp$ and $pp\to\pi^+d$ 4−63010
N*, high mass, e.m. couplings in $\gamma N\to N\pi$ up to 2000 MeV 4−62940
N*, P_{11} (1460), meas. of $\pi^-p\to n\pi^0$ and $\pi^-p\to n\gamma$ differential cross section 4−47573
N*(1238), N*(1238), production in pp 5GeV/c collisions in emulsion 4−47616
N*(1470) production in pp, πp, Kp interactions, diffractive dissociation 4−55701
$(N\Delta(1236))$ bound state, possible existence, decay 4−47680
νN interactions, baryon resonance production cross section, form factors, quark model calcs. 4−59545
$P_{33}(1236)$, deep inelastic electroproduction in resonance region, cross section ratio σ_n/σ_p determ. 4−74615
$pp\to\Delta^{++}\Delta^{++}$, 3.6 to 12.0 GeV/c, dual absorptive model calculation 4−66093
$pp\to\Delta^{++}(1236)$ + anything, π- and ρ-Regge exchange analysis, absorption effect 4−66105
$pp\to pN^*$, quark model anal. of differential cross section and polarisation effects 4−71738
$\pi\Delta$ electroproduction 4−77848
πN 3-3 resonance pole, explanation of residue 4−47584
$\pi^+p\to(\rho^0,\omega)\Delta^{++}$, 13 GeV/c, cross-sections, density matrix elements and statistical tensors determ. 4−47588
$\Sigma(1750)$, $1/2^-$, SU(3) classification from $K^-p\to\Sigma^-\eta$ reactions near threshold 4−47575
Z_0^*, possible existence in $K_l^0p\to K_s^0p$ reaction 4−59612
Z* pole, in coupled channel anal. of K^+p elastic scatt. data 4−81437
Z_0^* (1800), in model for isoscalar KN scatt. near K*N threshold 4−59624
baryon scattering
see also baryon-baryon scattering; hyperon scattering; meson-baryon scattering; nucleon scattering
dual fermion amplitudes, function derivation 4−47542
baryons
see also baryon resonances; hyperons; nucleons
bound-state models of baryons, restatement of scaling hypothesis 4−55571
coupling in Serber-type h.o. model 4−66048
e.m. mass formula and model of baryons 4−74597
magnetic moments, within 27-plet, in terms of Sl(3,C) 4−43408
quark, relativistic model for baryons 4−74634
quark model, magnetic moments, Melosh transform., current and constituent quarks, angular constraints 4−77859
review of particle properties, particle data group 4−51743
spectrum, even wave harmonic oscillator mechanism 4−69176
spectrum degeneracy in harmonic symmetric quark model 4−47538
structure and spin-parity grouping 4−74641
barysphere *see earth; earth core*
BASIC
CAI implementation language PILOT 4−62386

batch processing
  ceramic industry, colour match prediction and batch control techniques 4-54915
batteries *see cells (electric); primary cells; secondary cells; solar cells*
Bauschinger effect
  continuum model of dislocations under reverse stress 4-56744
  crack propagation in cyclic loading, plane and axisymmetric problems *(Russian)* 4-81178
  local strains theory, yield surfaces analysis 4-47112
  steel, mild, annealed, subsequent yield surfaces under dead weight loading 4-49840
  Al, block boundaries formed in creep, stability *(Russian)* 4-76438
  Al, compression of polycrysts. prestrained by tension, region of const. flow stress 4-76502
  Al-Al$_3$Ni, unidirectionally solidified eutectic 4-49813
Bayard-Alpert gauges *see vacuum gauges*
Bayes methods
  hydrology, first-order autoregressive model, Bayesian approach to estimation of ρ 4-68131
bays (magnetic) *see geomagnetic variations*
BCS theory
  see also many-body problems; nuclear theory; superconductivity
  action principle for superconductivity, equivalence with BCS theory for slowly varying fields 4-57191
  alloy, mag. impurities, coexistence of ferromagnetism and superconductivity 4-67300
  Bose gas, model Hamiltonian of BCS type 4-55374
  Eliashberg equations, soln., for BCS mech. and phonon softening in one-dimensional system 4-79430
  Fermi superfluid, anisotropic, of generalised BCS type, spin dynamics, appl. to ^{3}He 4-56926
  Ginzburg-Landau free energy, d-wave pairing near transition temp. 4-60671
  linear chain system, incompatibility of BCS pairing and Peierls distortion 4-72885
  microscopic approach to isotope shifts 4-71807
  nuclear mass parameter in quadrupole motion 4-71760
  pairing model of E1 $\Delta K = \pm 1$ transitions in deformed odd mass nuclei 4-71831
  superconductivity, Meissner effect, crit. temp. and crit. currents *(Hungarian)* 4-82509
  superconductivity, microscopic theory, verifications and extensions, review 4-60896
  transition metal superconductivity, analysis in terms of d-electron conc. 4-60893
  ^{146}Gd, heavy $N=82$ isotone, BCS + TDA calcs. of structure 4-47646
  ^{3}He superfluid, paramagnon and BCS state 4-63962
  ^{144}Sm, heavy $N=82$ isotone, BCS + TDA calcs. of structure 4-47646
beam choppers
  capacitive beam deflector, summing of harmonic freqs. by a reson. cable 4-62500
  mechanical system for half life measurement in 1-900 ms range 4-68762
  neutral particles time of flight analysis 4-71226
  new design for astronomical i.r. photometry 4-65229
beam-foil spectra
  heading is late addition, see also atomic spectra
  atomic mean life measurement, beam-foil method reliability 4-66308
  hydrogenic atoms, p-, s- and d-state populations, cascading 4-51970
  As I, radiative lifetimes, 1850-3000 Å 4-74826
  B IV, far u.v. spectrum *(French)* 4-78327
  Cl, foil-excited beam, X-ray emission 4-47859
  Cl VI, Cl VII, lifetime meas., beam foil spectra 4-51969
  F, beam-foil meas. of lifetime of $2S_{1/2}$ state 4-63343
  F, highly ionised, new lines in x.u.v. spectra 4-47857
  Fe^{+24}, radiative decay of 2^3S_1 and 2^3P_2 states, cascading effects 4-78339
  He I and II, beam-foil spectra, coherent orientation by asymmetric collision 4-72052
  $^{4}He^{+}$, excited states, fine struct. obs. by fast beam r.f. resonance 4-66275
  MnI, II, III, beam foil mean lives, appl. to revised Mn solar abundance 4-69416
  N, NIII to NVI, NIV transitions, obs. 100 to 400Å 4-78329
  N I to N IV, beam-foil lifetime meas. in vac. u.v., transition probabilities determ. 4-74830
  N II, lifetimes of $2p^3(^1P^0$ and $^1D^0)$ and 2p3s $^1P^0$ levels 4-47831
  N VI, $3s^3S$-$3p^3P$ transition wavelengths meas., Lamb shift 4-72028
  O, beam-foil meas. of lifetime of $2S_{1/2}$ state 4-63343
  O, highly ionised, radiative transitions obs. by foil excitation method 4-51968
  S ions He-like and Li-like, X-ray, emission spectra, lifetimes of states and transition energies 4-59933
  S^{-} + Be(C)(Al)(Cu)(Ge), lifetime meas. of ion inner shell vacancies 4-78340
  S^{13+}, metastable $^4P^0$ state lifetime and binding energy, autoionizing decay after foil excitation 4-56022
  Sb I, radiative lifetimes, 1850-3000 Å 4-74826
  V^{+21}, radiative decay of 2^3S_1 and 2^3P_2 states, h.f.s. and relativistic effects 4-78339
beam-foil spectroscopy
  heading is late addition, see also spectroscopy
  atomic fine and hyperfine structure, Lamb shift meas. 4-43716
  atomic spectra, transition probabilities 4-43726
  parabolic axicon, possible appl. 4-58776
  target chambers, detection and elimination of reflections 4-58802
  C foil preparation by atomic bombard. 4-76370
beam handling equipment
  4 MV linear accelerator with beam splitter, isodose curves 4-50894
  atomic beam polarising mirrors 4-51137
  automatic alignment of targets 4-77156
  charge-state separator based on offset magnetic quadrupoles, design and operation 4-55019
  chopper with coding disc, background diminishing 4-58908
  cyclotron beam phase width and time structure control by ion source bias *(German)* 4-46784
beam handling equipment continued
  cyclotron beam probe signals, suppression of harmonics 4-55021
  cyclotron internal deflection system producing incompletely pulsed cyclotron beam 4-74105
  deflecting devices, magnetic and electrostatic, some technological aspects 4-80975
  electron beam division into short pulses by deflecting cavities *(French)* 4-55016
  electron gun, Martin-type, beam control 4-81362
  electron lithography, high speed deflecting system 4-42866
  e.m. isotope separators, lens effect of extraction electrode aperture 4-55550
  fast sweeping system for extracted cyclotron beams on and off adjustable aperture, 0.5 to 5000 μs lifetime measurements 4-68763
  h.f. separator and magnetooptical channel performance 4-80974
  ion beam separation, inexpensive bending magnet system for low energy beams 4-58907
  Los Alamos Meson Production Facility radiobiology/therapy progress report 4-46442
  magnet, air-cored, for charged particle beam, calc. of bending power 4-55018
  magnetic double monochromator symmetrised systems for ion beams 4-62501
  magnetic field clamp, with beneficial saturation effects 4-68743
  muon beam production and transport for in-vivo tissue analysis using muonic X-rays 4-83332
  muon high-intensity superconducting channel design 4-58909
  neutron beam focusing with Soller slit for low angle diffractometer 4-68764
  neutron beam position, computer controlled *(French)* 4-74142
  neutrons, cold, transmission and reflection props. of curved Cu guide tube 4-46783
  Nimrod switching magnet study 4-42867
  proton extraction system of 70 GeV accelerator for Ludmila liquid hydrogen system 4-74106
  secondary beam line, digital monitoring and data acquisition CAMAC system 4-46862
  spectrum monitor for $E \times B$ velocity filters 4-51136
  superconducting r.f. separator, development and testing of prototype for Nimrod 4-77155
  teletherapy unit output variation, collimator scatter model 4-50852
  velocity filter for heavy ion reaction products 4-80973
  n beam diffraction by vibrating double-crystal systems 4-55017
  π-stopping telescope, improvement with time-of-flight technique 4-68771
  H, grounded large area ion source, prod. intense fast atom beam 4-63377
beam pens *see light pens*
bearings (machine) *see machine bearings*
behavioural sciences *see social and behavioural sciences*
bells
  see also musical instruments
  No entries
bending
  see also buckling; stress analysis; torsion
  acetal copolymer, uniaxial and rot. bending fatigue tests 4-80158
  aerodynamic finned free elastic structure, following load, dynamic stability vibr.-torsion bending 4-55297
  beam, nonlinear bending as tracking problem *(French)* 4-51315
  beam, optimal rectangular section for asymmetric bending *(Russian)* 4-74288
  beams, axially constrained on elastic foundation 4-51326
  bearing capacity of plates and shells edge loaded by distributed moments, lower bounds 4-59187
  brittle bar fracture under impact bending 4-52812
  brittle solid, in homogeneous stress state, fracture 4-48675
  cantilever beam, plane stress yielding due to combined shear and axial load 4-65703
  cantilevered plate, under concentrated load, effect of material props. 4-43061
  cantilevered plate, with low shear stiffness, transverse shear effect in bending 4-45778
  caprolone, fatigue strength during cyclic stretching and bending 4-50017
  circular bars, twisting, anisotropically hardenable material 4-81181
  circular ring, deformations under nonuniform normal press. 4-74308
  circular toroidal shell, axisymmetric loading, stress and deform. states 4-55255
  combined with torsion, stress analysis *(French)* 4-68897
  composite, binder strength at high temps. 4-61527
  composite beam model of human cochlear partition, stiffness measurement 4-73897
  cone-shaped package system, torsional-bending oscillations *(Russian)* 4-55286
  conical shell finite element, asymmetrical bending and free vibr. 4-77405
  crystal, to a cylindrical surface via slip in glide planes 4-75564
  cyclically loaded creeping structures, work bounds and assoc. deform. 4-43092
  cylindrical shell, compliance coeffs. conc. force end frame loading 4-55257
  cylindrical shell with closure attached by frame loaded by concentrated force system, stress state 4-47099
  elastic plates, thin rectangular orthotropic, twisting and bending 4-81174
  elastoplastic sheet, bending by finite deforms., unloading and new loading regions *(German)* 4-43084
  fatigue testing, low-cycle beam or plate bending 4-62416
  fatigue testing machine for combined bending and torsion 4-70591
  fine wire, corrosion-fatigue testing 4-50062
  finite element method, plate bending *(Greek)* 4-43080
  flat slab with openings, distrib. of bending moments 4-71332
  flexible plates with reinforcing ribs *(Russian)* 4-51351
  flexural-torsional vibrations of T-beams 4-43109
  fretting corrosion, metal fatigue testing, transverse bending 4-83008
  glass ceramic, β-spodumene, containing ZnO, bending strength rel. to heat treatment *(German)* 4-45733

- **bending** continued
  - glass reinforced plastic ring with unidirectional struct., friction and bending effect on perimeter strain distrib. 4−45785
  - impact testing machine, oscillography use for shock bending 4−61557
  - infinite elastic beams, bending moment, shear and normal force for various impact velocities 4−43050
  - instability, pure bending of bar, Lyudvik's power law, creep law, Tresca conditions *(Russian)* 4−77398
  - isotropic and orthogonal anisotropic materials, plane plastic flow, formal-identical description *(German)* 4−45582
  - laminated cantilever beams, lower bounds for deflections, transverse shear deform. effect 4−62687
  - laminated cantilevered beams, deflections, upper and lower bounds, transverse shear deform. effects 4−43073
  - laminated composite plates in cylindrical bending, forced vibrations 4−55280
  - nonlinear viscoelasticity, problems of disc, bar and wedge in pure shear, torsion and bending 4−47091
  - Nylon 6, glass fibre reinforced, notched specimen, crack propag. by bending fatigue *(Japanese)* 4−49922
  - orthotropic laminated cylindrical shells, pure bending and stretching 4−74306
  - orthotropic sandwich cylinders, buckling of, analysis 4−74320
  - piezoelectric plates, thin bending by action of electric changes *(Russian)* 4−53377
  - plane contact problem of semi-infinite beam bending on elastic wedge 4−51347
  - plastic, hysteresis heating and fatigue life 4−76561
  - plastics, bending creep meas. *(Polish)* 4−49985
  - plastics, glass fibre reinforced, fatigue and change of elastic modulus 4−82965
  - plate, circular, stress distrib. along break-line formed during bending *(Russian)* 4−74321
  - plate, clamped, variational justification for successive approx. method applic. *(French)* 4−47075
  - plate, clamped rectangular, extended Kantorovich method 4−59166
  - plate, finite-thickness, elliptical crack stress intensity anal. 4−74327
  - plate, L-shape, numerical solutions 4−81162
  - plate, thick with circular cylindrical opening, stress anal. *(Russian)* 4−51352
  - plate, three dimensional finite-element anal. 4−74279
  - plate, unilateral deform. problems, stationary case *(French)* 4−68895
  - plate, with piecewise varying thickness, static elastic stability 4−43077
  - plates, anisotropic of variable thickness, variational anal. *(Russian)* 4−51349
  - plates, axisymmetric circular of variable stiffness 4−62699
  - plates, polygonal, simply supported, integral eqn. soln. 4−74290
  - PMMA, fatigue life in cyclic bending with rot. 4−45829
  - PMMA, plane bending fatigue *(Japanese)* 4−70574
  - PMMA sheet, notch length effects on mech. props. 4−45824
  - polycarbonate, plane bending fatigue *(Japanese)* 4−70574
  - polymer, fatigue life in cyclic bending with rot. 4−45829
  - pyroceramics, microbrittleness determ. 4−49880
  - rectangular sandwich plates, large deflection, governing differential equations, stress patterns of face layers 4−45765
  - resonance device, meas. strength of materials, symmetric cyclic tension, compression and bending 4−83005
  - rigidity determ., AFL-8-525 conductor 4−68906
  - sandwich plate, stiffness matrix of element in bending *(Polish)* 4−71327
  - sandwich plates on longit. elastic line supports, compressive buckling 4−47104
  - semiconductor, strength testing equipment 4−61564
  - shallow ring segment, nonlinear inextensional vibration 4−74358
  - sheet metal dished ends, explosively formed, deformation characts., anal. 4−61413
  - shell, pressurized cylindrical, nonlinear behaviour analysis 4−47103
  - shell deformation, nonlinear axisymmetric problem soln. by Vlasov-Petrov method *(Russian)* 4−43083
  - shell of revolution, approx. elasticity soln. 4−43069
  - shell of revolution, linear strain-displacement interpret. 4−43066
  - shells, rectilinear, evolvable, in bending state, soln. of general system of eqns. 4−51317
  - single crystal, determ. of degree of bending from orientational scatt. of β-particles 4−52810
  - steel, failure in impact bending, cooling effect 4−61459
  - steel, fracture and flow stress in partial scale yielding range *(German)* 4−45873
  - steel, grain shape parameters during bending, stat. meas. *(Japanese)* 4−79954
  - steel, mild sheet metal, effect of additional bending on yield point *(Rumanian)* 4−82882
  - steel, rolled anisotropic plates, biaxial low-cycle fatigue 4−50055
  - steel, rotatory bending fatigue test, circumferential temp. change effect on strain energy change *(Japanese)* 4−80160
  - steel, spring Mn-Cr-B type, ausforming effect on fatigue strength *(Japanese)* 4−82892
  - steel, with protective coating, kinetics of crack development during corrosion-fatigue 4−67970
  - straight beams, variational formulation of nonlinear equations 4−68893
  - textolite composites, fabric reinforced, interlaminar bond strength 4−61528
  - thick plates, high precision triangular plate bending element 4−81166
  - thin curved tubes limit analysis 4−77452
  - thin rectangular plate on elastic foundation, thermal bending 4−77430
  - thin-walled members, variational formulation of stability problems 4−47078
  - torsional rigidity and shear centre, finite element solution *(German)* 4−51357
  - tube creep bending, differences in tensile and compressive props. 4−45893
  - tubes, thin-walled curved, lateral bending and twisting, numerical soln. 4−55254
- **bending** continued
  - uniaxial stress/strain curve, misalignment effects on pre-macroyield region 4−45887
  - viscoelastic materials, short-cycle bending testing equipment 4−61568
  - wedged double cantilever beams, crack propag. 4−48672
  - Al_2O_3, alumina, with NiO and ZnO additives, high temp. mech. props., conc. and grain size depend. *(German)* 4−49878
  - Al_2O_3, corundum, high temp. creep, pure bending 4−57761
  - Be, textured and spall damaged, residual mech. props. 4−50114
  - C fibre reinforced epoxy resin, fatigue strength and failure mechanisms 4−45760
  - CaO-Na_2O-SiO_2, etched glass, tensile strength meas., thickness depend. 4−57777
  - Fe, cast grey, graphite inclusions effect on fracture 4−82918
  - Fe-Si(100) single crystal, domain structure induced by bending 4−67397
  - KCl single crystal, determ. of degree of bending from orientational scatt. of β-particles 4−52810
  - $0.5Li_2O \times 0.5K_2O \times 2SiO_2$, mechanical properties effect of melting time and atmosphere 4−73341
  - MgO, press-powder comp. influence on physicomech. props. 4−67916
  - Na_2O-CaO glass, polymeric coatings effect on strength 4−73359
  - α-SiC single crysts., deform. struct. 4−49910
  - Si_3N_4, hot pressed, inclusion effects on room temp. strength 4−67920
  - Ti-Al-V-Sn alloy TA6V6E2, microstruct. influence on mech. props. *(French)* 4−49796
  - WC-Co alloy, strength increase by vibr. and thermo-vibr. treatment *(Russian)* 4−53733
- **bending of light** *see gravitation; light*
- **berkelium**
  - No entries
- **berkelium compounds**
  - BkO_2, thermal expansion, room temp. to 1000°C 4−60628
- **beryllium**
  - atom, $1s^22s^2$ ground state, correlation study, multiconfig. Hartree-Fock calcs. 4−63326
  - atom, 1s-hole condition, non-empirical calc. *(Russian)* 4−43709
  - atom, C I wavefunction oscillator strength calcs. 4−72033
  - atom, correl. holes, pair distrib. functions calc. from Hartree-Fock and CI wavefunctions 4−51948
  - atom, correlation energy, Brenig's method *(Russian)* 4−74821
  - atom, Fermi hole calcs. for ground state 4−74820
  - atom, many-electron wavefunctions, method of successive approximations 4−63323
  - atom, orthonormalised local energy method 4−59896
  - Auger electron emission and oxidation effects 4−79831
  - buckling effect on discrete and pseudo modes of neutron waves 4−71973
  - Compton profile measurement, electron wave functions 4−57650
  - Compton profile measurement, secondary scatt. 4−57649
  - crack propagation under shock conditions, growth law, S-200 specimens 4−49860
  - fibre reinforced Ti microcomposites, state-of-the-art review 4−80071
  - film, on polycryst. Cu, Auger and secondary electron emission excited by backscatt. electrons 4−53554
  - fluorescence yield from $1s(2s)^2\ {}^2S$ state, many body pertubation theory 4−63341
  - fracture prediction, observations on Sih's strain energy density approach 4−66974
  - fracture prediction, observations on Sih's strain energy density approach 4−66976
  - fracture toughness theory development, K_{Ic} prediction from tensile data 4−67815
  - Fuchs model of metallic binding forces 4−78947
  - grinding induced machining damage 4−49772
  - hexagonal, phonon dispersion curves in modified Sharma-Joshi model 4−44610
  - interstellar Be abundance from Be II resonance lines in O and B stars 4−73835
  - isoelectronic sequence, atomic polarisabilities calc. by finite difference methods 4−59922
  - lattice dynamics obs. by slow neutron inelastic scatter 4−82240
  - layer, evaporated on Cu, secondary electron energy spectra meas. 4−82779
  - metalloceramic type, irrad., swelling during isothermal annealing 4−71995
  - molecule, potential energy curve, correlation energy correction, Hartree-Fock density 4−52075
  - muonic atoms, parity violations by neutral currents 4−63379
  - neutron moderation, applicability of diffusion approx. for studying discrete eigenvalues of Boltzmann eqn. 4−78154
  - n.m.r. spin-lattice relaxation and translational diffusion 4−45199
  - one-body potential calc. exchange and correlation contrib. 4−75763
  - plasmon damping, ang. depend. meas. *(Japanese)* 4−44875
  - plasmon damping, loss peak meas., ang. depend. 4−57055
  - plasmon peak, meas. angular dependence *(Japanese)* 4−44874
  - plastic deformation of monocrysts. under laser irrad. *(Russian)* 4−79924
  - polycrystalline, thermal neutron cross section meas. 4−78264
  - porosity control by extreme Kirkendall effect 4−80051
  - powder components, high-purity, fabrication 4−67892
  - proton irrad. 5 to 18 keV, energy distrib. of H atom backscatt. 4−78251
  - submicrogram determination using special neutron counting device *(German)* 4−68776
  - superconducting, finely dispersed, crit. fields, 4.2 to 2K *(Russian)* 4−70095
  - superconducting, layers, modified with Al, high temp. supercond. stabilisation *(Russian)* 4−70096
  - surfaces contaminated by Si energy depend. of sensitivity of ionisation spectroscopy 4−76354
  - swelling at high temps. under large irrad. doses 4−71996
  - thick film, energy distrib. of inelastically reflected electrons 4−73231
  - thin film, evaporated, optical absorption 4−64458

beryllium continued

- X-ray excitation spectrum, solid-state electron gas, Wigner electron lattice 4–60764
- X-ray spectral analysis, test of non-dispersive technique *(German)* 4–55139
- Am-Be neutron source, calibration by manganese sulphate bath method 4–51139
- Am-Be neutron spectrum, iteration method for calc. 4–62519
- Be, textured and spall damaged, residual mech. props. 4–50114
- Be I, spectrum, np^2 terms effect on singlets, quantum defect anal. 4–63325
- Be II, Lamb shift contributions to ionisation potentials of ground states investig. 4–81708
- Be on Pb and Pb on Be films electron bombarded, angular and energy distributions of inelastically reflected electrons 4–70388
- Be:Cu, diffusion coeff. rel. to Cu introduction investig., ion backscatt. technique 4–63944
- Be:Fe, electronic properties of Fe impurities from Mossbauer meas. 4–82645
- Be-BeO transition layers reactively, deposited by evaporation, secondary electron emission *(German)* 4–64461
- Be$^+$, at. oscillator strengths determ. using new orbitals generation procedure 4–51942
- Be$_2$, molecules in molecules theory 4–56102
- Be$_2{}^+$, FSGO open-shell calcs. 4–66379
- CdTe:Be, impurity-induced far i.r. absorpt. spectra, perturbation model calcs. 4–64414
- Cu-Be contaminated surface, secondary electron ejection by He and Ar neutral atoms 4–82777
- Si:Be, H, i.r. absorp., Be-H complexes obs. 4–49400
- ZnSe:Be, i.r. lattice absorpt. spectra, localised mode sidebands 4–49403

beryllium alloys

- *see also beryllium compounds*
- Al-Be-Mg-Zn quaternary, solidification 4–79910
- Be-Al(38 wt.%), mech. props., temp. and strain rate depend. 4–64575
- Be-Cu, mirror, Ag or Au coating, laser pulse damage 4–55501
- Be-Fe-C, impurity interactions, Mossbauer obs. 4–71994
- Be-Ni, contact spring materials, ductility reversal during age hardening 4–49768
- Cu-Be, eutectoid comp. region, β-phase decomp. *(French)* 4–76427
- Cu-Be(2 wt.%), ordered microstruct. development by elastic interaction *(French)* 4–45565
- Fe-Be, Mossbauer obs. of isomer shift, quadrupole splittings and mag. hyperfine splittings 4–45222
- LiBe molecule, FSGO open-shell calcs. 4–66379
- Mg-Be, reactor construction material, corrosion properties, effect of organic coolant *(Czechoslovakian)* 4–43648
- $(V_{1-x}Cr_x)Be_{12}$, mag. susceptibility and n.m.r. of ^{9}Be and ^{51}V, Knight shift meas. 4–60946

beryllium compounds

- *see also beryllium alloys*
- beryllium salicylal-n-toluidinate, photoluminescence, quantum yield electron struct. effects *(Russian)* 4–49423
- Al_2O_3-BeO system melts, surface tension and density 4–70538
- Be_4B, Be_2B and BeB_6, thermal diffusivity 4–67908
- Be_4B, hot pressing and mech. characteriz. 4–45751
- BeCl, $A^2\pi$-$X^2\Sigma^+$ band, Franck-Condon factors, r-centroids 4–60048
- BeF_2 -LiF-CeF_3 system, phase diagram 4–72553
- BeF_2-CeF_3 system, phase diagram 4–72553
- $BeF_4{}^{2-}$, electronic structure, nonempirical MO-LCAO-SCF calc. 4–47951
- $BeF_4{}^{2-}$, force constants, mean vibr. amplitude, valence force field calcs. 4–56154
- BeH, electronic struct., correlation energy correction, Hartree-Fock density 4–52074
- BeH, FSGO open-shell calcs. 4–66379
- $BeH^+ + HD = BeD^+ + H_2$, isotope exchange, corrections to Born-Oppenheimer approx., electronic effects 4–74957
- BeH_2, MC SCF theory of closed-shell systems, two-by-two rot. method 4–78411
- $BeH_3{}^+$, geometry, stability, isomerisation reaction investig., electronic wave function calc. 4–68004
- BeO, complex stacking fault struct. obs. 4–56758
- BeO, exoelectron dosimeters, activation energies determ. from isothermal fading 4–54730
- BeO, exoelectron energy spectrum calc. 4–49546
- BeO, F$^+$ centre hyperfine interactions calc. 4–79313
- BeO, hot isostatic pressing, microstruct. and fracture characts. 4–45759
- BeO, Hugoniot eqn. of state 4–63886
- BeO, irrad. and nonirrad., surface relief changes on annealing 4–48819
- BeO, on γ-irrad. beryllium bronze surface, thermally stimulated exoelectron emission *(Japanese)* 4–61276
- BeO, optically stimulated exoelectron emission 4–53582
- BeO, photoluminescence, quantum yield electron struct. effects *(Russian)* 4–49423
- BeO, polycrystalline, thermal neutron cross section meas. 4–78264
- BeO, thermally and optically stimulated exoelectron emission correls. 4–49542
- BeO, thermally stimulated exoelectron emission maximum and exoelectron yield shift during powder treatment 4–49541
- BeO, thermally stimulated exoelectron emission dosimeter 4–50899
- BeO, thermally stimulated exoelectron emission, energy analysis 4–53578
- BeO, thermally stimulated exoelectron emission, counting gases influence 4–57675
- BeO, thermally stimulated exoelectron emission meas., sample surface temp. 4–64485
- BeO, Thermalox type, trapping centres and activators assoc. with exoelectron emission, e.p.r. characteriz. 4–49543
- BeO dosimeter, photon irrad., energy depend. of exoelectron emission 4–54729
- BeO dosimeters, Li_2O treated, fast neutron detection in mixed radiation fields 4–54728
- BeO-Be transition layers, reactively evap., secondary electron emission *(German)* 4–64461

beryllium compounds continued

- $Be(OH)_2$, photoluminescence, quantum yield electron struct. effects *(Russian)* 4–49423
- $BeSO_4$, photoluminescence, quantum yield electron struct. effects *(Russian)* 4–49423
- ^{10}BeO thin target production via $^{13}C(N,\alpha)^{10}Be$ reaction 4–46788

Bessel differential equation *see Bessel functions*

Bessel functions

- acoustic wave propag. analysin is curved ducts 4–80776
- astrophysical plasmas, summing series of Bessel functions 4–61983
- axially symmetric electromagnetic fields in inhomogeneous dielectric media *(Russian)* 4–65864
- complex argument, certification of algorithm 4–43018
- complex argument and integer order $J_n(z)$ and $I_n(z)$, computer program for soln. by backward recursion 4–43015
- d.c. magnetic field in conductor, computation, Bessel and Fourier transforms *(German)* 4–43229
- differential difference eqns. asymptotic solns. 4–55195
- lower bound on first zero, and Coulomb wave function 4–65620
- multiple scattering molecular model, free electron Green function 4–63395
- orthotropic circular plates, buckling analysis 4–51314
- real argument, certification of algorithm 4–43016
- real argument and integer order $J_n(x)$ and $I_n(x)$, computer program for soln. by backward recursion 4–43017
- spherical reln.. to band theory model 4–57018

beta-decay

- *see also beta-decay theory; beta-ray spectra; nuclear electron capture; radioactivity*
- element formation in neutron rich ejected matter of supernova, dynamical r-process 4–58209
- fission products decay power calc. 4–63107
- ft-values of ^{14}O, ^{26m}Al, ^{35}Cl, Cabibbo angle, intermediate boson mass calcs. 4–71644
- as growth area in nuclear physics, review 4–59669
- half-life meas. of nuclei with a=28 to 111 4–71840
- K-shell internal-ionization probabilities in A=45 to 185 nuclei β-decay 4–59715
- localisation, in-depth, of beta emitting isotopes in biological use 4–47818
- multiple backward scattering of beams emitted by hard β-sources *(Russian)* 4–47670
- neutron, free, polarised, triple-correl. coeff., T invariance limit 4–55595
- n, in intense e.m. field, weak interaction theory *(Russian)* 4–55594
- ^{226}Ac radioactive decay scheme *(Russian)* 4–71836
- ^{30}Al transitions following $^{18}O(^{18}O,\alpha pn)$ reaction, decay scheme determ. 4–66151
- $^{30}Al \rightarrow {}^{30}Si$, β^- and γ-ray spectra meas. *(French)* 4–69233
- ^{34}Ar, β-delayed γ-ray spectrum, half-life and ft values, mirror comparison of superallowed β-decay 4–43503
- $^{184}Au \rightarrow {}^{184}Pt$, $e^-\gamma$ and $\gamma\gamma$ measurements, ^{184}Pt energy level scheme *(French)* 4–51785
- ^{12}B β-decay branching ratios meas. asymmetry calcs. 4–74738
- ^{12}B implanted in Ge, polarisation meas. through β-decay asymmetry 4–53051
- ^{13}B, β-neutron time of flight spectrum. meas. in delayed neutron decay 4–78017
- ^{14}B, half-life, branchings spin and log ft values 4–78016
- ^{a}Br, A=87-92, delayed neutron emission, short lived isotopes 4–71839
- ^{72}Br populated in $^{58}Ni(^{16}O,pn)$, decay to levels in ^{72}Se 4–59717
- ^{74}Br, β^+ decay, level scheme determ. 4–81479
- ^{76}Br, decay to levels of ^{76}Se, γ-γ coincidence expts. 4–59711
- ^{10}C produced in (p, xn) reaction, β^+-decay half life determ. 4–55792
- ^{10}C superallowed Fermi β-decay, ft value determ. 4–55786
- ^{11}C β^+-decay following $^{11}B(p,n)^{11}C$ reaction, prod. of low-energy beam 4–74108
- ^{14}C, determ. of max. energy of distorted spectra, and in depth isotope localisation 4–77166
- ^{45}Ca, determ. of max. energy of distorted spectra, and in depth isotope localisation 4–77166
- ^{75}Ca populating ^{75}Ge levels, decay scheme anal. and $T_{1/2}$ determ. 4–47660
- Cd→Ag, A=105, 107, Ag excited levels by analysis of anticoincidence spectra *(Russian)* 4–51784
- ^{115}Cd decay spectra anal. with semiconductor detectors setup 4–46845
- $^{119}Cd^{m,g}$, structure study of ^{119}In by γ-ray and conversion electron spectroscopy 4–51788
- ^{141}Ce, hindrance effects on β-moments for $(7/2)^-(0.435$ MeV $\beta^-)(7/2)^+$ transition 4–47668
- ^{41}Cl, β energy meas. using mass separator and heavy ion cyclotron 4–59721
- ^{54}Co populated in (^{3}He,t) reaction, ft value determ. 4–69254
- $^{54}Co(\beta^+)^{54}Fe$, superallowed Fermi decay, ft value, half-life 4–78011
- ^{64}Co populated in ^{64}Ni(n,p) at 14 to 15 MeV, ground state spin determ. 4–66155
- ^{45}Cr, new delayed proton precursor produced in $^{32}S(^{16}O,3n)$ reaction, half-life meas. 4–47722
- ^{48}Cr, half-life meas. 4–78015
- ^{51}Cr, half-life meas. 4–78015
- ^{132}Cs, β^+ and electron capture decay, L/K and K/β^+ ratios 4–66148
- ^{140}Cs β-decay to ^{140}Ba states, log ft values and β-branching 4–71843
- ^{145}Cs, ^{146}Cs, delayed neutron emission probability and half-lives 4–43502
- ^{143}Eu, β^+ decay, gamma-ray spectra in ^{143}Sm, ground state spin 4–51795
- ^{143}Eu decay scheme determ. anal. of ^{143}Sm and ^{141}Nd levels 4–47632
- ^{152ml}Eu (9.3h) decay scheme, log ft values *(German)* 4–77990
- ^{23}F from $^{10}Be(^{18}O, \alpha p)$ at 42 MeV 4–78012
- ^{53}Fe, ^{53}Mn energy levels, spin and parity assignment 4–51803
- ^{59}Fe, search for weak beta and gamma branches 4–78018
- ^{59}Fe second forbidden beta transitions, lowest log ft value meas. 4–66154
- ^{145}Gd, highly hindered-allowed transition, allowed assumption failure, interference effects 4–55788
- ^{64}Ge n-deficient isotope, β^+ decay meas. p and ^{3}He reaction studies 4–63111

beta-decay continued
- ^{65}Ge n-deficient isotope, β^+ decay meas. p and ^{3}He reaction studies 4−63111
- ^{77}Ge β decay, meas. of ^{77}As 632 keV(5/2$^+$) level g-factor 4−77954
- ^{3}H, meson exchange corrections, standard wave functions with short-range correlations 4−43504
- ^{3}H decay technique for He doping of Nb rel. to use in fusion reactors 4−69319
- ^{171}Hf → ^{171}Lu, new data on ^{171}Lu excited states *(Russian)* 4−51757
- ^{203}Hg, K-shell autoionization 4−59718
- ^{203}Hg → ^{203*}Tl, internal K ionisation accompanying low energy β-decay *(French)* 4−66147
- ^{158}Ho, population of two quasiparticle states in DY *(French)* 4−55785
- ^{160}Ho, population of two quasiparticle states in Dy *(French)* 4−55785
- ^{162}Ho, population of two quasiparticle states in Dy *(French)* 4−55785
- ^{170}Ho → ^{170}Er, level scheme, spin assignments 4−47664
- ^{a}I, A = 137-141, delayed neutron emission, short lived isotopes 4−71839
- ^{130}I^{m} → ^{130}Xe, decay scheme determ. 4−71845
- ^{131}I → ^{131}Xe, ^{131m}Xe, log f$_1$t value for first forbidden β-transition, decay characteristics 4−59722
- ^{114}In β^- decay, K-shell autoionization probability 4−63113
- ^{115}In, β^- and conversion elec. meas. 4−66144
- ^{116}In populated in ^{115}In(n,γ) reaction 4−59769
- ^{192}Ir → ^{192}Pt, angular $\beta\gamma$ correlations, parity of ^{192}Ir ground state *(Russian)* 4−51747
- ^{74}Kr decay, ^{74}Br level scheme determ. from α-ray meas. 4−81479
- ^{130}La β^+-decay, 1^{30}Ba level structure 4−71767
- Lu, A = 171, 172 decay, transition energy determination from conversion electron and γ-ray spectra *(Russian)* 4−51799
- ^{168}Lu, population of two quasiparticle states in ^{168}Yb *(French)* 4−55785
- ^{23}Mg produced in (p, xn) reaction, β^+-decay half life determ. 4−55792
- ^{23}Mg T$_{1/2}$, and branching ratio determ. 4−55791
- ^{56}Mn → ^{56}Fe gamma-ray spectra and level schemes determ. 4−78014
- ^{57}Mn → ^{57}Fe gamma-ray spectra and level schemes determ. 4−78014
- ^{58}Mn → ^{58}Fe, gamma-ray spectra and level schemes determ. 4−78014
- ^{12}N β-decay branching ratios meas. asymmetry calcs. 4−74738
- ^{13}N populated in ^{14}N($\pi^\pm$,πN), activation meas. of reaction cross-sections 4−78121
- ^{21}Na, T$_{1/2}$, and branching ratio determ. 4−55791
- ^{88}Nb decay populating ^{88}Zr two-body states *(Russian)* 4−51754
- ^{89}Nb β^+ decay populating ^{89}Zr, spectra meas. and energy levels determ. *(Russian)* 4−51796
- ^{95}Nb*, ^{95}Nb^{g}, weak β and γ transition meas. *(Russian)* 4−78007
- ^{19}Ne → ^{19}F (1.55 MeV level), exptl. anal. using in study of neutral weak currents 4−63109
- ^{19}Ne → ^{19}F$^-$e$^+\nu_e$, new exptl. test of time-reversal invariance 4−55793
- ^{23}Ne T$_{1/2}$, and branching ratio determ. 4−55791
- ^{24}Ne T$_{1/2}$ and branching ratio determ. 4−55791
- ^{14}O produced in (p, xn) reaction, β^+-decay half life determ. 4−55792
- ^{20}O populated in ^{18}O(^{18}O,^{16}O)^{20}O, decay scheme detem. 4−66151
- ^{30}P populated in ^{30}Si(p,n), β^+ decay half-life determ. 4−66151
- ^{32}P, determ. of max. energy of distorted spectra, and in depth isotope localisation 4−77166
- Pd → Ag, A = 109, 111, Ag excited levels by analysis of anticoincidence spectra *(Russian)* 4−51784
- ^{151}Pm → ^{151}Sm, $\gamma\gamma$ cascade meas., TDPAC determ. of g-factor for ^{151}Sm 91.5 keV state 4−43451
- ^{154}Pm, decay to levels of ^{154}Sm, γ-ray meas. 4−59712
- ^{78}Rb, anal. of ^{78}Kr level scheme 4−55728
- ^{86}Rb, 2$^-$ to 2$^+$ β-decay, nuclear structure determ. 4−55796
- ^{97}Rb, ^{98}Rb, delayed neutron emission probability and half lives 4−43502
- ^{172}Re → ^{172}W, decay scheme for new neutron-deficient isotope *(Russian)* 4−71815
- ^{174}Re, ground state struct. determ. from β-decay obs. *(Russian)* 4−77957
- ^{176}Re, ground state struct. determ. from β-decay obs. *(Russian)* 4−77957
- ^{178}Re, ground state struct. determ. from β-decay obs. *(Russian)* 4−77957
- ^{99}Rh (T$_{1/2}$ = 16.1 days), γ-ray spectrum, γ-γ coincidences and internal conversion spectrum *(Russian)* 4−78008
- ^{209}Rn → ^{209}At, study of ^{209}At excited levels *(Russian)* 4−51800
- ^{97}Ru → ^{97}Tc, meas. of ^{97}Tc transition rates 4−47650
- ^{31}S T$_{1/2}$ and branching ratio determ. 4−55791
- ^{37}S, populated in ^{36}S(n,γ), decay to states in ^{37}Cl 4−59716
- ^{37}S β^- decay populating ^{37}Cl levels, obs. of new branch 4−47667
- ^{125}Sb → ^{125}Te, disputed γ-ray investigation 4−69220
- ^{130}Sb popu-ating levels in ^{130}Te, anal. of excited states 4−51802
- ^{132}Sb populating levels in ^{132}Te, anal. of excited states 4−51802
- ^{42}Sc populated in (^{3}He,t) reaction, ft value determ. 4−69254
- ^{83}Se β-decay of ground and isomeric states, ^{83}Br level anal. 4−66146
- ^{143}Sm, highly hindered-allowed transition, allowed assumption failure, interference effects 4−55788
- ^{128}Sn → ^{128}Sb → ^{128}Te, gamma-ray spectra meas. level scheme determ. *(Russian)* 4−51797
- ^{130}Sn, populating levels in ^{130}Sb, anal. of excited states 4−51802
- ^{130}Sn → ^{130}Sb → ^{130}Te, study of ^{130}Sb and ^{130}Te levels *(Russian)* 4−51755
- ^{177}Ta → ^{177}Hf, level scheme and log ft values determ. 4−78013
- ^{160}Tb decay to ^{160}Dy, polarised source, γ-ray multipole mixing ratios determ. 4−81474
- ^{93}Tc, γ-ray spectrum, conversion electron spectrum and positron spectrum, decay diagram *(Russian)* 4−78009
- ^{93}Tc*, γ-ray spectrum, decay diagram *(Russian)* 4−78009
- ^{99}Tc → ^{99}Ru, obs. of weak decay branch 4−71844
- ^{113}Te from ^{112}Sn(α, 3n), E$_\alpha$ = 48 MeV, T$_{1/2}$ = 2.0 min *(French)* 4−51786
- ^{129}Te → ^{129}I, ang. correlation study 4−66152
- ^{191}Tl populating ^{191}Hg, meas. of gamma-ray and conversion elec. spectra in ^{191}Hg decay *(Russian)* 4−51781
- ^{204}Tl → ^{204}Pb(^{204}Hg), K-shell autoionisation during β-decay 4−66145
- ^{172}Tm populating ^{172}Yb levels, γ-ray spectra and mixing meas. 4−71822
- ^{164m}Tm, population of two quasiparticle states in ^{164}Er *(French)* 4−55785
- ^{46}V populated in (^{3}He,t) reaction, ft value determ. 4−69254
- ^{48}V, half-life meas. 4−78015
- ^{88}Y β^+ decay, anal. of ^{88}Sr levels 4−47666
- ^{62}Zn β^+ branching and γ-ray intensity 4−59720
- ^{95}Zr, weak β and γ transition meas. *(Russian)* 4−78007

beta-decay theory
- *see also beta-decay; beta-ray spectra*
- axial vector coupling const. renormalization for nuclei with < 22 4−59714
- double beta decay, S-operator theory 4−47478
- e.m. corrections to allowed decay, determ. of final state Coulomb interactions 4−63110
- Fermi model development to weak-interactions in quark model and current algebra *(German)* 4−43405
- K-electron capture to β^+ emission rates, mesonic second class currents problem 4−55790
- K-electron shake-off, total probability determ. 4−59713
- Lorentz transformation, external, internal and total improper 4−71364
- LS doubly closed shell nuclei, GT-type β-decay matrix elements 4−63108
- meson exchange currents and approx. D-states 4−55789
- partial conservation of axial vector current hypothesis testing 4−59719
- PCAC and CVC application 4−77784
- radiative corrections in SO(3) gauge model 4−59534
- spherical nuclei, f^7/$_2$ shell, Fermi-systems theory, conservation of isotopic spin *(Russian)* 4−51798
- transition matrix elements determ. for quasi-particle states 4−66149
- ν rest mass determ. using fundamental β-decay length and general relativity 4−69203
- ^{11}B, log ft value determ. in anal. of negative parity states 4−71773
- ^{12}Bβ-decay, Coulomb corrections through induced terms 4−63112
- ^{210}Bi(RaE) to ^{210}Po(RaF), nuclear wave function extraction from exptl. data 4−47665
- ^{11}C, log ft value determ. in anal. of negative parity states 4−71773
- ^{48}Ca → ^{48}Ti + 2e$^-$ + 2ν, calc. of matrix elements *(Russian)* 4−71846
- ^{137}Cs β-moments for second forbidden decay in CVC theory 4−66157
- ^{3}H β-decay, vector meson exchange currents 4−66153
- ^{146}Pm β^- decay to ^{146}Sm, microscopic nuclear wave functions 4−71847

beta-particles *see beta-rays*

beta-radiation *see beta-rays*

beta-ray absorption
- *see also electron absorption*
- particle size determ. method 4−46901

beta-ray angular distribution
- *see also beta-ray spectra*
- No entries

beta-ray detection and measurement
- *see also beta-ray spectrometers; dosimetry; particle detectors; radioactivity measurement*
- background reduction using plastic scintillator as anticoincidence shield 4−58928
- dosimetry, thermoluminescence, distribution around a beta-ray applicator 4−46475
- extrapolation chamber construction and use, calibration β ray applicators 4−77159
- implantable dosimeter packages for small vertebrates resident in fallout field 4−83350
- ionisation chamber for fast beta radiation indicator *(Slovak)* 4−58922
- multiple beta-single gamma detector assembly for low-level coincidence spectroscopy 4−55056
- pocket ionisation chambers, direct-reading, energy depend. w.r.t. X-rays and beta rays 4−77176
- scintillation count, watery solns., solubilized liq. scintillator *(German)* 4−74121
- scintillation counter, time resolution as function of triggering fraction 4−46846
- scintillator, thin glass, pulse shape differences for alpha- and beta-particle detection 4−77189
- superconducting solenoid with solid state detector system 4−42914
- ^{6}He beta emitter, populated in ^{9}Be(n,α) reaction, fast neutron flux meas. 4−69285
- LiF cavity, solid, comparison of Burlin and Almond cavity theories for electrons 4−46488

beta-ray effects
- *see also electron beam effects; nuclear reactions and scattering due to electrons*
- acetone, deferred radiolum., L.E.T. and dose rate influence 4−54046
- rare-earth atoms in chelate compounds, bond ruptures 4−64717
- ^{63}Ni β-ray radioluminescence of (Zn,Cd)S(Cu) crystals 4−76321
- T$_2$, β-irrad., no. atoms/ion pair, mol. processes 4−57856
- YAG:rare earth, luminesc., charge transfer, radiation defects *(Russian)* 4−73203

beta-ray polarisation
- No entries

beta-ray scattering
- *see also electron scattering*
- backscattering from thick targets, coeff. calc. using segment model, Z = 6-79, 0.1-20 MeV 4−55035
- multiple backward scattering of beams emitted by hard β-sources *(Russian)* 4−47670

beta-ray spectra
- *see also beta-decay theory; conversion electron spectra*
- distorted, max. energy determ. and in depth isotope localisation 4−77166
- ^{89}Nb β^+ decay populating ^{89}Zr, spectra meas. and energy levels determ. *(Russian)* 4−51796

beta-ray spectrometers
- *see also beta-ray spectra*
- cosmic ray, primary positron-electron ratio determ. 4−58162

beta-ray spectrometers continued
magnetic β-ray spectrometer for use with short lived activities 4−68798
multichannel delay cable system, relativistic beam anal. 4−42911
superconducting solenoid with solid state detector system 4−42914
Si(Li) electron detectors, fast calibration, using ^{66}Ga double-escape peaks and Compton edges 4−77239

beta-rays
see also electrons
No entries

beta spectrometers *see beta-ray spectrometers*

betatrons
34 MV, X-ray central axis depth dose obs. 4−54723
42 MV, automatic depth dose data acquisition 4−50893
45 MeV, electron scattering by collimator, effects on dose 4−46412
charge accelerated measurement *(Russian)* 4−58878
dispersed bremsstrahlung of betatron 42 MeV *(Czech)* 4−58879
electron beam characteristics comparison for Siemens betatron 6 to 18 MeV and Sagittaire linear accelerator 7 to 32 MeV 4−46417
electron capture, energy spectrum depend. *(Russian)* 4−65506
medical, electron beam treatment port modification 4−46415
medical, spectra of scattered X-rays from shielding materials for 4-30 MV X-rays *(Japanese)* 4−76979
oscillations, corrections to g-2 frequency in weak focusing storage devices 4−46779
PBM-6 compact, introscopic steel radiography appln. 4−55015
two-beam, improvement of defect depth determ. by radiometric method 4−46918
two-beam, improving sensitivity of crack detection by γ-ray method 4−46917
X-ray bremsstrahlung from 19 MeV radiotheraphy machine, comparison with that of 25 MeV linear accelerator 4−71266

Bethe-Salpeter equation
π form factor using bound state amplitudes in relativistic quark model 4−62930
charged Dirac particles in stationary e.m. field with radiative corrections 4−71355
covariant Feynman formalism, connection with time-ordered perturbation theory in infinite-momentum frame 4−47456
diffractive scattering, self-consistent Regge eikonal model with crossed-channel unitarity 4−55647
exciton theory, semicond. with zincblende struct. 4−75830
Fredholm approximations in scalar eqn. 4−55570
mathematical structure for massless exchange, closed solutions 4−71604
muliperipheral theory for pp inclusive reactions at 70 GeV *(Russian)* 4−66081
multiperipheral dynamics, general features and new trends 4−66076
one-meson states, relativistic dual composite model anal. 4−62984
Pomeron pole, self consistent 4−69179
positronium hyperfine structure, α^2 ln α^{-1} and higher-order corrections 4−69138
pseudo scalar and vector solutions in relativistic dual quark model 4−66052
quark, relativistic model for baryons 4−74634
reduced, relativistic wave functions for πN and π-nucleus scatt. 4−78119
Regge trajectories in Φ^3 ladder model, strong coupling limit 4−71609
scattering solution requirements using causal Green's function 4−69122
single-time equation for system consisting of scalar particle and spinor particle, spin struct. 4−51688
symmetric fermi quark distributions for relativistic models of hadrons 4−62969
weak interaction lepton-antilepton massless vector bound states, $O_4^{\Pi c}$ analysis 4−81399
Wick-Cutkosky model, perturbative soln. 4−47421
NN scattering phase shifts anal. by Nambu-Salpeter-Bethe eqn. 4−59600
pp diffraction, self-consistent model, fixed pole soln. 4−55648
π, composite, relativistic model 4−77862
^{3}He, superfluid, triplet pairing, self-consistent approx. for correl. functions 4−52963

Bethe-Uhlenbeck equations *see quantum statistical mechanics*

bevatrons *see synchrotrons*

big-bang theory *see cosmology*

bimetallic strips *see bimetals*

bimetallic wire *see bimetals*

bimetals
axisymmetric shells and circular strips, limiting equil. *(Russian)* 4−59195
fatigue strength of bimetallic specimens with pressed nozzles, tensile deform. influence *(Russian)* 4−53723
interface, self-consistent theory of adhesion 4−79403
metallography, application of activity method *(Russian)* 4−70432
Cu core fixed in Mo shell, thermal expansion of system *(Russian)* 4−70482

binaries (stellar) *see binary stars*

binary adders *see adders*

binary stars
A-type, kinematics 4−58318
A-type long-period binaries, orbital elements and radial velocities 4−46229
accretion discs in X-ray binaries, radiation pressure driven mass loss 4−73776
accretion of plasma, influence of mag. fields on disc struct. 4−68440
ADS 3093, 6554 and 7067, astrometric study of visual binaries 4−70985
RX Andromedae, dwarf nova, i.r. photometry near max. light 4−83225
AN Andromedae, eclipsing binary, spectroscopic orbit 4−54497
RX Andromedae, Z Camelopardalis type, light variations from UBV photometry 4−58333
apsidal motion in close binaries, variable orbital period effects 4−73728
R Aquarii, polarisation on 1974 Oct. 14 4−83230

binary stars continued
π Aquarii, short period radial vel. variations 4−50571
KO Aquilae, eclipsing binary system 4−62159
Aurigae, duration of total eclipse rel. to component size 4−50582
ε Aurigae, eclipsing binary, light curve based on disc models 4−62115
BF Aurigae, massive contact system 4−83222
BD+24°692, Hyades spectroscopic binary, spectroscopic obs. 4−54496
BDS 1269, visual binary, ubvyβ obs. show metal deficient primary 4−80595
black holes, detection *(Italian)* 4−70996
BV 544, β Lyrae type, yellow and blue photoelectric obs. 4−76828
Y Camelopardalis, eclipsing variable with δ Scuti primary, photoelectric light curves 4−73699
α Canis Majoris, UBV and Stromgren photometry of white dwarf secondary, Sirius B 4−73701
CW Cassiopeiae, double-lined, B-type eclipsing binary, spectrographic analysis 4−50562
TV Cassiopeiae, UBV photoelec. photometry of eclipsing binary 4−68417
CD −42° 14462, rapid blue variable, Hα, β, γ obs. 4−50574
V748 Centauri (Centaurus X-4 candidate), photoelec. photometry and spectroscopy 4−50604
Centaurus X-3, apsidal motion and period changes 4−73774
Centaurus X-3, image tube spectra of optical companion 4−58384
Centaurus X-3, OSO-7 obs. of eclipses in 7-30 keV range 4−46256
Centaurus X-3, position estimation from Copernicus satellite 4−58402
Centaurus X-3, tidal interaction and orbital period of close binary system 4−73777
VW Cephei, discovery of 10.5 mag. visual companion 4−73711
U Cephei, eclipsing binary, Hα emission features and disk 4−80587
u Cephei, peculiar spectral behaviour of eclipsing binary 4−76839
δ Cephei C, spectral duplicity *(Russian)* 4−71001
VV Cephei type eclipsing spectroscopic binaries, spectal types from UBVRI photometry 4−58335
Z Chamaeleontis, dwarf nova eclipsing binary, high speed photometry 4−71008
Circinus X-1, OSO-7 obs. in 3-10 keV range 4−80612
Circinus X-1, Uhuru obs. in 2-20 keV range 4−80611
α Crucis, long period spectroscopic binary, radial velocity data 4−71004
SS Cygni, dwarf nova, i.r. photometry near max. light 4−83225
V453 Cygni, early type Algol binary, UBV photometry 4−50594
MR Cygni, eclipsing binary, light curve synthesis and element determ. 4−73698
SS Cygni, flare star, UBV photometry of rapid flares 4−58296
CH Cygni, photoelec. obs. in 1969, August *(Russian)* 4−70998
V444 Cygni, photometry in continuum of WR eclipsing binary 4−54499
V 453 Cygni, UBV photometry and orbital elements 4−76835
Cygnus X-1, distance meas. from UBV photometry 4−68447
Cygnus X-1, gas streaming model 4−76881
Cygnus X-1, lower mass limit 4−73772
Cygnus X-1, X-ray absorption events observed with Copernicus 4−83244
Cygnus X-1, X-ray variability, millisecond temporal structure, rel. to black hole accretion 4−50645
Cygnus X-1 (HDE 226868), circular polarization obs. 4−58399
Cygnus X-2, X-ray binary, period from radial rel. data 4−71015
Cygnus X-3, U Geminorum evolution phase model 4−50639
δ Delphini, radial vel. of double-line spectroscopic binary 4−58302
early-type eclipsing binary systems, narrow-band Hγ line photometry 4−58306
eclipsing, with undersize subgiant secondaries, multicolour photometry 4−62160
eclipsing binaries, detached and semi-detached, radius-luminosity relation for main sequence and subgiants 4−73729
eclipsing binary, component with extended atmosphere, light-curve solution 4−46246
ε Eridani, parallax and orbital motion 4−54480
40 Eridani (ADS 3093), astrometric study of visual binary 4−70985
exotic close binaries, orbital elements with mass variations 4−65180
faint double stars rel. to local mass density 4−80632
First European Astronomical Meeting, Athens 1972 4−73803
formation rel. to three-body general problem 4−73597
Geminorum, Cepheid, new ephemeris for March 1974 lunar occultation rel. to period variation 4−46238
δ Geminorum, lunar occultation rel. to secondary component existence 4−58307
κ Geminorum by 433 Eros, 1975 January 24 prediction 4−70954
gravitational energy loss 4−65789
W Gruis, eclipsing spectroscopic binary, orbital elements and dimensions *(French)* 4−62134
HD 101799, W Ursae Majoris type, radial velocity determ. 4−46232
HD 153919, X-ray eclipsing binary in NGC 6281, UBV photometry 4−80637
HD 153919 (2 U 1700-37), eclipsing binary X-ray star, optical emission line spectrum variations 4−65190
HD 153919 (2U1700-37), photoelectric spectrum scans and coude spectroscopy 4−58330
HD 153919 (2U 1700-37), binary X-ray source UBV photoelectric photometry 4−65191
HD 217312, time of minimum light 4−68425
HD 25823, spectroscopic binary Ap star, UBV obs. *(German)* 4−76834
HD 77581-2U 0900-40 system X-ray binary, UBV Photometry 4−70979
HD 92168, 38 Leonis Minoris, spectroscopic binary, orbital elements *(French)* 4−50592
HD 98088, Ap star, apsidal motion 4−62156
HD 98088, magnetic Ap star, crossover effect detect. 4−62138
HDE 226868 (Cygnus X-1), Copernicus obs. of X-ray flux var. 4−68445
HDE 226868 (Cygnus X-1), interpretation of the He II 4686 Å emission line, models 4−68412
HDE 226868 (Cygnus X-1), Stromgren uvby photometric obs. 4−76880

binary stars continued
HDE 226868 (Cygnus X-1 candidate), Hα emission from red spectrograms 4−50589
Hercules X-1, X-ray and accretion models from light curve 4−68448
HZ Herculis, 3600-4900 A obs. with photon counting spectrum analyzer 4−54594
HZ Herculis, cooling time and surface current speeds 4−46227
LT Herculis, eclipsing binary, photometric obs. 4−62161
HS Herculis, eclipsing binary, possible apsidal advance 4−62157
HZ Herculis, effect of 35 day X-ray cycle on light curve 4−65154
DQ Herculis, linear polarization rel. to synchrotron radiation process 4−50600
HZ Herculis, optical activity 4−68422
HZ Herculis, optical properties and X-ray binary parameters 4−76826
HZ Herculis, quasiperiodic flickering in u.v. 4−68423
DQ Herculis, request for obs. 4−65172
HZ Herculis, spectroscopic analysis of neutron star in X-ray binary 4−83210
88 Herculis, spectroscopic binary shell star, 87 day period confirmed 4−65162
HZ Herculis, spectroscopic obs. rel. to masses, motion and distance 4−46226
HZ Herculis, upper limt on 2.5 sec pulsations 4−46260
DQHerculis, variable linear and circular polarization 4−54490
HZ Herculis (Hercules X-1), no pulsed radioemission at 430 MHz 4−68414
HZ Herculis (Hercules X-1), Stromgren uvby photometric obs. 4−76880
HZ Herculis (Hercules X-1), suggested cosmic-ray surface heating 4−46228
HZ Herculis (Hercuolis X-1), nonperiodic optical flickering 4−68413
HZ Herculis X-ray heating using double grey body approx. 4−50642
V600 Herculus photoelectric photometry rel. to revision of β Cephei classification 4−58334
hot components, nonlinear limb darkening effect 4−54503
HR 6870, peculiar B star, magnetic field Zeeman spectroscopic obs. 4−58337
HR 7694 Hg-star, orbit 4−62158
HR 8704 Mn star, orbit derivation 4−62154
i.r. stars in supergiant binary systems 4−65152
Kpr 39, astrometric study of visual binary 4−70985
UZ Librae possible spotted flare star of BY Draconis CC Eridani etc. type 4−76848
LMC, X-ray source locations and identifications, Copernicus obs. 4−80614
long period double stars, period comp. 4−65158
β lyrae, complex i.r. emission features in spectrum 4−65153
β Lyrae, for u.v. spectra from Copernicus satellite obs. 4−54493
βLyrae, photoelectric photometric obs. 4−58320
β Lyrae, search for Lα by Copernicus 4−46237
β Lyrae, secondary component, thick disc model 4−50575
β Lyrae, spectrophotometry rel. to gravity darkening 4−65176
β Lyrae spectrum, secondary component of K-line not detected 4−80590
magnetic, evolution with mass loss 4−54481
magnetic field effects on mass loss and evolution time 4−83214
mass exchange, evolution of stellar objects 4−58316
mass ratios in 367 visual and 243 spectroscopic binaries *(Italian)* 4−83232
massive X-ray binaries, upper mass limit determ. 4−65168
UX Mensae, eclipsing spectroscopic binary, orbital elements and dimensions *(French)* 4−62134
RU Monocerotis, eclipsing binary, UBV photometry 4−76853
neutron star binary, surface composition of accreting system 4−68437
neutron stars in binary, parametrized post-Newtonian approx. 4−50590
neutron stars in close X-ray binary systems, Her X-1 and Cen X-3 examples 4−83205
new double stars discovered at Nice, 11th series *(French)* 4−50595
NGC 2264, young cluster, variable star photographic photometry rel. to binary star detection 4−46275
OB runaways possibility of collapsed companions 4−70978
Orionis, CP, ET, FK, FL, FR, GG, OS, V343, eclipsing variables, light curves 4−58311
AR Pavonis, eclipsing symbiolic variable, UBV photometry 4−58328
AR Pavonis, spectroscopy of eclipsing variable 4−50605
EQ Pegasi, flare star, spectral and photoelec. obs. *(Russian)* 4−70999
GH Pegasi, geometrical elements and period of eclipsing binary from UBV photometry 4−70990
EE Pegasi, primary component spectrum analysis 3700-4600Å *(Russian)* 4−73707
Pegasi, UX, AQ, BG, BN, eclipsing variables, light curves 4−58311
AG Persei, double-lined, B-type eclipsing binary, spectrographic analysis 4−50562
b Persei, radio star, spectroscopic orbit 4−62155
X Persei (2U 0352 + 30) evidence for massive companion from radial velocity meas. 4−80613
LX Persie, Eclipsing spectroscopic binary, masses and MK classes 4−58336
δ Pictoris, eclipsing spectroscopic binary, spectrophotometry in 1360-2740 A range 4−58324
π Piscis Austrini, UVBGR photometry rel. to Cepheid nature 4−76836
proximity effects in light curves of close binaries 4−62131
pulsar, unsuccessful search for X-rays 4−83239
pulsar binary, parameters 4−76871
red dwarf density distrib., errors caused by faint companions 4−83213
relative parallaxes, proper motions of 20 stars or stellar systems 4−62109
relativistic stars, probabilities in double systems *(Russian)* 4−70972
revised orbital elements, dynamical parallaxes, masses for 8 visual binaries 4−46233
WSagittarii, high dispersion radial vel. curves 4−80565

binary stars continued
XZ Sagittarii, UBV light curve and orbital elements of eclipsing binary 4−50608
σ Scorpii occultation by Moon, photoelectric obs. showing binary nature 4−58339
Scorpius X-1, binary period from radial velocity obs. 4−54531
semidetached close binary systems, numerical simulation of gas flow 4−50569
small stellar clusters *(German)* 4−46280
SMC X-I (Sk. 160), X-ray binary, light curve from Walraven 5 colour photometry 4−58401
soft X-ray variability of X-ray binaries 4−46261
speckle interferometry obs. at Mt. Palomar *(French)* 4−83209
spectroscopic, peculiar B-type stars, luminosities from immediate-band uvbyβ photometry 4−80591
spectroscopic binaries with small mass functions rel. to X-ray identifications 4−83220
stability to third-harmonics disturbances of compressible Riemann ellipsoids 4−62103
subgiants in binary systems, undersize problem solved 4−80578
BL Telescopii, photoelec. photometry and spectroscopy 4−50604
2U0900-40, gas streaming model 4−76881
2U1700-37, mass transfer by stellar wind accretion onto neutron star 4−54533
2 U 0900-40 and 2U 1700-37 X-ray binaries with black hole secondaries 4−54494
2U 1700-37 (HD 153919), black hole possibility 4−46257
w Ursae Majoris, comparison of elements 4−58317
UXUrsae Majoris, eclipsing binary, coherent oscillations 4−70977
W Ursae Majoris, evidence for third body from mass radio discrepancy 4−71003
W Ursae Majoris contact binaries, A-type and W-type systems compared 4−80577
W Ursae Majoris to cataclysmic variable to type I SN evolution 4−58289
V729 Cygni, O9 + Of eclipsing binary, UBV obs. 4−58309
V806 Ophiuchi, eclipsing variable, light curves 4−58311
α Virginis, composite spectrum analysis *(Russian)* 4−68418
DL Virginis, eclipsing binary, forms triple system with G8 giant 4−80592
αVirginis (Spica), β Cephei nature, pulsation 4−80568
visual, kinematic props., space-motion components and age relationships 4−73730
visual binaries, inclination of rotation axes 4−65151
visual binaries, radial vel. meas. 4−76829
white dwarf accretion flow rel. to X-ray production 4−62118
Wolf-Rayet stars, anomalous redshifts 4−50585
Wolf-Rayet stars, light variations, photometric search rel. to binary nature 4−62135
X-ray and collapsar binaries, models from synthesis of light curves 4−46258
X-ray binaries, accretion on supersonic bodies 4−68439
X-ray binaries, limits on rapid pulsations from 1.5-10 keV obs. 4−71031
X-ray binary orbit obs. rel. to black hole detection 4−68433
X-ray sources, accretion in strong dipolar field producing X-ray pulses 4−54537
X-ray sources, review of data on Her X-1, Cen X-3, Cyg X-1 4−68446
X-ray sources, triple star models without invoking black holes 4−50646
X-ray sources and black holes, radiation beaming from accreting systems 4−68438
ZZ Cygni, eclipsing binary, UBV photometry 4−58310

binding energy
see also lattice energy; nuclear binding energy; nuclear forces
alkali metal halide diatomic molecule, using dynamic model of crystal 4−66400
alkali metal halides, calculation 4−66855
alkali metal halides, ionicity and photoelectron emission 4−64470
alloy, dilute, binary, solute-vacancy binding energies, theory 4−52751
amorphous semiconductor, rel. to optical gap 4−82117
atom, evaporated, in arc discharge, spectral line intensity depend. on bonding energy *(Russian)* 4−42964
bosons, four identical particles system, soln. of integral eqns. 4−63081
chalcogenide glass, X-ray photoelectron spectra 4−82118
chemisorption of metal atoms on metal surfaces, rel. to work function difference 4−56995
diatomic molecule, electrostatic binding in first row elements and hydrides, mol. dissoc. energy correl. 4−47913
ESCA approach to structure and bonding 4−72141
excitonic ion, existence, binding energy 4−64047
fluorinated hydrocarbons, core-level binding energy shifts for 1s level, electrostatic models 4−52242
gravitational energy extraction from falling particle in Weyl space-time 4−71405
halomethanes, core electron binding energies and ESCA shifts, ab initio calcs. 4−56103
ice II crysts., CNDO/2 hydrogen bonding calcs. of struct. parameters 4−72446
inert gas halides, stability, validity of three-centre four-electron model, exchange perturbation calc. 4−66386
interhalogens, diatomic, selected valence electron split-shell mol. orbital calcs. 4−43773
L-shell ionisation by heavy ions, binding and Coulomb effects 4−81733
metal, positron surface states props. 4−67268
metal-vacuum and metal-electrolyte interfaces, chemisorbate binding energies and sites, quantum-chemical calc. 4−53000
molecular core-level shifts, prediction from CNDO mol. orbitals 4−47935
negative ion excited states and energy determ. by electron detachment in elec. field *(Russian)* 4−78354
nonpolar crystals, effect of polarons on the binding energy of shallow traps 4−67185
photoelectron spectroscopy, reference levels, binding energy meas. 4−73236

binding energy continued
polyatomic molecules, single bond energies determ. using LCAO approximation 4−47931
positronium hydride, calc. to be 0.794 eV 4−63380
proton, gravitational origin of parton mass density 4−59581
SCF Dirac-Hartree-Fock calcs. for elements $Z=1$ to 120 4−55994
Schiff base metal complex, for complexes of Ni(II) and Cu(II) 4−66499
self-consistent extended Huckel theory, applics. 4−52035
semiconductors, tetrahedrally coordinated, bond orbital model, cohesive energy calc. 4−82130
solid, correl. with activation energy of self-diffusion, heat of melting, and thermal expansion *(Russian)* 4−67070
transition metal adatoms, density of state changes effects *(French)* 4−44984
transition metal complexes, high energy photoelectron spectroscopy 4−66503
AgBr, valence band and band widths by u.v. photoelectron spectra 4−82787
AgCl, valence band and band widths by u.v. photoelectron spectra 4−82787
AgI, valence band and band widths by u.v. photoelectron spectra 4−82787
Al, positron surface states props. 4−67268
Al, positron-edge dislocation binding energy determ. 4−71229
Al-Cu, dilute alloy, solute-vacancy binding energies, theory 4−52751
Al-Mg, dilute alloy, solute-vacancy binding energies, theory 4−52751
Al-Zn-Ge alloy, vacancy-Ge pair binding energy, rel. to Guinier-Preston zone formation rate 4−70468
Ar (100) surface, Ar atom adsorption, effect of nonadditive forces on binding 4−48841
B_2O_3-CaO glass:Fe^{3+}, heat-treated, ^{57}Fe Mossbauer and X-ray photoelectron spectra meas. 4−73054
Cl_2, exchange parameter effects in SCF $X\alpha$ scatt. wave method 4−74920
ClF, charge distribution from core electron binding energies 4−47948
Cu, volume depend. of total energy and eqn. of state 4−63785
Fe, binding energy determ. from appearance-pot. spectra and X-ray photoemission 4−79277
Fe, core level binding energies determ. from X-ray photoelectron spectrum 4−61272
FeO, Fe_2O_3, Fe_3O_4, appearance potential spectroscopy meas. 4−64454
GaP:O, pseudo impurity theory for binding energy of first-row deep donors 4−57049
Ge:(Al_1P), donor-acceptor binding energy 4−44860
H ground state binding energy in intermediate and intense magnetic fields, analytic variational calc. 4−43707
H^-, energy spectrum in strong magnetic field, binding energy calc. 4−47824
H_2, Bethe surface, diff. cross sections, Compton profile, binding from electron scatt. at 25 keV 4−52269
H_n, one-dimens. metallic H cohesive energy, SCF CI calc. 4−43783
InSb, degenerate band excitons, high mag. field effects 4−67188
KCl, impurity ions substitution energies calc. *(Russian)* 4−52779
Li, LCAO calc. using Gaussian orbitals 4−72689
Li-Mg, disordered alloy, binding energy of equilib. lattice parameter calc. 4−72444
NO on NiO, Co_3O_4 and graphite, X-ray photoelectron spectra 4−56981
Ni, binding energy determ. from appearance-pot. spectra and X-ray photoemission 4−79277
Ni, oxidation, X-ray appearance potential spectrum 4−49498
Pb-In, dilute alloy, solute-vacancy binding energies, theory 4−52751
Pt, adsorption of Xe, ESCA obs. at 100K 4−75697
Si, electron escape depth 4−67688
Si:N, pseudo impurity theory for binding energy of first-row deep donors 4−57049
SiO, SiO_2, electron escape depth 4−67688
Sn, allotropic X-ray photoelecrron binding energy differences 4−57664
$Te_{2.0}Br_{0.75}I_{0,25}$, crystn. and glassy, prep., thermal, struct. and photoelectric props. 4−56620
Ti atoms, Ta-Ti metal coated system, FEM determ. *(Russian)* 4−82315
W, chemisorption of CO and O_2, ESCA study 4−48861
XeF_2, binding energy, eigenfunctions, relativistic wave function calcs. 4−72127
Zn compounds, chem. shifts of core electron binding energies determ. 4−67686

Bingham plastics and solids *see rheology*

biocommunications
see also biocybernetics; hearing; speech
brain models, review and comparisons with computers and maths. 4−80703

biocontrol
see also biocommunications; biocybernetics
blood pressure control, reflex, during acute myocardial ischemia 4−50746
deep structures of biological networks 4−80682
eye saccades, in reading 4−50796
flight, role of antennae in control, in the dragonfly Orthetrum cancellatum 4−54622
Korean vowel articulation, analysis, and recognition 4−46376
Korean vowel system articulatory diagram 4−46375
muscle stretch and vibration studies, servo-regulated e.m. system 4−42935
neuromuscular controls, fine, in human skeletal muscles, learning process, relationship between ability to control fine and random activity 4−50754
reflex eye movements 4−71101
retinal neurons, photosensitivity control mechanism *(Japanese)* 4−62305
Ca homeostasis, mathematical model responses 4−54639

biocybernetics
see also brain models; neural nets
biotransport, open linear systems 4−73884
deep structures of biological networks 4−80682
extraocular motoneurons, current-to-frequency conversion 4−62306
eye, dynamic model of two synapse feedback loop in vertebrate retina 4−50806
genetic nets and dissipation structures, algebraic approach 4−83281
head-eye coordination to continuous and intermittent displaced targets 4−62300
information transfer measurement, threshold difference *(German)* 4−50789
memory, long-term free recall, recency sensitive retrieval processes 4−62285
memory verification, semantic, quantified sentence comprehension, sentence-picture relation 4−62287
motoneuron system of cat, data processing averaging functions and rate limitation 4−73890
neural population, positive feedback stability considerations 4−68484
neuron population, in olfactory bulb, mutual excitation model 4−68483
neuronal impulse sequences, Markov process, statistical inference 4−62282
occipital theta rhythm, control affects performance of monotonous monitoring tasks 4−68488
olfactory bulb bioelectric rhythm simulation 4−62279
optomotor responses of the fly to transient stimuli of edges and stripes 4−71099
organization of living systems 4−80680
pecten oculi of bird as possible coded aperture mask 4−54661
reading, automatic information processing 4−62294
retina, crayfish, cellular area and volume relationships 4−62304
texture matching 4−83315
toad prey-catching neuronal correlates 4−62301
vision receptor sodium permeability change, cAMP role in adaptation 4−62303
vision spatial frequency response at low luminance 4−62302
visual cortical neurons, effects of selective experience 4−80721
visual evoked response, multivariate vectorial analysis 4−62295

bioelectric phenomena
see also bioelectric potentials
brain regions, spindle activity correlation 4−71093
Burkitt lymphoma cell line, lack of recovery from radiation damage 4−54709
dielectric measurements of Nitellopsis cells with intracellular electrodes 4−76939
electrotonic cell coupling, dynamic properties, in early Xenopus embryos 4−58484
electrotonus, on a nonlinear dendrite 4−83306
emitted cerebral events, in absence of stimulus 4−58498
excitable membranes, electrically induced phase transitions via the dipole model 4−73881
extraocular motoneurons, current-to-frequency conversion 4−62306
fibrillation threshold, induced by a.c. current and a.c. voltage 4−50752
inner ear *(Japanese)* 4−68503
melanins, amorphous semiconductor switching 4−68487
molecular electric current generation, by cytochrome oxidase, H^+-ATPase and bacteriorhodopsin, direct measurement 4−51200
muscle, electrically stimulated, static hysteresis loop 4−46372
muscle transfer function estimates, parameter value fitting procedure 4−83310
myocardial function and disturbance, electrical and cellular aspects 4−68492
nerve activity, peripheral, isolating with respect to propagation velocity 4−46925
nerve net activity and spontaneous contractions, in sea anemone Calliactis parasitica 4−50758
nervous system, illusory correlation of brightness enhancement and transients 4−68509
neurone depolarisation, by glycine in Onchidium 4−62283
neurones of snail, inferred slow inward current 4−71095
neurotransmitter detection, differential electrically stimulated release of ^3H-noradrenaline and ^{14}C-α-aminoisobutyrate from brain slices 4−76946
occipital theta rhythm, control affects performance of monotonous monitoring tasks 4−68488
pain assessment from galvanic skin response, portable transistorized instrument 4−50753
photosynthetic electron transport, e.s.r. obs. 4−83300
presynaptic inhibition at mammalian peripheral synapse, evidence for 4−65247
quantum conductance changes in lipid bilayer membranes, associated with incorporation of acetylcholine receptors 4−62278
reciprocally inhibitory neurons, exhibiting postinhibitory rebound, motor pattern production 4−68490
repetitive firing in neurons, model 4−73891
retina, crayfish, cellular area and volume relationships 4−62304
sensory adaptation, distributed relaxation processes 4−68486
sensory responses, electrophysiological and behavioural study, in Tritona (Gastropoda, Nudibranchia) 4−50759
ventricular fibrillation, threhold 60 Hz current 4−83303
vibration, electrical response of a lipid bilayer membrane 4−73886
voltage clamp, fast ramp type, potential and time constant effect 4−83305
Na pump stoichiometry, in Aplysia neurones, from simultaneous current and tracer measurements 4−73885

bioelectric potentials
see also contact potential
action potential velocity dispersion in unmyelinated axons, model verification 4−83312
action potentials, moleclar model 4−83308
averaged evoked potentials, in auditory pathway and reticular formation of the cat during waking and sleeping 4−73889
cell having non-uniform membrane, extracellular stimulation 4−83287
chemoreceptor afferent discharge, statistical model, detection of modulation by bin-averaging 4−54647

bioelectric potentials continued
- chick, diffuse e.r.g. and optic lobe evoked responses, effects of epinephrine 4−54668
- cochlear mechanics, nonlinearities, potentials 4−50777
- cortical potentials, coupling meas. to study functional relationships 4−68489
- differential intracochlear electrodes, recording of summating pot. components, stimulus biasing 4−80711
- e.c.g., inverse, time dependent models, feasibility of 4−83301
- electroretinogram amplitude rel. to peripheral retinal spectral response for pulsed lighting 4−58521
- e.m.g., comparison of isometric isotonic and anisotonic muscle contraction *(French)* 4−50755
- e.m.g., comparison of surface and needle electrode signals *(Japanese)* 4−83309
- e.m.g. analysis, of the muscle tissue of the Ligamentum laterale of the temporomandibular joint 4−46923
- e.m.g. model, for biceps muscle 4−46371
- epileptic discharges, simultaneous averaging by computer of 14 channels 4−58502
- evoked potentials, recording techniques 4−51191
- inner ear, intracellular response to acoustic clicks, alligator lizard 4−50778
- intracellular electric responses to sound, in vertebrate cochlea 4−50790
- myoelectric signal power spectrum interpretation, expt. 4−73893
- myoelectric signal power spectrum interpretation, model 4−68491
- nerve fibre, single unmyelinated, extracellular potential field, influence of the length of the depolarised zone 4−50756
- nerve fibres, single, on-line stimulation and recording 4−81063
- neuromuscular parameter identification, of the muscle spindle in situ 4−83311
- neurone membrane potentials, of snail, effect of intracellular Li 4−50742
- noise problem when using macroelectrodes *(Danish)* 4−68829
- olfactory bulb bioelectric rhythm simulation 4−62279
- organ of Corti, fluid boundaries 4−46379
- photosynthesis, collection of solar energy 4−70898
- sensorimotor rhythm, conditioned, for masseteric and digastric reflex activity studies 4−54642
- transepithelial potential difference, in toad urinary bladder, evidence against ionic diffusion cause 4−71091
- vision receptor sodium permeability change, cAMP role in adaptation 4−62303
- visual evoked potentials, semi-automatic, multi-channel Fourier analyser 4−55124
- visual evoked response dispersion pattern, normative data 4−76963
- voltage clamp for biological membranes with discontinuous feedback, theory 4−46927
- voltage-clamp for membranes, theory 4−46927

biographical dictionaries *see biographies*

biographies
- *see also history*
- Georg von Bekesy, 1899-1972 4−46533

biological cybernetics *see biocybernetics*

biological effects of radiation
- 50 Hz a.c. fields, effect on human beings *(German)* 4−58599
- β-emitting isotopes, in-depth localisation 4−47818
- acoustic, turnip seeds germination 4−54707
- acoustic noise effect on hearing 4−46387
- adenosine, N-substituted derivatives, radioprotection 4−54720
- alpha dose to cell nuclei in human bone, ^{239}Pu/^{226}Ra relative toxicity 4−83338
- animals high mortality rate up to 10 MHz and 100 MW/cm^2 4−65265
- bacterial spores inactivation by charged particles 4−80758
- blood cells morphological change, responses of hematopoietic organs 4−46463
- buried reprocessing wastes from fast reactor and light-water reactor fuels, radiotoxic hazards compared *(Dutch)* 4−59883
- Burkitt lymphoma cell line, lack of recovery from radiation damage 4−54709
- cancer, possibly caused by radioactivity of tobacco trichomes and insoluble cigarette smoke particles 4−50886
- cancer mortality risk estimation from Japanese atomic bomb survivors 4−80762
- cell population kinetics, and the selection of treatment schedules, computer applic. 4−50863
- cell survival curve, evidence of a 1-hit component, from cell recovery vs. dose per fraction 4−58606
- cells, bone marrow, transplanted into irradiated mice, cell dose and survival after irradiation correlation 4−65273
- cells, human, ageing diploid (WI-38) u.v. induced repair replication 4−46471
- cellular inactivation and particle detection, unified track structure theory 4−58618
- cervical cancer radiotherapy, ret dosage correl. with selected complications 4−46437
- chinchilla, inner ear changes and hearing losses due to intense acoustic stimulation 4−54653
- chromosome aberrations, metaphase in Chinese hamster liver after ^{60}Co irrad. 4−54718
- chromosome aberrations from gamma and pion irradiation 4−68544
- chromosome aberrations in human lymphocytes after 3 MeV electron in vitro irrad. 4−58603
- cosmic ray visual observation 4−65256
- cyclic radiation-induced variations in cellular radiosensitivity in mouse mammary tumour 4−54716
- cyclotron role in radiation therapy and diagnostics *(Hungarian)* 4−65262
- cytogenetic effectiveness of 28 GeV protons on maize seeds 4−54711
- damage repair, significance of photoproducts 4−58483
- dangerous dosages of cosmic and terrestrial radiations *(Dutch)* 4−65266
- delayed brain swelling and functional derangement in monkeys after X-irrad. 4−54714
- DNA, single stranded, u.v. damage repair, roles of E. coli u.v.r. and r.e.c. systems in phage 0X174 u.v. reactivation 4−71083

biological effects of radiation continued
- DNA biologically active radioprotection by cysteamine rapid mix expt 4−80764
- DNA damage, repair process, review 4−58488
- DNA in xeroderma pigmentosum, human and mouse cells, postreplication repair of u.v. damage 4−80757
- DNA single strand breaks, X-ray induced, repair in thymine starved bacteria 4−71082
- DNA strand breakage by various radiation qualities 4−80688
- DNA synthesis, during various phases of cell cycle in the uterus of ovariectomised mice, X-ray effects 4−71087
- dosage in population from medical sources, review *(Japanese)* 4−46478
- dose protraction and acute radn. mortality in chickens, reappraisal of injury accumulation kinetics 4−54715
- dose rate-risk relation *(German)* 4−68533
- dose-response functions, statistical evaluation 4−46472
- dosimetry, thermoluminescent, radiobiological expts. *(Czech)* 4−58601
- dry eggs of Artemia, biological effectiveness of high-energy electrons at ultrahigh dose rates 4−58602
- e.m. field meas. for hygienic purposes 4−68536
- e.m. fields in tissues, numerical analysis 4−65270
- fish organs, ^{210}Po radioactivity meas. 4−80759
- gamma-irradiated solid cytosine-5-T, cleavage of ^{3}H 4−46357
- gamma-irradiated thymine-(methyl-T), in aqueous solution and in solid state, linear and sigmoid dose-effect relations 4−46358
- gamma-rays induction of mutations in bacteriophage ΦX174 influence of O_2 4−80694
- hamster cells, Chinese, V79-171b, growth and survival characteristics, influence of intercellular contact 4−46468
- hamster cells, cultured, thermally enhanced radioresponse, lethal and sublethal damage obs. 4−76975
- h.f. electric field effects, intensity meas. and frequency dependence problems 4−65576
- h.f. power absorption meas. by thermography of scaled phantom models 4−68534
- high-intensity sources, tissue response model 4−46464
- human tissues, photon mass attenuation and mass energy absorption coeff. 4−54726
- illnesses with abnormal immunologic features assoc. with thymic gland irrad. in infancy 4−76978
- induced e.m. field, tensor integral equation for biological models 4−65276
- ionising, long term effect on elimination of hydroxicorticosteroids and ketosteroids 4−62328
- ionising radiation and radioactivity, principles and hazards 4−72014
- laser beams, personnel protection during use *(French)* 4−68541
- lesion of tissues, ultrasound importance comparison of cavitation and temperature rise 4−80752
- leukaemia risk to foetus from X-ray exposure of expectant mother 4−58595
- leukemia in irradiated parabiotic rats 4−54712
- leukocyte damage obs. using fluorescent probes 4−46465
- liver homogenate, u.s. absorption model 4−62330
- living systems, thermography at 45 GHz 4−65272
- Los Alamos Meson Production Facility radiobiology/therapy progress report 4−46442
- low doses, risks *(French)* 4−58607
- low-level radiation, beneficial effects, review of evidence 4−46466
- lymph nodes, role in inhalation exposures 4−83337
- mammalian cells and bacteria in culture, combined effect of bleomycin and radiation 4−71084
- man-rem concept and theoretical collective damage *(French)* 4−58630
- marine life, impact in food chain upon man 4−65269
- mass loss, biological section, electron microprobe irradiation 4−65564
- mice, syngeneic host, proliferation of donor thymus cells in bone marrow and spleen 4−46467
- mice, weight loss of testicles after 14 and 400 MeV neutron irrad. *(French)* 4−65274
- microwave, thermal and athermal, on human serum enzymes 4−50885
- microwave dosimetry, biological effects obs., sampled integral dose rate meas. 4−68545
- microwave dosimetry 4−71125
- microwave exposure protection, international programme 4−68542
- microwave hazard standards, USA 4−65282
- microwave ovens, leakage detection using cavity-backed slot radiator 4−65268
- microwave radiation, nonthermal effects 4−62329
- microwaves, 2450 MHz (CW), cranially exposed dogs, thermogenetic and cardiodynamic regulation 4−68537
- microwaves, 2450 MHz (CW), on rabbit superior cervical ganglion 4−68538
- microwaves, 918 MHz, effects on rats obs. 4−68539
- minimising occupational radiation exposure 4−66272
- monkey, e.e.g. responses to 2500 rads of whole-body gamma-neutron radiation 4−76976
- mouse, low-level ^{3}HOH exposure effect on developing female germ cells 4−73910
- mouse phantom, protected part, dose from scattered roentgen radiation 4−65280
- neutrons, fast, from cyclotron, r.b.e. for interphase death in rat thymocytes in vitro 4−54706
- neutrons in radiotherapy, cell survival probabilities and relative biological effectiveness 4−76981
- oocytes of mice, X-ray induced nondisjunction 4−71085
- optical, u.v., and i.r. effects on human organism, review *(German)* 4−50888
- photoreactivation and excision repair of u.v. radiation injured DNA in primary embryonic chick cells 4−73875
- pig skin, excess late subcutaneous fibrosis, NSD formula application 4−58598
- pigeon cones, selective damage by coloured light 4−58519
- pigs, miniature, brain irradiation, fractionated supralethal doses increased radioresist. 4−80761
- pion beam radiotherapy planning 4−46439

biological effects of radiation continued
plant growth, vegetative and generative, increase induced by pre-sowing treatment of seeds with small γ-radiation doses 4−58608
population dose reduction prospects 4−58597
potential hazard, review on e.m. pulse radiation 4−83336
prophage induction, near-u.v. effects 4−58604
pulmonary irradiation injury detection by plasma lactic dehydrogenase activity determ. 4−62332
pulmonary metastases, potentiating effect of prior local lung irradiation 4−68513
Q-tube neutron generator, activated SF$_6$ release hazard 4−80763
rabbit tissue microwave absorption meas. from typical sources 4−68535
radiation from nearby supernovae, consequences for atmospheric ozone and terrestrial life 4−80600
radiation protection, conf., Jerusalem, Israel, 5-8 March 1973 4−58547
radiation quality dependence 4−71123
radiation therapy, appl. of π^- beam Monte Carlo radiation transport code calc. 4−80751
radiation therapy schedules, and biologcal effect, for opposing parallel fields 4−46419
radioprotection, of Acholeplasma laidlawii B, by cysteine 4−54632
radioresistance of anoxic cells and eff. of PNAP on radn. response of in vitro tumour model 4−50887
radiosensitisation, of anoxic E. coli mutants by diamide 4−58485
radiotherapy, possible contribution of radiobiology 4−58553
rat, cellular response to fast neutrons, secondary charged particle spectrum effect 4−73911
rat liver, damages in microsomal drug metabolizing enzyme system after partial X-irrad. 4−76977
rat liver cells, X-rays from ^{113m}In and ^{198}Au, biological effect rel. to dose rate 4−54708
rat thyroid, damage by ^{131}I and evidence against immunologic transferability 4−62331
rats, absorption at 285 to 4000 MHz 4−65271
rats, carcinogenicity of inhaled ^{238}Pu 4−46470
red blood cell metabolism of uranium miners 4−80755
relative toxicities of U and Pu in reactor fuel 4−83340
Schizosaccharomyces pombe, repair mechanisms and ultraviolet and γ-ray sensitivity 4−46469
sea urchin eggs, fertilized with X-irrad. sperm, indent form. and mitotic delay 4−80760
sea urchin eggs fertilized with X-irrad. sperm, caffeine effect on mitotic delay 4−80756
sensitisation mechanism, to ionising radiation, by O$_2$ and other sensitisers 4−54633
single dose partial body X-ray irrad. eff. on cell prolif. in mouse small intestinal epithelium 4−54717
sonic boom exposure effects, obs. of humans and animals 4−71122
sonic booms, from aircraft, effect on man and animals *(French)* 4−62327
stratospheric ozone depletion calc., u.v. solar radiation produced 4−68205
structural alterations in myoglobin 4−71080
student experiment studying fallout in the leaves of trees 4−58709
survival and regeneration characteristics of spermatogenic stem cells of mouse testis 4−54713
T4 and Escherichia coli DNA ionizing radiation induced lesions, expt. 4−80754
T4 DNA degradation during infection of Escherichia coli at low multiplicity 4−80686
thermal radiation sensitisation studies, tumour regrowth time, as a radiobiological assay system 4−46445
thoracic duct lymphocyte destruction by implanted u.s. transducer 4−54701
thymine damage, in mammalian cells, gamma-ray induced 4−54627
thymine dimer splitting by ionising radiation expt. 4−80689
tissue, e.m. wave power absorption meas., liquid crystal fibre-optic sensor 4−65275
tumour blood flow, response to radiation therapy 4−62323
tumour treatment, enhancement by heating 4−58589
tumours, irrad. response, time between fractions effects 4−58605
u.h.f./microwave region, multi-layered sphere models obs., absorption characteristics 4−68540
ultraviolet and X-irradiation interaction, on chromosome aberrations in cells with trisomy 21 4−54710
uniform irradiation device for small animals 4−65267
uremic patients, lymphopenia development during extracorporeal irrad. of blood 4−46456
u.v. and X-radiations, interaction on strains of E. coli, physical and biological measurements 4−58600
u.v. solar radiation, increase due to decrease in atmospheric O$_3$ 4−46473
u.v.-irradiated cells, dark repair inhibition, by caffeine, effect of cyclic AMP and some structural analogues 4−46365
X-irradiation of M. radiodurans, DNA fragment release 4−58479
X-ray diagnostic procedures rel. to health hazards and genetic effects in Puerto Rico 4−58592
X-ray dose fractionation patterns, effect on survival of skin flaps in the pig, radiotherapy implications 4−71107
X-ray effect of whole body irradiation DNA synthesis in spleen of mice, expt., expt. 4−80684
X-rays, mouse liver, protein biosynthesis expt. 4−80685
X-rays naturally occurring amino-acids radical yield, expt. 4−80687
α-emitters, accumulations in Spanish gasteropods *(Spanish)* 4−46462
α-particle energy loss per ion pair in tissue equivalent gases *(Japanese)* 4−80984
D$_2$O effect on regulatory properties of phosphohexose isomerase in Lactobacillus casei 4−71081
^{125}I and ^{131}I, different effects 4−58609
Pu effects in animals 4−83339

biological macromolecules *see macromolecules*

biological sciences *see biology*

biological techniques and instruments
see also biology; biomedical engineering; biomedical equipment
acquired colour vision deficiencies, exam. methods and classifications 4−58515

biological techniques and instruments continued
anticoagulant drugs, electrochem. behaviour, voltammetric and potentiostatic obs. 4−51195
autoradiography analysis automation, in the neurosciences 4−77263
bacteriophage T2, size and shape obs. by small-angle X-ray scatt. 4−74159
binocular fusion of chromatic and white lights, obs. 4−58527
bioelectric potential meas. using macroelectrodes, noise problem *(Danish)* 4−68829
biological material, with labile chemical components, freeze grinder 4−65571
blood, Fe content by X-ray analysis 4−77256
blood flow measurement, non-invasive, review 4−68821
blood flow measurement in bone, non-invasive approaches 4−68823
blood flow rate, and mean circulation time, direct and indicator-dilution measurements, comparison 4−51197
blood flowmeter, u.s. Doppler type 4−68822
blood glucose, continuous meas. technique *(German)* 4−81047
bone density determ., small animal, in vivo and in vitro, photon absorptiometer 4−42936
bone mineral content correl. with u.s. longitudinal velocity meas. 4−65577
bone mineral content estimation, at selected skeletal sites, by γ-ray absorption 4−68512
carbohydrate demonstration, PA silver methenamine method and PA thiocarbohydrazide-silver proteinate method comparison 4−68827
carcass shape recording, moire method 4−42940
cardiac output, continuous monitoring, non-invasive u.s. technique 4−81051
cardiac output, in the conscious rabbit, thermodilution technique appraisal 4−51196
cardiology, left ventricle, asynergistic motion detection technique 4−81053
in cell biology and biophysics 4−77262
cell line, hematopoietic, human, tracer kinetic data during different phases of growth, computer analysis 4−83283
cell membrane electron density distribution evaluation, from small angle X-ray scattering diagrams, deconvolution method 4−42937
cellular organelles, u.v. microbeam for micro irradiation 4−65570
cerebral hemisphere reconstruction technique, from serial sections 4−51193
chemical analysis, spectrophotometric centrifugal fast analyser, automatic 4−81074
colour vision effects of simulated prereceptoral changes 4−58517
computer simultaneous averaging of epileptic discharges in 14 channels 4−58502
connective tissue tensile testing 4−81061
contact microradiography technique 4−71109
cross-correlation function method, brain region, spindle activity 4−71093
cryobiology, laboratory equipment, report 4−46929
densitometry of polyacrylamide gel electrophoregrams, microphotometer modification 4−46922
dichroism, circular, meas. by stopped flow system with millisec resolution 4−46627
dielectric measurements of Nitellopsis cells with intracellular electrodes 4−76939
differential emissivity calorimeter for physiological heat meas. 4−58972
e.e.g., computer analysis 4−51192
e.e.g., evoked potentials, recording techniques 4−51191
e.e.g., human alpha rhythm densities, inter-session stability 4−54646
e.e.g. computer anal. of cerebral ischemia in rabbits 4−58500
e.e.g. electrode using microwave IC, thermal performance 4−74157
electric current generation, by cytochrome oxidase, H$^+$-ATPase and bacteriorhodopsin, direct measurement 4−51200
for electrical response to vibrations determ. of a lipid bilayer membrane 4−73886
electro-immuno-assay plate, for clinical immunology 4−65589
electrode, ion selective liquid membrane for biomedical research 4−65574
electron diffraction, wet biological membranes 4−68830
electron microscopy, resolution improvement techniques 4−68817
electrophysiological recording systems, electrode produced signal distortion 4−46924
electrotonus, on a nonlinear dendrite, mathematical model and numerical solution 4−83306
e.m. measurement of blood flow, const. field interrupted reson. system 4−62656
e.m.g. analysis, of the muscle tissue of the Ligamentum laterale of the temporomandibular joint 4−46923
e.p.r., rel. to studying cytoplasmic solvent structure of single barnacle muscle cells 4−46359
e.p.r. pulsed spectrometer for determ. longitudinal relaxation lines of free radicals 4−58877
e.s.r. spectral analysis, of biomolecules, computer programs 4−76934
fat to lean ratio, determ., using ^{109}Cd, errors and reproducibility 4−46418
Fourier analyser, semi-automatic, multi-channel, for visual evoked potentials 4−55124
foveal retinal exposures, awake, task-orientated rhesus monkey, technique 4−65555
frozen tissue study using SEM 4−46928
hair follicle receptors, controlled stimulation instrument 4−55128
image analysis methods, macromolecular structure, electron microscopy 4−68825
impedance cardiograph Minnesota theory and applic. 4−71269
impedance measurement, skeletal muscle fibres, of the frog 4−46370
implantable regeneration electrode units for recording from single nerve fibers in mobile animals 4−55129
impulse measurement device, outer ear transfer functions *(German)* 4−65553
induction thermocoagulation, seed power study 4−65561
integrator, low-drift printing type 4−81064
interference filter anomaloscope design 4−55130

biological techniques and instruments continued
i.r. absorption of H-D exchange in biopolymers, rapid transfer apparatus 4−58808
isoelectric focusing, of proteins in polyacrylamide gel 4−65590
kidney function, quantitative meas. 4−46459
laser applications, single cell physical parameters obs. 4−42942
l.e.d. as vision experiment light sources 4−81065
leukocyte damage by radiation, obs. using fluorescent probes 4−46465
liquefying enzymes, evaluation using automatic electroviscosimeter *(Russian)* 4−74158
lung clearance mechanism, fluorescent excitation meas. of Ta and BaSO$_4$ clearance 4−50820
lung fixation, perfusion, pressure control method 4−65567
macromolecular structure exploration by X-ray diffraction and electron microscopy 4−68831
mammalian brain tissue dielectric meas. in S-band 4−65575
mechanical stimulator, with optoelectronic displacement monitor 4−65563
membrane voltage clamp using discontinuous feedback 4−58865
membranes, voltage-clamp for time-depend. cond. obs. 4−46927
microelectrode amplifier, with f.e.t. input and input capacity compensation facility 4−51198
microscopic obs. of moving bacteria, apparatus for tracking 4−58971
microscopy, automatic image analysis 4−51047
microscopy technique, immunofluorescent double labelling, haemoglobin detection, Xenopus laevis red cells 4−68828
microspectrofluorometer for intracellular metabolism of NAD(P)H 4−68832
microspectrophotometer, dichroic, computer-assisted, linear dichroism meas. in single cells 4−77260
microspheres, and antipyrine, for measuring myocardial blood flow, total and regional, in dogs and sheep 4−55123
motor parameter measurement, telemetric method, rubber band goniometry 4−81050
multiwire proportional chamber as area detector for protein crystallography 4−55125
muscle stretch and vibration, servo-regulated e.m. system 4−42935
muscle tension, in vitro measurement, constant temperature tissue bath 4−65572
nerve activity, peripheral, isolating with respect to propagation velocity 4−46925
nerve fibres, single, on-line stimulation and recording 4−81063
neural activity, display of interspike intervals 4−46373
neurophysiology, drug dosage determ., photon counting, photometer *(French)* 4−42941
neutron activation and spectrophotometric analysis, lymph node test for silicosis 4−46398
neutron collimator for animal irradiation, design, radiation field prod. 4−77261
olfactory bulb bioelectric rhythm simulation 4−62279
on-line analogue electronic reset integrator, blood flow measurement applic. 4−65560
optometer, dynamic, meas of eye lens characts. 4−42938
pH activity profile determ. in relation to enzymes, student expt. 4−58694
phantom, mouse, X-ray, dose and distribution measurements, energy dependence of thermoluminescent dosimeters 4−58615
photorefraction instrument, obs. of eye refractive state at distance 4−42939
placental ultrasonography 4−46461
plasma membrane lectin-binding components, mobility and mobility restriction obs. 4−68482
plethysmograph, capacitance type, for measuring small volume changes 4−58969
plethysmographs, strain-gauge and water, compared 4−81060
protein in serum, automated determ. using ion-selective membrane electrodes 4−77266
proton-induced X-ray emission, use in biological, clinical, environmental sample anal. 4−77265
pupillometer, clinical and experimental psychology use 4−65556
radiography, transmission and emission, computer based assessment of regional physiology 4−50882
radioiodination of proteins by chloramine-T, formation of macromolecular complexes 4−46356
radioisotopic renal function monitoring 4−46460
radiometer, scanning, to monitor u.v. irradiance low levels, biological correlation 4−46118
radionuclide placentography 4−46461
radionuclide renal clearance techniques, review 4−46458
rapid freezing apparatus, electron microscopy, arrested physiological processes 4−65565
red and green sensitive cone spectra, microspectrophotometric and psychophysical threshold obs. compared 4−58520
renal blood flow measurement, radionuclide techniques 4−46368
retina, crayfish, cellular area and volume relationships 4−62304
retina, human, computer analysis of photochemical changes 4−65252
RNA precursor, characterisation of compartmentation in E. coli, computer simulation 4−83272
rotation camera and image-intensifier-aided detector for protein crystallography 4−55126
sensors, microelectrodes and transducers, requirements *(Hungarian)* 4−81055
sonic boom exposure effects, obs. of humans and animals 4−71122
spike responses of cat optic fibre, colour dependence 4−65259
staining for SEM 4−65569
stimulation-recording technique, for evaluating binaural sound processing in porpoises 4−65559
sucrose centrifugation gradients, isokinetic, computer construction 4−74155
superfusion of cerebral cortex, unanaesthetized unrestrained rats, cannula 4−81057
surgery, YAG laser radiation in tissue, intensity distrib. meas. *(German)* 4−81048
telemetry transmitter, multichannel, for temperatures and heart rate 4−55127
thermal properties determ. using CO$_2$ laser 4−62571
thin film thermocouples 4−65562

biological techniques and instruments continued
thin-layer isoelectric focusing, use of protein markers 4−65591
thin-layer isoelectric focusing, zymogram method 4−65588
tissue, thick sections, component counting, Aherne's method 4−65566
toad prey-catching neuronal correlates 4−62301
transfer functions of biological data, high and low order, graphical and iterative fitting 4−76945
vision receptor sodium permeability change, cAMP role in adaptation 4−62303
visual evoked response, average, in man, varability 4−58506
visual evoked response, to rapid random flash, clinical studies 4−58505
visual psychophysics, of primate, computer system for stimulus generation, control and behavioural acquisition 4−74156
visual receptive fields of neurons, TV visual stimulator applic. 4−51199
visual system research equipment, computer controlled 4−76962
voltage clamp, fast ramp type, potential and time constant effect 4−83305
whole blood warming, h.f. electromagnetic technique, expt. 4−81054
wideband amplifier for nerves and muscles measurement *(German)* 4−68824
X-ray K-absorption edge transmission scanning for imaging spatial elemental distributions 4−54678
I, radioactive, exchange between pregnant and foetal sheep study 4−62276
^{24}Na, kinetics in liver, nonsteady state, computer modelling 4−83294
O$_2$, sensor, multicathode, fabricated using IC techniques 4−81094

biology
see also blood; medicine; physiology; zoology
atmospheric biological modulation causing maximization of biosphere 4−50294
automaton motivated research, and biologically motivated automata theory 4−80678
biochemical processes, laser induced 4−46355
directed panspermia, Mo abundance in living organisms 4−54619
directed panspermia, sea water Mo abundance 4−50738
distributed systems with diffusive coupling, model autooscillation process model appln. to life science *(Russian)* 4−51631
dynamics and language in biology 4−80681
electron microscopy, high voltage, recent appl. 4−65549
L systems in their biological context 4−80679
mathematical biology, resource letter 4−68599
medical and biological engineering, 5th Canadian conf., Montreal, Quebec, Canada 4−83271
origin of life, fitness of universe, natural selection in material organization 4−46351
origin of life rel. to lunar orbital evolution 4−76799
outer planet atmospheres, composition and structure rel. to origin of life 4−50500
Pt biomedical research, review 4−58546
^{124}Sb, inhaled, retention in dogs, effect of temp. of aerosol formation 4−65243

biomedical applications of computers
see also medical information processing
angiocardiograms, aortic valve and apex locating algorithms 4−68515
angiocardiograms, computerised, for quantitative evaluation of cardiac valvular insufficiency 4−50839
angiocardiography, biplane, dynamic computer generated displays 4−83333
angiocardiography, left ventricular videometry 4−81052
angiographic computer analysis of ventricular volume and shape 4−83334
Auger camera images, two-dimensional, simulation from given three-dimensional radionuclide distribution 4−50841
automatic microscope image analysis 4−51047
autoradiography analysis automation, in the neurosciences 4−77263
body fluids, Olli 3000 computerised photometric clinical chem. analyser 4−68842
bone microradiographs evaluation *(German)* 4−50815
cancer patient information computer files 4−46431
cardiology, left ventricle, asynergistic motion detection technique 4−81053
cell line, hematopoietic, human, tracer kinetic data during different phases of growth, computer analysis 4−83283
clinical chemistry laboratory automation, review *(German)* 4−81073
diagnostic X-ray cumulative dose recording 4−58592
dynamic renal function simulation 4−71092
e.e.g. anal., of rabbit after cerebral ischemia 4−58500
energy deposition spectra from proportional counters 4−46495
epileptic discharges, simultaneous averaging in 14 channels 4−58502
gamma-ray camera for biomedical applications 4−76973
gamma-ray collimators, system function computation 4−68517
gynaecological implant doses, computations compared with in vivo TLD obs. 4−46493
image reconstruction, iterative three-dimensional, accurate algorithms 4−71113
image reconstruction, three-dimensional, algebraic techniques 4−71114
information systems, future 4−50814
isodose distribution calculation, using decrement lines, for fast neutron beams, at TAMVEC 4−46408
isodose pattern calc. for sharply-defined beam edges 4−54725
microscope preparations of biological materials, automatic analysis 4−80905
neutron therapy, data acquisition and dose distribution, at the TAM—VEC facility, by a computer controlled system 4−46407
nuclear medicine, diagnostic appl. of scintillation camera with on-line computer system 4−80746
nystagmus, evoked vestibular, in healthy subjects, non-sequential analysis of caloric stimulation 4−50803
PEPR applications in autoradiograph analysis of cell cultures 4−80753
phonocardiogram digital analysis 4−58970

biomedical applications of computers continued
pion treatment, three-dimensional, planning, computer code 4—46440
pulmonary function, dynamic measurement, scintillation crystal array applic. 4—46455
Purkinje fibre model, stability properties 4—65245
radiation therapy, beam distrib. data acquisition system for treatment planning 4—46432
radiation therapy, cancer treatment, planning automation 4—50858
radiation therapy, cell population kinetics, and the selection of treatment schedules 4—50863
radiation therapy, control and data handling systems, using modules, computers and computer peripherals 4—46450
radiation therapy, depth dose representation, for all field sizes, using computer generated calibration charts 4—50862
radiation therapy, dose distribution, on-line data acquisition and reduction system 4—50859
radiation therapy, internal dose distribution, from sealed sources, desk-top calculation 4—50865
radiation therapy, isodose plotter 4—50860
radiation therapy, patient set-up monitoring 4—46427
radiation therapy, wedge-shaped dose distrib. by computer control 4—46426
radiation therapy departmental use of time-sharing computer 4—54702
radiation therapy plan, descriptive computer program 4—46434
radiation therapy planning, conservative treatment of retinoblastomas with 4 to 6 MeV electrons 4—71106
radiation therapy planning, densities of internal anatomical structures using an on-line dual probe scanner 4—46452
radiation therapy planning, effect of inhomogeneities 4—50861
radiation therapy planning, for remote institutions 4—50864
radiation therapy planning, PDP-12 computer system 4—46429
radiation therapy planning by time-sharing computer 4—46430
radiographic gamma camera, field non-uniformities, computer correction 4—50880
radiographic image processor, hard wired, on-line/off-line, for rectilinear scanner and gamma cameras, clinical evaluation 4—58587
radiographic image scanning, Pb poisoning detection applic. 4—46453
radiography, Fourier reconstruction of head section 4—71111
radiography, object reconstruction, from a series of shadows 4—46422
radiography, three-dimensional visualisation of the thorax, cross-sectional reconstruction from multisplanar X-ray views 4—83324
radiography, transmission scanning, cross-sectional anatomy determ. 4—46416
radioisotope scanning, digital image processing 4—68516
radioisotope scanning, direct online recording, interface 4—54691
radioisotope scanning, three-dimensional distribution reconstruction methods 4—71110
radioisotopes scanning, 3-D reconstruction 4—58580
radiologic technologists' medical instruction by minicomputer 4—42685
radiological applic. of computers, conf. 4—50855
radionuclide distribution determ., three-dimensional, in a scattering medium 4—50842
rectangular beam isodose profiles, photometric analysis for external beam programs 4—46492
RNA precursor, characterisation of compartmentation in E. coli, computer simulation 4—83272
scintillation camera and movable filter plate system, line spread response 4—58576
spine, human, initially curved, computer model of the effects of caudocephalad acceleration 4—65236
tomography, computerized transverse axial, three-dimensional image reconstruction 4—71112
transfer functions of biological data, high and low order, graphical and iterative fitting 4—76945
transmission scintigraphic measurement of regional lung volume 4—80737
X-ray focal spots, performance evaluation, Fourier optics applic. 4—46424
X-ray video absorptiometry, bone mineral determ. applic. 4—50843
Na kinetics in liver, nonsteady state, modelling 4—83294

biomedical electronics
see also electrocardiography; electroencephalography; microelectrodes; patient monitoring; patient treatment; prosthetics
angiocardiography, biplane, dynamic computer generated displays 4—83333
angiocardiography, computerised, for quantitative evaluation of valvular insufficiency 4—50839
audiometry, instrument for pure-tone threshold testing 4—46386
Auger camera images, two-dimensional, simulation from given three-dimensional radionuclide distribution 4—50841
blood fluctuating velocity measurement, thin film gauges 4—59021
bone density determ., small animal, in vivo and in vitro, photon absorptiometer 4—42936
bone microradiographs, electronic evaluation method *(German)* 4—50815
cardiovascular forces, transfer through body, simulation 4—54640
charge meter, integrating, for radiographic units 4—46448
computer interface, for direct online recording of dynamic radioisotope data 4—54691
computer simultaneous averaging of epileptic discharges in 14 channels 4—58502
delay line readouts for high purity germanium medical imaging cameras 4—54680
dosimeter, digital voltmeter applic., plug in module for Radocon 555, to improve linearity 4—46482
e.g. electrode using microwave IC, thermal performance 4—74157
electrophysiological recording systems, electrode produced signal distortion 4—46924
Fourier analyser, semi-automatic, multi-channel, for visual evoked potentials 4—55124
galvanisation, Potok-1 apparatus for 4—81049
gamma camera, effects of line surge 4—50827
gamma-ray camera system based on high purity Ge charge splitting detector 4—54681

biomedical electronics continued
image processor, hard wired, on-line/off-line, for rectilinear scanner and gamma cameras, clinical evaluation 4—58587
impedance cardiograph Minnesota theory and applic. 4—71269
integrator, low-drift printing type 4—81064
laser surgery, rat liver changes obs. *(German)* 4—50816
l.e.d. as vision experiment light sources 4—81065
liquid crystal fibre-optic temperature sensor, for e.m. wave absorpt. meas. in tissue 4—65275
microelectrode amplifier, with f.e.t input and input capacity compensation facility 4—51198
microwave dosimeter 4—71125
monitoring device, pupil dilation meas. 4—65556
neutron therapy, dose distribution, at the TAMVEC facility, by a computer controlled system 4—46407
neutron therapy, fast, control and monitoring systems 4—46406
on-line analogue electronic reset integrator, blood flow measurement applic. 4—65560
pain control by electrostimulation of dorsal column and nerves 4—71096
plethysmograph, capacitance type, for measuring small volume changes 4—58969
radiation therapy, cancer treatment planning automation 4—50858
radiation therapy, computer controlled isodose plotter 4—50860
radiation therapy, control and data handling systems using modules, computers and computer peripherals 4—46450
radiation therapy, dose distribution data, on-line acquisition and reduction system 4—50859
radiation therapy, internal dose distribution, from sealed sources, desk-top calculation 4—50865
radiation therapy, supervoltage equipment, instrument for rapid check of output, energy and field flatness 4—46449
radiation therapy planning, for remote institutions 4—50864
radiography, automatic scanner-computer analysis, of bone trabecular activity 4—50884
radiography, three-dimensional visualisation of the thorax, cross-sectional reconstruction from multisplanar X-ray views 4—83324
radiological applic. of coputers, conference, Columbia, Mo., USA (1970) 4—50855
radionuclide distribution, three-dimensional, in a scattering medium, determ. 4—50842
scintigrams, brain, computer analysis 4—50881
SQUID magnetometer, second derivative gradiometer applic. for magnetocardiography 4—68749
subtraction technique modification, in rectilinear pancreatic scanning 4—50826
telemetry system with windowless Si radiation detector, free-ranging animal organ function study 4—54688
telemetry transmitter, multichannel, for temperatures and heart rate 4—55127
TV visual stimulator, applic. in neuron visual receptive fields analysis 4—51199
u.s. transducer, semiautomatic, B scanning 4—46400
ventricular fibrillation thresholds rel. to electrical equipment leakage faults 4—73894
wideband amplifier for nerves and muscles measurement *(German)* 4—68824
X-ray collimators, field evaluation tool 4—50845
X-ray pictures evaluation, use of Kolmogorov-Smirnov filter 4—50817
X-ray TV data processing, esophageal cancer functional analysis applic. 4—50883
X-ray TV systems, comparison of image contrast 4—83323
X-ray video absorptiometry, bone mineral determ. applic. 4—50843

biomedical engineering
see also patient treatment; prosthetics
applications of computer scanning, conference, Oxford, England (April 1974) 4—77258
e.e.g., computer analysis 4—51192
e.e.g., evoked potentials, recording techniques 4—51191
and human perception, interdisciplinary communication and interaction 4—73874
lesion of tissues, ultrasound importance comparison of cavitation and temperature rise 4—80752
medical and biological engineering, 5th Canadian conf., Montreal, Quebec, Canada 4—83271
radiation therapy, beam distrib. data acquisition system for treatment planning 4—46432
radiation therapy, patient set-up monitoring by computer 4—46427
radiation therapy, wedge-shaped dose distrib. by computer control 4—46426
radiography, object reconstruction, from a series of shadows 4—46422
radiology, technical prospects 4—58554
radiology systems, development and evaluation, role of industrial engineering 4—50856
scintillation crystal arrays, for dynamic pulmonary function measurement 4—46455
tomography, with monoenergetic photons 4—46425
u.s. applications, prospects 4—58612
u.s. applications, review 4—58557
whole blood warming, h.f. electromagnetic technique expt. 4—81054
X-ray equipment, diagnostic, Federal Standard compliance determ., test methods and instrumentation evaluation 4—50846

biomedical equipment
see also artificial organs; biomedical electronics; defibrillators; pacemakers; X-ray apparatus
Anger camera, unmodified, tomography 4—62320
Anger camera deadtime, true counting rate rel. to photopeak fraction 4—62318
Anger camera deadtime 4—62326
betatron, spectra of scattered X-rays from shielding materials for 4-30 MV X-rays *(Japanese)* 4—76979
blood glucose, continuous meas., vivo-cannula *(German)* 4—81047
blood viscometers, medical and engineering problems 4—65260
C-ray absorption edge transmission imaging with fluoroscopy equipment 4—54679
cervical applicators, dose distrib. correction factors for wall attenuation 4—50897

biomedical equipment continued
- collimators, for post operative radiation therapy of keroplasty 4−68514
- cyclotron, fast neutrons for therapy, dosimetric studies 4−46405
- electrode, ion selective liquid membrane 4−65574
- electron beam therapy, high energy, field shaping blocks, use of Pb 4−46414
- electron beam treatment ports, modification, for a medical betatron 4−46415
- electron therapy, 5 to 40 MeV, port using an annular secondary scatterer 4−46413
- focusing collimator gamma camera coincidence system, lesion detection characteristics 4−54682
- gamma camera, field nonuniformities, computer correction 4−50880
- gamma-ray camera 4−76973
- gamma-ray imaging system using Fresnel zone plate aperture, multiwire proportional counter, computer reconstruction 4−54683
- heavy ion microprobe, preliminary results 4−51194
- image intensifiers, spatial m.t.f. 4−46421
- ionisation chamber, liquid, for dosimetry of electron radiation 4−62517
- isocentric radiation therapy equipment, gantry angle repositioning and calibration by laser beam 4−54699
- linear accelerators, breakdown statistics 4−73909
- metal-phosphor intensifying screens for $E=1$ to 25 MeV imaging applications 4−54685
- microscopy, automatic image analysis 4−51047
- multiwire proportional counters for use in positron camera 4−46808
- neutron collimator, 14 MeV, continuously variable evaluation 4−50838
- nuclear intracranial pressure sensor 4−54687
- pain assessment from galvanic skin response, portable transistorized instrument 4−50753
- pressure control method, lung fixation by perfusion 4−65567
- radiation monitor, hand, sterilisable, for heart catheterisation studies and radiopharmaceutical preparations 4−46496
- radiation therapy machine operation checking system 4−46443
- radiotherapy compensators, fabricated from hollowed styrafoam filled with wax 4−46446
- scintillation camera, positioning technique allowing better information usage 4−54686
- scintillation camera and movable filter plate system, line spread response 4−58576
- sensors, microelectrodes and transducers, requirements *(Hungarian)* 4−81055
- thyrometer, obs. laryngeal control in speech *(Japanese)* 4−50765
- u.s. therapy, LOR-1A otorhinolaryngologic apparatus 4−83322
- u.v. laser microbeam, 257 nm 4−58573
- X-ray collimators, field evaluation 4−50845
- X-ray screens, comparison of rare earth oxysulphide and $CaWO_4$ screens, quantum utilisation 4−54684
- X-ray test cassette, for routine evaluation of kV_p and added filtration 4−50844
- CdTe probes, high spatial resolution, appl. to dental pathology 4−50821
- ^{60}Co Brachytron prototype afterloading unit design and application 4−54724
- Si p.i.n. diode dosimeters, fast neutron therapy applic. 4−46409
- Si:Li p-i-n direct-reading dosimeter, calibration and applic. to radiation therapy 4−58591

biomedical measurement
- airway resistance, interrupter technique, reevaluation 4−58544
- angiocardiography, left ventricular videometry 4−81052
- audiometry, computerised pure tone procedures 4−50786
- bioassays, actinide element determ. methods 4−58548
- biosynthetic pathways, ^{12}C isotopic labelling, substitution in ^{13}C n.m.r. 4−46926
- blood flow, u.s. interferometric technique 4−50749
- blood flow measurement, non-invasive, review 4−68821
- blood flow measurement in bone, non-invasive approaches 4−68823
- blood flow rate, and mean circulation time, direct and indicator-dilution measurements, comparison 4−51197
- blood flowmeter, u.s. Doppler type 4−68822
- blood fluctuating velocity measurement, thin film gauges 4−59021
- blood glucose, continuous meas., vivo-cannula *(German)* 4−81047
- bone density, by computer scanning, Pb poisoning detection applic. 4−46453
- bone density determ., small animal, in vivo and in vitro, photon absorptiometer 4−42936
- bone mineral content correl. with u.s. longitudinal velocity meas. 4−65577
- bone mineral content determ. by absorption of 17.8 to 59.6 keV photons 4−65573
- bone mineral content estimation, at selected skeletal sites, by γ-ray absorption 4−68512
- bone mineral determ., X-ray video absorptiometry 4−50843
- bone structure assessment, by measurement of speed of sound and bone mineral content 4−46447
- cardiac output, continuous monitoring, non-invasive u.s. technique 4−81051
- cardiovascular forces, transfer through body 4−54640
- cerebral structure, radio-anatomical atlas *(French)* 4−46399
- chemical analysis, spectrophotometric centrifugal fast analyser, automatic 4−81074
- clinical chemistry laboratory automation, review *(German)* 4−81073
- densities of internal anatomical structures, using a dual probe scanner, on-line computer method 4−46452
- densitometry of polyacrylamide gel electrophoregrams, microphotometer modification 4−46922
- fat to lean ratio, using ^{109}Cd, errors and reproducibility 4−46418
- gamma-ray attenuation coeffs., for human tissue 4−50831
- motor parameters, telemetric method, rubber band goniometry 4−81050
- myoelectric signal power spectrum interpretation, expt. 4−73893
- myoelectric signal power spectrum interpretation, model 4−68491
- neutron activated elements, in vivo analysis *(Dutch)* 4−46477
- phonocardiograms digital analysis 4−58970

biomedical measurement continued
- plethysmographs, strain-gauge and water, compared 4−81060
- precision e.m. meas., conference, London (1974) 4−65367
- pressure, intracranial, nuclear sensor 4−54687
- pulmonary function, dynamic, scintillation crystal arrays, applic. 4−46455
- radioisotope scanning techniques (1947-73) 4−58556
- radium measurement in man 4−83344
- sensors for microelectrodes and transducers, requirements *(Hungarian)* 4−81055
- temperatures and heart rate, multichannel telemetry transmitter 4−55127
- thin film thermocouples 4−65562
- thyroid function assessment, absolute uptake of I_2, meas. technique 4−83325
- tomography, axial transverse, ray path parallel to tomographic plane *(German)* 4−83321
- transthoracic impedance variations rel. to thoracic diameter changes 4−83307
- transuranic elements in human lung, in vivo detection 4−83345
- urinary tract obstruction, modelling, drop interval analysis 4−46396
- ventricular dimensions, left, intraventricular u.s. method 4−50824
- ventricular fibrillation thresholds rel. to electrical equipment leakage faults 4−73894
- X-ray fluorescence anal., I, Au and Hg, in vivo 4−50835
- CO_2 transfer rate, in artificial lungs 4−58543
- Ca, fractional intestinal, absorption rapid method for measurement 4−80734
- ^{125}I, thyroid content, absolute method critique 4−50840
- O_2, sensor, multicathode, fabricated using IC techniques 4−81094
- ^{124}Sb, inhaled, retention in dogs, effect of temp. of aerosol formation 4−65243
- ^{133}Xe techniques evaluation for regional ventilation measurement 4−80736

biomedical phenomena
- ascites, perihepatic halo around liver, ^{99m}Tc-pertechnetate perfusion studies 4−62314
- bone, cancellous, in the femoral head of man, mechanical properties 4−54675
- lung, Ce and La contamination, spontaneous absorption, meas. in monkey 4−62275
- ^{131}I hippurate imaging, for renovascular hypertension screening 4−71116

biomolecules *see macromolecules*

bionics *see biocybernetics*

biophysics
- *see also cellular biophysics; hearing; molecular biophysics; speech; vision*
- androgen transport, and receptor mechanisms in testis and epididymis 4−65244
- anterior hypothalamic heating, influence on fast wave sleep episode duration 4−58499
- artery dynamic local distensibility, rel. to wave transmission 4−54636
- bile salt stimulated biliary cholestrol excretion, system parameters, hybrid computer model 4−65242
- biochemical systems, multiple steady states far from equilibrium, effect of finite fluctuations 4−83268
- bioenergetics, within second law of thermodynamics 4−83298
- and bioengineering, annual review 4−68478
- bioluminescence in Black Sea *(Russian)* 4−80301
- bioluminescence in sea, recorded at different distances from sensor, contrib. to total light signal *(Russian)* 4−80302
- biomechanics, finite element analysis applic. 4−62269
- bony tissue, tensile fracture resistance 4−50813
- codfish, detection of acoustic stimuli 4−77015
- exponential phenomena mathematical treatment *(French)* 4−76932
- heat transfer, convective, human microenvironment, aeronautical techniques applic., to physiology 4−54673
- isothermal networks, nonlinear stability theory for stationary states, appl. to biophysics *(German)* 4−54623
- laser induced processes 4−46355
- lesion of tissues, ultrasound importance comparison of cavitation and temperature rise 4−80752
- lung airways, oxygen transport, convection and diffusion of gases 4−46366
- motor parameter measurement, telemetric method, rubber band goniometry 4−81050
- muscle fibre, crayfish, myoplasmic Ca concentration regulation 4−83297
- muscle tension, universal constancy, animal locomotion 4−68597
- muscle tone, muscle tissue model modification, two charact. freq. 4−83269
- muscular contraction, efficiency of 4−83270
- muscular contractions, strong magnetic field influence 4−46353
- osmotic energy, quantitative transformation mechanical work by fibre bundles of muscle 4−83296
- particle transport, within the human microenvironment, aeronautical techniques applic. to physiology 4−54674
- perceptual exhibits, collection at Exploratorium, San Francisco 4−54774
- peristaltic motion, effect of Poiseuille flow, anal. 4−83290
- porpoise head, sound transmission 4−80814
- respiratory tract deposition, mathematical model, heat transfer analogy 4−83289
- retinal vitamin A compounds, dynamics and function, after small bleach of rhodopsin, in the rat 4−62307
- spine, human, initially curved, computer model of the effects of caudocephalad acceleration 4−65236
- translocation in phloem of plants, long-distance 4−71090
- transport inhibition, of ^{47}Ca and ^{85}Sr by La in canine cortical bone 4−54638
- ultrasonic motion detector, movement restriction, stare and startle obs. 4−68623
- visuo-motor reaction time, expt. investigation 4−58507
- Cu transport, primary defect underlies mottled mutants in the mouse 4−62277

Biot-Savart law *see electromagnetism*

biotite *see mica*

bipolar transistors
see also power transistors
avalanche transistor characteristics and applications 4−81017
cryogenic environment performance characts. 4−77052
junction depth and base width meas. by electron beam induced current 4−49063
pushed out diffused, base profile shape, radiotracer method 4−67718
temperature transducers, thermal sensitivity calc. 4−54844
transdiode, transmission-absorbance conversion, for photometric anal. 4−62581
voltage frequency convertor, avalanche mode operation as discharge switch 4−42837
Ge, p-n-p, ion implantation effects, for h.f. appls. 4−57713
bipoles *see network analysis*
birefringence
see also electro-optical effects; flow birefringence; light polarisation; magneto-optical effects; mechanical birefringence; optical constants; optical rotation
Abbe refractometer, cholesteric liq. cryst. temp. range. 4−69716
acoustic birefringence and u.s. wave use in exptl. stress analysis 4−68614
biaxial crystals, light scattering at elastic waves 4−53393
cholesteryl esters of n-fatty acids, double refr. of cholesterol and smectic modifications *(German)* 4−53469
cholesteryl nonanoate, and mixtures, temp. range, optical props. 4−69717
cholesteryl oleyl carbonate, and mixtures, temp range, optical props. 4−69717
circular polarization creation by twisted birefringent polarizing medium 4−74470
Cotton-Mouton effect in strong field, diamag. and paramag. materials 4−61133
diffusio-birefringence, macromolecules and colloid particle diffusion in optically isotropic liq. 4−67549
dispersing medium, diffusional stresses and optical development *(Russian)* 4−77620
electro-optic modulator crystals, optical method of loss tangent meas. 4−58779
filter, birefringent, design for high-power dye lasers 4−62471
gyrotropic crystal, effect on light polarisation *(Russian)* 4−70278
harmonic generation effect, o+e→e interaction 4−47374
hen egg-white lysozyme, morphology and optical props. *(French)* 4−69778
high temperature microphotometry and microdilatometry of inhomogeneous materials 4−80852
hydrosodalite, phase transition, dielectric anomaly, domain struct. 4−82677
II-IV-V_2 semiconductors electronegativity and tetragonal distortions 4−66854
laser beam shaping devices, using Faraday and Pockels polarisation effects 4−65462
laser resonator modes, tuning with tilted birefringent plates, theory 4−47363
liquid, acoustically induced birefringent, optical diffraction 4−73100
liquid crystal, nematic, threshold voltage, anisotropy depend. 4−82685
liquid crystal, nematic, transient elec. behaviour 4−75443
liquid crystals, nematic, study of molecular reorientation and relaxation 4−52693
MBBA, n-type nematic, elec. induced deform. of vertical alignment 4−45265
MBBA, nematic liquid crystal layer, c.w. thermal lens effect 4−81354
measurement, intensity methods using Mueller matrices 4−77065
measurement in crysts. using polarized beam interference in transparent region 4−74037
optical filter, acoustically tuned, optimum cryst. orientation 4−46625
orthoferrite, meas. of intrinsic Faraday rotation and birefringence 4−80865
photoferroelectric, photoinduced birefringence variations *(French)* 4−49326
polarisable linear magneto-Cosserat fluid, optical properties 4−71499
polarised polychromatic light beam, propag. through birefr. plate 4−51519
polycarbonate, conform. determ. by mag. birefringence 4−60136
polyethylene films, low-density, rheo-optical props. in nonlinear viscoelastic region *(Japanese)* 4−80104
polymer, thermal variations in retardance meas. apparatus 4−62448
polystyrene, benzene and cyclohexanone solns., aggregation, magneto-optic birefringence 4−48500
retardation determ. of crystal section using polarisation microscopy 4−42809
squaric acid, antiferrodistortive tetragonal to monoclinic phase transition obs. 4−82273
styrene-methacrylic acid copolymer and ionomer solns., dynamic birefringence and viscosity *(Russian)* 4−50023
Tresca type plastic materials, mech. and optical constitutive eqns. *(Japanese)* 4−77453
Ag_3AsS_3 and Ag_3SbS_3, double refractive dispersion *(Russian)* 4−79699
$Bi_{12}AO_{20}$, A=Si, Ge, Ti, dispersion of nonlinear refractive index, birefringence meas. 4−55522
$(CH_3NH_3)_2MeCl_4$, Me=Mn, Fe, structural phase transitions investigation 4−67014
CaF_2, ferroelectric behaviour 4−53380
$CdGeAs_2$, rel. to sublattice distortion 4−75492
$Cd_2(NH_4)_2(SO_4)_3$, improper ferroelec., temp. depend. 4−70280
$CoCO_3$, mag. birefringence, domain struct. obs. 4−79550
$CoCO_3$, mag. birefringence *(Russian)* 4−79706
$CsMnF_3$, mag. birefringence *(Russian)* 4−79706
$CuGaSe_2$, rel. to sublattice distortion 4−75492
$FeBO_3$, mag. birefringence, obs. in visible spectrum 4−57575
Fe_2O_3, haematite, antiferromagnetic, birefringence of polarised Mossbauer gamma quanta *(Russian)* 4−82648
GaAs Pockels cell, single nanosecond pulse selection of CO_2 laser, reliable half wave operation 4−51083
birefringence continued
in-GaP:Te, free-carrier piezobirefringence obs., shear-deformation potential const. determ. 4−67552
KCl:CN^-, Kerr effect of CN^- mols. 4−49328
K_2CuF_4, ferromagnetic, exciton line temp. shift, linear mag. birefringence temp. dependence 4−79514
$KNbO_3$, orthorhombic phase characterisation 4−70248
$LiNbO_3$ phase modulator as reference for laser interferometry 4−54945
$MnCO_3$, mag. birefringence *(Russian)* 4−79706
$NaNbO_3$, para- and antiferroelec., rel. to struct. 4−70277
Na_2O-$Al_2O_3(TiO_2)$-SiO_2 glasses, stress-optical coeff. rel. to comp. 4−45266
NiO, mag. order induced, Neel temp. determ. 4−60959
TeO_2, noncollinear acousto-optic tunable filter 4−42818
ZnSiMn, influence on polarisation of luminescence 4−57618
bismuth
additive to Cu, effect on grain boundary cohesion 4−49805
amorphous, thin films, supercond. transition temp. 4−76025
amorphous films, substrate material, impurities, stability *(Russian)* 4−67128
atom, absorption spectrum below 1000 Å 4−59909
atom, Auger satellite energy shifts 4−63349
atom, inner shell ionisation of $N_{6,7}$ level, electron induced, anomalous threshold behaviour 4−66330
atom, L-subshell ionisation, proton bombardment 4−59965
band parameters, temp. depend., 4-280K, magnetorefl. obs. 4−79293
crystal, estimating chemical purity and quality *(Russian)* 4−66903
crystal growth by Czochralski and Bridgman techniques *(Russian)* 4−45433
decoration of ionic crystal surfaces 4−60676
elastic energy of dislocations calc. 4−69809
electric field depend. on sample size and temp. *(Russian)* 4−72807
electrical and galvanomag. props., influence of twins 4−79351
electron and proton irrad. induced structural changes 4−66935
electron energy loss spectra, permittivity and optical absorption determ. 4−66952
electron focusing in transverse mag. field *(Russian)* 4−64068
electron microscope exam. *(German)* 4−81036
electron resonance; new type, predicted at low temp. in crossed electric and magnetic fields 4−49210
electronic structure, angular correlation of electron positron annihilation quanta, meas. 4−60732
equilibrium partial pressure of atoms in gas phase, atomic absorption method *(Russian)* 4−69904
etch-pit shape, CrO_3 etchant in glacial acetic acid 4−72641
etching of (111) cleavage plane, Cl, Br, HCl and fuming HNO_3 etchants 4−60692
film, amorphous, structure 4−82339
film, elec. resist. meas. 4−53164
film, electron microscope anal. of condensation kinetics 4−53014
film, galvanomag. props., thickness depend., 77-300K 4−60884
film, polycryst., form. and supercond. phase stabilization *(Russian)* 4−67305
film, polycrystalline, thickness depend. of d.c. and r.f. resist. 4−53158
film, superconducting phase, electron tunnelling obs. 4−60927
film, vacuum evaporated, He ion stopping cross-section 4−69839
galvanomagnetic effect, low field, 80-300K electron and hole transport parameters 4−49006
Gruneisen constant, using Debye temp. vs. at. vol. data 4−67006
Hall components of magnetoresist. tensor, 5.6-65K *(Russian)* 4−72804
Hall constant sign, thickness depend. *(French)* 4−53106
internal friction, plastic deform., 4.2-298K 4−79097
Lifshits electronic phase transitions 4−75787
liquid, density, pycnometric method *(Polish)* 4−67743
liquid, surface tension meas. by maximum bubble-pressure method 4−48830
magnetic behaviour at high fields 4−45138
magnetic focusing of electrons and holes, Fermi surface 4−82361
magnetoacoustic phenomena, nonellipsoidal, nonparabolic band struct. effect 4−61011
magnetoresistance, ang. depend., Fermi surface, carrier mobility 4−60812
magnetoresistance tensor component, low temp. meas. 4−82434
magnto-Seebeck effect, obs. of phonon drag at high mag. field 4−49018
mass absorption coefficients for CK_α line *(Japanese)* 4−45382
neutron irradiated single crysts., effect on wedge-shaped twins 4−66944
nonlinear size effect, h.f. and d.c. spikes *(Russian)* 4−72814
Seebeck coefficient, longitudinal magnetic field 4−67240
solar Bi I 4722 A line obs. 4−54395
solder, thermal contact at very low temp. 4−46608
solubility of InAs and InP, 500-1200°C *(German)* 4−69895
specific heat, pulse technique for meas. at h.p. 4−62432
standard for thermal conductivity comparison 4−67071
strong e.m. wave propagation, mutual drag effects of hot carriers and phonons 4−70029
substrate, stability of amorphous Bi films *(Russian)* 4−67128
superconducting, finely dispersed, crit. fields, 4.2 to 2K *(Russian)* 4−70095
superconducting thin films, transition from type I to type II under perpendicular mag. field 4−82519
surface impedance, r.f. obs. in mag. fields 4−49029
thermal conductivity, separation of electronic and lattice parts 4−82249
thermal resistance of lattice, $T<2K$, contribution of phonon relaxation mechanisms *(Russian)* 4−82251
thermoelectric power press. depend. meas. up to 60 kbar 4−50996
thin films, investig. of lattice parameter changes 4−67131
thin targets in intense ion beams, movable target holder 4−62502
X-ray spectra, L-M-shell ionization on fast α-particle bombardment 4−76330
X-ray spectra, L-subshell fluorescence and Coster-Kronig yields 4−47848
Bi:Sn(Pb), mag. susceptibility meas. rel. to band structure, impurity effects 4−79281

bismuth continued
Bi-Bi_2O_3-In sandwich structures, prep., current-voltage characts. electron tunnelling 4–79413
CaS:Bi, Tm phosphor, thermoluminesc., i.r. absorption, electron traps 4–70370
CaS:Bi:Tm phosphor, phosphorescence decay at 96 and 300K 4–57599
CdS:Bi, film, photocond. response speed 4–44967
$CdSiP_2$:Bi, photoelectric effects 4–79381
Ce-Bi-Tl coaxial wire produced by extrusion for electric resistance pressure meas. 4–54861
n-Ge:Bi, γ-irrad., acceptor levels, annealing obs. 4–60761
LiD:Bi^{3+}, X-ray liminesc. *(Russian)* 4–70363
PbN_6:Bi, film, effect of photodecomposition on far i.r. spectra 4–76333
PbN_6:Bi, film, effect of photodecomposition on far i.r. spectra 4–79819
PbTe:Bi, mag. susceptibility, impurity effect, 80-400K *(Russian)* 4–82550
Se-Bi, amorphous film, heterogeneity and dielectric props. obs. 4–76209
Te/Bi films, superposition, substrate nature influence on stress-relief *(French)* 4–44810
$Y_3Ga_5O_{12}$:Bi^{3+}, absorption spectra up to 40000 cm^{-1} 4–45343

bismuth alloys
see also bismuth compounds
Au-Bi-Te system, phase diag. 4–82839
Ba_2Bi, cryst. struct., X-ray diffr. 4–66869
Bi-Cd(Sn) eutectic systems, partial diffusion coeffs. *(Russian)* 4–53650
Bi-In, superconductivity, high press. transition 4–79446
Bi-Pb, liq. us. absorpt., vol. viscosity effects 4–67060
Bi-Pb, structural changes on irrad. 4–66935
Bi-Sb, cryst. growth, interface stability criteria investig. 4–63776
Bi-Sb, hardness and creep, spherical indentation tests 4–49786
Bi-Sb, high pressure, high temperature, behaviour 4–67024
Bi-Sb, nonlinear band parameters investig. using Shubnikov-de Haas oscill. meas. 4–64015
Bi-Sb, Raman spectra and X-ray diffr. meas. 4–79727
Bi-Sb, semiconducting alloy, cyclotron waves *(Russian)* 4–82370
Bi-Sb, semimetallic, mag. susceptibility in ultraquantum field *(Russian)* 4–64187
Bi-Sb, single cryst. growth by Czochralski and Bridgman techniques *(Russian)* 4–45433
Bi-Sb alloys, susceptibility and Hall effect in strong magnetic fields at 4.2K *(Russian)* 4–57265
Bi-Sn alloys, elastic const. behaviour near solid soln. pt. 4–82226
Bi-Sn eutectic alloy, liquidus curve for isopleth with sodium 4–47804
Bi-Te, liquid, Te self-diffusion coeff., conc. depend. *(Russian)* 4–60635
Bi_xGe_{1-x} film, amorphous, optical spectra and photocond. 4–53163
Bi_xGe_{1-x} film, amotphous, fabrication, struct. and elec. props. 4–53162
BiMn, ferromagnetic hyperfine field at Bi, low temp. nuclear orientation 4–73053
BiSb, semicond., mag. freezing *(Russian)* 4–70194
BiSb alloy, gapless state transition in mag. field, galvanomag. meas. rel. to band edge motion 4–57115
$Bi_{1-x}Sb_x$, $(0<x<0.04)$, prep. of single crysts. by gradual crystn. 4–67739
$Bi_{1-x}Sb_x$, helicon-like magnetoplasma waves obs. 4–57124
$Bi_{1-x}Sb_x$, semiconducting, helicon wave propag. obs. 4–57122
Bi_xSb_{1-x} evaporated layers, $0\leqslant 1-\leqslant 0.30$, absorpt. peaks, posn. and mag. rel. to comp. *(German)* 4–49374
BiSn, high press. phase, vol. change meas. 4–76428
Ca_5Bi_3, cryst. struct., X-ray diffr. 4–66870
Cd-Bi alloy, liquid, density pycnometric method, and molar vol. *(Polish)* 4–67743
CeBi, single crystals, magnetic props., 2-30K 4–70181
Cu-Bi, liq., comp. depend. of Hall coeffs. *(Japanese)* 4–44898
In-Bi, resistance measurements 4.2-55K, deviations from Matthiessen rule *(Russian)* 4–82389
In-Bi (0.06 at.%), superconducting thin films, transition from type I to type II under perpendicular mag. field 4–82519
In-Bi melts, self-diffusion of indium *(Russian)* 4–45543
InBi and In_2Bi, solid and liq., γ-γ ang. correl. 4–79652
In_2Bi, single crystal growth and elastic behaviour 4–53759
LaBi:Er^{3+}, crystalline field effects, e.p.r. obs. 4–57372
LuBi:Er^{3+}, crystalline field effects, e.p.r. obs. 4–57372
Mg-Bi, amorphous, core excitons, absorpt. obs., 40-200 eV 4–79810
Mg-Bi, amorphous film, d.c. and a.c. cond. and optical transmission 4–49092
Mg-Bi, liq., compound molecule form., effect on conc.-conc. correl. function, long-wavelength limit 4–82100
Mg-Bi, liq., thermodynamic obs. using e.m.f. method with CaF_2 electrolytes 4–51879
Mg-Bi, molten, conc. fluctuations and partial struct. factors, phenomenological model 4–52676
Mg_3Bi_2, small forbidden energy gap, rel. to props. *(Bulgarian)* 4–57031
Mn-Bi, thermomagnetic recording, repeated cycling, appls. *(French)* 4–54952
Mn-Bi system near MnBi, equilib. phase diagram 4–64527
Mn-Bi-Te film, magneto-optical material, mag. props. temp. depend. 4–57331
MnBi, film growth, ferromag. recovery during thermal cycle, writing appl. 4–67408
MnBi, film use in holographic memory stores 4–68709
MnBi, thermomagnetic writing on film using electron beam 4–65469
MnBi, thin film, temp. depend. of mag. anisotropy and saturation mag. 4–53271
MnBi film, coercive force temp. depend., rel. to laser beam addressing 4–57337
MnBi film, domain nucleation and propagation phenomena, demag. obs. using W needle 4–57327
MnBi film, magnetooptic properties, component ratio depend. 4–70285

bismuth alloys continued
MnBi film, optical anisotropy eval. rel. to magneto-optical effects 4–45262
MnBi films, prep. by vacuum evap. and annealing diffusion process analysis 4–76384
MnBi thin films, mag. domain config. and coercivity 4–76127
Pb-Bi solid solns., deform. and heating rate effects on melting behaviour *(Russian)* 4–49664
Pb-Bi thin film fabrication with spatially modulated concentration by evaporation techniques *(French)* 4–53011
Pb-Sn-Bi, liquid, electroconductivity, Ziman's theory *(Russian)* 4–70007
$Pb_{0.75}Bi_{0.25}$, upper crit. field, strong coupling calc. 4–45039
Sb-Bi(20 at.%) solid solns., liq. phase nucleation and growth during melting *(Russian)* 4–45534
Sb-Cs-Bi, intermetallic compounds, photoemissive props., variable comp. *(Bulgarian)* 4–82785
SbSeI-BiSeI solid soln., films and polycryst., photocond. and opt. props. 4–49316
Se-Bi(-As), amorphous film, permittivity, freq. and heat treatment depend. 4–67514
Sn-Bi, resistance measurements 4.2-55K, deviations from Matthiessen rule *(Russian)* 4–82389
Sn-Bi alloys, etchant composition 4–82322
Sn-Bi solid solns., deform. and heating rate effects on melting behaviour *(Russian)* 4–49664
Tl-Bi, f.c.c.-h.c.p. transform. rel. to T_c and electron struct. effects 4–61333

bismuth compounds
see also bismuth alloys
alkali metal-bismuth molybdate (tungstate), cryst. chemistry 4–82147
oxide, Mossbauer effect of $^{57}CoCl_2$ deposited on surface 4–45221
X-ray spectra, inner electron bonding energy *(Russian)* 4–49480
$B_{12}SiO_{20}$, epitaxially growth of $Bi_{40}Fe_2O_{63}$ and $Bi_{40}Ga_2O_{63}$ crystals using $B_{12}SiO_{20}$ seeds 4–67715
Bi-Bi_2O_3-In sandwich structures, prep., current-voltage characts. electron tunnelling 4–79413
Bi^{3+} and Pb^{2+} in glasses, ultraviolet spectra 4–61181
$Bi_{12}AO_{20}$, A=Si, Ge, Ti, dispersion of nonlinear refractive index, birefringence meas. 4–55522
$BiBr_3$, crystal structure, n.q.r. Zeeman effect 4–57423
$BiCl_3$ crystal structure, n.q.r. Zeeman effect 4–57423
BiF_3 solid electrolyte, ionic cond. 4–53102
$Bi_3(FeO_4)(MoO_4)_2$, new compounds with scheelite related struct. 4–72453
$Bi_{40}Ga_2O_{63}$, top seeding technique, growth from soln. in Bi_2O_3 4–67715
$Bi_3(GaO_4)(MoO_4)_2$, new compounds with scheelite related struct. 4–72453
$Bi_{12}GeO_{20}$, electrogyratory effects, rel. to birefringence 4–45273
$Bi^+(H_2O)_n$, hydration equilibria, mass spectrum 4–61594
BiI_3, crystal structure, n.q.r. Zeeman effect 4–57423
BiI_3, inverse H-like series in opt. spectra *(Russian)* 4–57577
BiI_3, platelet cryst. growth by open flow sublimation technique, optical characteriz. 4–61283
BiI_3, semicond., memory effect, O_2 photoadsorption *(Russian)* 4–48845
$Bi_{0.7}La_{0.3}(Fe_{0.986}Mn_{0.014})O_3$, obs. of magnetoelectric effect 4–49011
$Bi_{1-x}La_xFeO_3$, solid soln., elec. and mag. props. 4–57457
Bi_2O_3, flux growth of γ-Bi_2O_3 crystals, top seeded technique 4–67715
Bi_2O_3, thermal expansion and 730°C transform. 4–52912
Bi_2O_3 film, anodic, photovoltaic effect 4–53167
Bi_2O_3-Fe_2O_3-Na_2O-H_2O, crystallisation 4–44651
Bi_2O_3-PbO system, solid phase identification and evolution with temp. *(French)* 4–52859
BiOBr, laminated crystals, energy struct. and optical props. *(Russian)* 4–73094
BiOCl, laminated crystals, energy struct. and optical props. *(Russian)* 4–73094
$BiPO_3$, condensed melts, surface tension determ. near melting point 4–44747
$Bi_{2x}Pb_{1-2x}(Fe_{0.5+x}Nb_{0.5-x})O_3$, magnetic ferroelectrics, heat capacity meas. 4–82673
BiSI, ferroelectric semiconductor, photoluminesc. obs. at 80K 4–67634
$Bi_xSb_{1-x}SeI$ solid solns., elec. props. of cryst. and film specimens 4–70047
$(BiSb)_2Te_3$ solid soln., hydrostatic and uniaxial stress effects on elec. props. 4–79350
$(Bi_{1-x}Sb_x)_2(Te_{1-y}Se_y)_3$, lattice thermal conductivity, Seebeck coefficients 4–79203
BiSe-SbTe system, phase diagram, elec. cond., thermo-e.m.f. 4–69885
n-Bi_2Se_3, Burstein shift of absorpt. edge, reflectivity obs. 4–49382
Bi_2Se_3, melt-grown, electronic props. 4–82360
Bi_2Se_3, polymorphic transitions obs. at high press. by electrical resist. meas. 4–69908
Bi_2Se_3-Bi_2Te_2S-Bi_2Te_3 system, phase diagram 4–69886
BiSeI, mag. susceptibility, 90-300K, chain like struct. anal. 4–72700
BiSeI, n- and p-type, piezoresist., temp. depend. *(Russian)* 4–82440
BiSeI, Shubnikov-de Haas oscillations 4–67157
BiSeI, thin films, prep. and physical props. 4–67732
BiSeI, transverse anharmonicity of chain-like crystals, thermal expansion coeff. 4–79133
BiSeI film, opt. props., 130-390K *(Russian)* 4–57651
$Bi_{12}SiO_{20}$, electron effective mass and cond. band effective density of states, photocond. excitation spectra obs. 4–60827
$Bi_{12}SiO_{20}$ acoustic surface wave devices 4–75683
$Bi_xSiO_{1.5x+2}$, comp. of melt pulled crysts. 4–79870
Bi_2Te_3, metal like semicond. melt, Hall coeff. meas. 4–79371
Bi_2Te_3, semicond., mech. strength and plasticity 4–52806
Bi_2Te_3, u.v. photoemission, matrix element depend. of Auger decay 4–79848
Bi_2Te_3 single cryst. resist., 1.3 to 300K 4–72764
$Bi_{12}TiO_{20}$, top seeding technique, growth from soln. in Bi_2O_3 4–67715

bismuth compounds continued
  $Bi_4Ti_3O_{12}$, ferroelec., nucleation site drift, depoling 4−70268
  $Bi_4Ti_3O_{12}$, ferroelec. domain switching, impurity control 4−61113
  $Bi_4Ti_3O_{12}$, sputtered epitaxial film, constrained and metastable structures 4−75723
  $Fe_2O_3-Bi_2O$ system, presentation of a partial phase diagram 4−67715
  GeO_2-Bi_2O_3 and GeO_2-Sb_2O_3-Bi_2O_3 system glasses, depolymerisation by Bi_2O_3 4−60414
  $Na_{0.5}Bi_{4.5}Ti_4O_{15}$, ferroelectric ceramic with layer struct., piezoelectric props. 4−82668
  $PbBi_2Nb_2O_9$, ferroelectric ceramic with layer struct., piezoelectric props. 4−82668
  $PbBi_4Ti_4O_{15}$, ferroelectric ceramic with layer struct., piezoelectric props. 4−82668
  $SrBi_4Ti_4O_{15}$, ferroelectric ceramic with layer struct., piezoelectric props. 4−82668

bistable multivibrators *see flip-flops*

Bitter patterns *see magnetic domains*

bitumen *see materials*

black holes
  see also gravitational collapse
  γ-ray production by accreting hot gas 4−62145
  accretion, study of supermassive and isolated systems 4−68439
  accretion flow in galactic X-ray sources, optically thin spherically symmetric model 4−50638
  accretion of matter, disc theory, luminosity and spectrum, calcs. 4−68438
  accretion of plasma, influence of mag. fields on disc struct. 4−68440
  axisymmetric stationary horizons 4−47172
  BL Lacertae-type objects as nearby black holes 4−62148
  charged, beat freq. oscill. of gravitational and e.m. radiation 4−46243
  collapse and anticollapse, Freidmann closed world metric model 4−68432
  collapsed objects and galactic X-ray sources 4−54471
  cosmic censorship, rôle of naked singularities 4−68426
  Cygnus X-1, distance and HDE 226868 black hole 4−83245
  Cygnus X-1, X-ray variability, millisecond temporal structure, rel. to black hole accretion 4−50645
  decay, charge and particle conservation, Hawking's predictions 4−73719
  destruction by outside fields 4−83231
  detection, possibility of optical obs. of accreted matter radiation 4−68434
  detection and accretion of matter, conf. Warsaw, Poland (1974) 4−68322
  detection in binary systems *(Italian)* 4−70996
  early universe, gravitational collapse and black hole form. 4−68435
  early Universe and primordial black holes 4−73715
  Einstein Maxwell equations, soln. having singular infinite red shift surface, possible relevance to black holes 4−65787
  energy limits on Penrose process for rotating black hole breakup 4−76827
  equilibrium configs. of slowly rotating black hole with ring of matter 4−83211
  explosions caused by escape of massless particle escape slowing collapse 4−62146
  formation and characteristics, critical size, influence on galactic systems *(Esperanto)* 4−46245
  formation from white holes, homogenisation of early universe 4−70868
  geodesics, local observations in extended Kerr manifold 4−54364
  half-closed metric, rel. to closed universes containing sources of massive vector field 4−76779
  HDE 226868 (Cygnus X-1), interpretation of He II 4686 Å emission line, models 4−68412
  horizon events in five-dimens. theory *(French)* 4−43157
  introduction to black hole physics 4−50615
  Kerr metric, circular orbits 4−73595
  Kerr Newman geometry, generalized ergosphere 4−58340
  Kerr type, gravitational and e.m. wave refl. and ampl. 4−68428
  Kerr-Newman sources in equilibrium, metric derivation 4−68929
  mass-angular momentum diag. black hole limit 4−61984
  naked singularity, repulsive phenomena and energy emission 4−73704
  OB runaways possibility of collapsed companions 4−70978
  observation, orbit calcs. for physical systems 4−68433
  parametrized post-Newtonian approx. for neutron star models 4−50590
  particles and fields in space, Hungarian Acad. Sci. conf. 4−50430
  phase transitions at high fermion density, gauge theories 4−69111
  physics, collapsing stars 4−58321
  primary dynamo mechanism in plasma surrounding rotating body 4−73601
  primordial, form. in early universe, quantum aspects of accretion 4−68436
  regularizing role of gravitational field, QED 4−80459
  Reissner-Nordstrom class, stability against small odd-parity perturbations 4−73720
  Reissner-Nordstrom geometry, perturbation anal. for gravitational and e.m. radiation 4−59278
  rotating, decoupled separable wave equations for perturbations 4−68427
  rotating, gravitational collapse, external field behaviour *(Russian)* 4−73722
  rotating, numerical test for Kerr metric under small perturbations 4−68323
  rotating, tidal shapes and shifts from perturbing external mass 4−73721
  rotating Kerr black holes, H accretion, X-ray radiation 4−50576
  scalar waves from point source in exterior 4−65767
  Schwarzschild, Debye pot. analysis for e.m. waves in exterior 4−68430
  Schwarzschild, Fourier and Laplace transforms. for scalar waves 4−68429
  Schwarzschild space-time, classical test fields 4−73736
  Schwarzschild space-time, Kruskal and Kunzle coordinates 4−73735

black holes continued
  second law of thermodynamics, infall of an entropy-bearing system 4−76850
  small mass, 10^{-5}g, expt. for detection and number density upper limit 4−73718
  spherical collapse with charge perturbations 4−58322
  in static electrovac space-times, extension of Israel's theorem on Reissner Nordstrom solns. 4−50597
  supermassive, as energy source of quasars and galactic nuclei, magnetoid theory 4−68441
  supernova Fe-core models and black hole creation 4−70986
  Teukolsky equation, analytic props., stability of Kerr geometry 4−77536
  Tungus event evidence against black hole theories 4−70956
  Tunguska meteorite, black hole hypothesis *(French)* 4−50536
  2 U 0900-40 and 2U 1700-37 X-ray binaries with black hole secondaries 4−54494
  2U 1700-37 (HD 153919), black hole possibility 4−46257
  vortex flow around singularities rel. to Jeans' galactic hypothesis 4−58415
  white holes, high energy radiation 4−83172
  X-ray binaries, soft X-ray variability 4−46261
  X-ray production, evidence for Cyg X-1 4−68446
  X-ray sources, triple star models without invoking black holes 4−50646

blending
  pigment colour matching and blending, instrumental approach 4−54916

Bloch walls *see domain walls*

block diagrams *see circuit diagrams*

blood
  see also haemodynamics
  anticoagulant drugs, electrochem. behaviour, voltammetric and potentiostatic obs. 4−51195
  atomic absorption analysis of Pb content using dual wavelength spectrometer 4−62609
  cerebral operations for vascular lesions, per-operative angiography 4−58559
  erythrocyte sedimentation rate signal at g=2.03, origin from rabbit liver and the effects of nitrites 4−58487
  extracorporeal irrad. in uremic patients, development of lymphopenia 4−46456
  haemoglobin cell detection by immunofluorescent double labelling 4−68828
  induction thermocoagulation, seed power study 4−65561
  leucocyte metabolism, ^{14}C-glucose conversion to $^{14}CO_2$ 4−68523
  leukaemia risk to foetus from X-ray exposure of expectant mother 4−58595
  leukemia in irradiated parabiotic rats 4−54712
  neonatal hyperbilirubinaemia, blue light dose response obs. 4−54697
  oxygenation in channels with boundary irregularities 4−46369
  permittivity, relationship with haemoglobin content 4−46352
  plasma volume, standard radiation techniques 4−68526
  pulmonary irradiation injury detection by plasma lactic dehydrogenase activity determ. 4−62332
  radiation effects, cells morphological change, responses of hematopoietic organs 4−46463
  red cell lifetimes, calc. from ^{51}Cr survival data 4−73908
  red cell metabolism of uranium miners 4−80755
  red cell volume, standard radiation techniques 4−68526
  serum, determ. of Mn, Sr, using graphite furnace at. absorpt. technique 4−51205
  transport of substances from cerebrospinal fluid, via pial vessels 4−50750
  ultrasonic echo diffraction, random noise 4−68570
  viscosity, medical and engineering problems 4−65260
  warming of whole blood, h.f. electromagnetic technique, expt. 4−81054
  Fe X-ray fluorescence radioisotopic excited quantitative anal. 4−77256
  O_2, anomalous uptake by flowing blood 4−76943

blood circulation *see haemodynamics*

blood dynamics *see haemodynamics*

blood flow *see haemodynamics*

blood platelets *see blood*

blue brittleness *see brittleness*

boilers
  corrosion studies, high-press. steam loop, superheated alloys, high heat fluxes *(German)* 4−82887
  LMFBR steam generator, ferritic steel, water-side corrosion processes 4−81659
  LMFBR steam generator material, Cr-Mo ferritic steel, decarburization behaviour 4−81658
  LMFBR steam generator material, decarburized, design criteria 4−81657
  LMFBR steam generators, NDT, ORNL status report 4−81603
  nuclear power components, inservice inspection, ASME Code requirements 4−81610
  nuclear power plant, assessment of actual loading conditions according to probabilistic criteria 4−47764
  nuclear reactor, fast sodium cooled, analysis of steam generator development *(Czech)* 4−55901
  nuclear steam generator, corrosion behaviour of Alloy 600 4−81660
  oil-burning, dust content in flue gas determination *(Japanese)* 4−46956
  suspensions, regulation of forces determ. by tensometric method *(Polish)* 4−44140

boiling
  see also boiling point
  alkali metals, free convection, l.p., heat transfer crisis 4−44666
  aniline, subcooled boiling heat transfer, forced convection 4−79147
  benzol-ethanol mixture, heat exchange intensity *(Russian)* 4−52879
  bubble detachment frequency, size depend. 4−44127
  bubble motion in subcooled heated channel 4−52496
  n-butyl alcohol, subcooled boiling heat transfer, forced convection 4−79147
  convective subcooled critical heat flux prediction model 4−48218

boiling continued
  cooling reactor, boiling permissibility in downcomers of circulation loop 4−71989
  critical heat flux meas. under transient conditions 4−63531
  ethyl alcohol, subcooled boiling heat transfer, forced convection 4−79147
  heat transfer coeff. of subcooled, saturated boiling in channel, semiempirical calcs. 4−72342
  heat transfer in plug regime, liquid N film boiling 4−43938
  holographic investigation of reduced temp. boiling in heat exchanger *(German)* 4−50973
  hydrazine, subcooled boiling heat transfer, forced convection 4−79147
  liquid film, heat transfer in nucleate boiling 4−52384
  metal, cavity theory, superheat 4−44661
  metal, heat transfer, conf. Trogir, Yugoslavia (1971) 4−43980
  metal, superheat effects, bubble nucleation 4−44662
  metal, superheated, bubble nucleation mechanism 4−44663
  metal, two-phase flow, slug-annular regime parameters 4−44136
  metal bubble form. at heated wall, random walk theory 4−44131
  nuclear reactor boiling channels, systematic errors in discrete time-interval transmission method for void statistics estimation 4−81563
  nuclear reactors, nucleate coolant boiling, resonant acoustic noise spectra 4−55899
  organic fluids, free convection, l.p., heat transfer crisis 4−44666
  peak pool boiling heat flux in viscous liqs. 4−48217
  iso-proply alcohol, subcooled boiling heat transfer, forced convection 4−79147
  propylene glycol, superheated, bubble nucleation by fission fragments and fast neutrons 4−52878
  role of adsorbed gas 4−69902
  saturated pool boiling expt. on nonwetted surface 4−48361
  seawater, thermodynamic props. 4−70664
  stabilization in very low press. region 4−43957
  subcooled boiling heat transfer, forced convection 4−79147
  thermal boundary layer temp. profiles during liq. boiling in free vol. 4−52379
  water, heat transfer on nonisothermal surfaces 4−43940
  water, subcooled boiling heat transfer, forced convection 4−79147
  water, superheated, bubble nucleation by fission fragments and fast neutrons 4−52878
  water, underheated, boiling onset for small velocities of forced movement *(Russian)* 4−52880
  Co_2, nucleate boiling departure of h.p., temp. conditions 4−43950
  H_2O, pool boiling critical heat flux in slowly variable transient states 4−75091
  He I, crisis of nucleate boiling in vertical channels, natural convection 4−69940
  He I, flow boiling research 4−50989
  He(I) boiling, forced convection heat transfer in a tube 4−69939
  Hg, in tube under forced flow, transfer rates 4−44132
  K, heat transfer in tubes, press. influence 4−44133
  K, in short rod bundles, crit. heat flux meas. 4−43625
  N_2, subcooled liq. film, hydraulic resist. 4−60253
  NH_3, subcooled boiling heat transfer, forced convection 4−79147
  Na, coolant in rod bundles, hydraulic model 4−43626
  Na, crit. conditions for dryout, flowing 4−43627
  Na, heat transfer, l.p., natural convection 4−44665
  Na, incipient, flowing in single-pin annular channel 4−78229
  Na, incipient boiling superheats 4−44664
  Na liquid-vapour interface, rapid transient movement meas. 4−46900
  O_2, liq., boiling in large vol., heat transfer 4−52380
boiling point
  see also boiling; heat of vaporisation
  diffusion measurement, three-compartment cell 4−59022
  N_2, pure and doped with O_2, Ar, Kr, CO, boiling points from 56-77K 4−82263
  Ne, sp. ht. obs. 4−79144
bolometers
  calibration system, direct, using signal generator and transformer 4−42749
  heterodyne, line astronomy application 4−68474
  hypersound detection, deformation potential *(French)* 4−54832
  interferometers, far i.r., with low temp. bolometers, simple double-beam modification 4−46665
  i.r. radiation recording method applic. to stress. determ. of polymers *(Russian)* 4−46579
  low temperature dielectric detector, improved material 4−71167
  phonon detectors, calibration 4−75590
  pyroelectric cavity bolometers for i.r. spectral meas. *(Russian)* 4−80897
  semiconductor, limiting sensitivity *(Russian)* 4−54849
  waveguide power standards, automated calibration system 4−65355
  X-band waveguide bolometer mounts, efficiency meas. repeatability 4−65356
  GaAs:Zn avalanche for detecting 35 GHz u.s. radiation 4−68625
Boltzmann equation
  see also transport processes
  Boltzmann-Vlasov equation, moments of, CGL invariants 4−69616
  boson system, quantum mechanical anal. 4−51457
  boundary layer gas flow around macroscopic body, drag coeff. 4−44011
  computer derivation of Boltzmann distribution for an ensemble of harmonic oscillators for instructional purposes 4−58704
  Debye-Huckel limiting potential, calc. using generalised Poisson-Boltzmann eq. 4−61616
  deduction from Liouville eqn. 4−55390
  deduction from Liouville equation, origin of time irreversibility 4−74430
  eigenvalue anal. using neutron diffusion theory 4−78154
  electron gas of nondegenerate plasma, collision terms 4−66686
  entropy, generalised expression, comparison with Boltzmann formulation, probabilistic models 4−81261
  evaporation, reverse temp. gradient in vapour 4−77577
  evaporation-condensation, nonlinear solutions 4−81250
  Fokker-Planck approximation for collisional relaxation of atomic and molecular systems 4−62751
  free molecular stream containing semi-infinite plate, eqn. soln. *(German)* 4−66638
Boltzmann equation continued
  gas flow, nonlinear Boltzmann eqn., asymptotic soln. 4−66556
  gas mixtures, moderately dense, kinetic theory, transport coeffs. of hard sphere mixtures 4−72265
  gaseous ions in electric field, moment expansion solution for mobilities and diffusion coefficients 4−63512
  gaseous mixture, molecular gases, linearized kinetic model 4−43902
  hard sphere gas, one-dimensional shock wave, accuracy of iterative and Monte Carlo solns. 4−81254
  heat transport, nonequilib. vel. distribs. 4−77574
  ideal gas mixtures, diffusion through capillaries, transport eq. derivation *(German)* 4−52525
  identical transformation leading to purely stochastic process, appl. to neutron physics 4−47239
  inert gas breakdown, solutions of classical Boltzmann eqn. 4−56557
  inert gas discharge, positive column dynamic behaviour, linear theory derivation *(German)* 4−63714
  ions in drift tubes, approximations 4−66549
  kinetic Green function analysis *(Russian)* 4−59308
  Lorentz gas, electron-molecule, polynomial soln. of eqn. *(French)* 4−60274
  Mednikov's equation, transport of aerosol particles, turbulent boundary layer 4−72345
  metal, Boltzmann transport equation, asymptotic soln. 4−64055
  metal, cubic, rel. to magnetoresist. calc. 4−79334
  metal, f.c.c., elec. cond., linearized soln. 4−44890
  metal theory, asymptotic soln. of Boltzmann transport eqn. 4−70004
  mono-energetic, stationary, modified P_l-approx. *(German)* 4−66251
  neutron transport, monoenergetic, homogeneous nonmultiplying medium, reflecting boundary conditions 4−43584
  neutron transport anal. using Walsh functions *(German)* 4−69271
  neutron transport equations, numerical solns., discrete-ordinate, spherical harmonic theory 4−81521
  neutron transport in homogeneous slabs and spheres 4−63230
  nonlinear, solution and general properties, Milne problem 4−47242
  phonon system, transport-phase-transition, Peierls-Boltzmann equation 4−75614
  plasma, kinetic model for neutral gas between plasma and wall 4−44174
  rarefied gas tube flow *(Russian)* 4−52459
  reaction kinetics, time dependent soln. of Boltzmann eqn., two component system 4−64726
  regularisation of Boltzmann collision integral for singular potentials *(Russian)* 4−51476
  relativistic, approx. soln. using relativistic grad polynomials 4−65835
  relativistic relaxation-time model for collisions term of one-component gas 4−68964
  semiconductor, two-valley, rel. to intervalley transfer effect, theory 4−72783
  semiconductors, exact relaxation time solution 4−56833
  shock wave, Boltzmann eq. soln. at upstream and downstream singular points 4−75141
  shock waves, approximate soln. 4−44037
  solid surface, energy distrib. of fast backscattered electrons, calc. *(Russian)* 4−67693
  spherocylinder molecules, axially elastic, kinetic theory 4−78549
  Stark ladders in solids *(German)* 4−64031
  time-independent, neutron planar transport analytical soln. *(German)* 4−63233
  transport eqn. for multiple scatt. in medium of randomly distributed particles 4−71479
  K, low field Hall coeff., temp. depend. 4−64060
  N_2 glow discharge, positive column, electron vel. distrib. *(German)* 4−63713

bonds (adhesive) *see adhesion*

bonds (chemical)
  see also binding energy; hydrogen bonds; intermolecular forces; lattice energy; molecular bonds
  acousto-optical materials, photoelastic props. rel. to chem. bond type 4−67550
  adhesion between various clean surfaces, light loads, strength of bonds 4−70401
  alkali germanate glasses, soln. calorimetric approach to struct. *(Japanese)* 4−69731
  alkali halide diatomics, repulsive potential parameters, combination rules and correlations 4−74933
  alklyl peroxides, extended Huckel method calcs. 4−56135
  alloy, tight binding, cluster approx. for off diagonal disorder 4−48885
  amorphous chalcogenide material, atomic bonding, electron spectroscopy 4−44470
  atomic radii, identification of atomic radii with internuclear electronic density minima 4−72017
  binary compound workfunctions, extension of Gordy-Thomas electronegativity theory 4−63468
  chalcogenide melts, viscosity meas. 250-1000°C *(German)* 4−52924
  covalent surfaces, back, dangling and multiple bonds 4−63789
  trans-α-cyanostilbenes, i.r. and u.v. spectral study 4−47968
  π-cyclopentadienylnickel nitrosyl, low energy ionic state obs. 4−60113
  diamond, bond charge model of lattice dynamics, phonon and X-ray scatt. spectra 4−52834
  diatomic hydrides, virial partitioning of charge distributions and properties 4−74952
  dielectric theory for diamond like crystals, calc. of ionicity and energy gaps using nonlocality factors 4−48538
  dinitrogen complexes, energy level, charge density, bond order 4−69468
  electron affinity, comparison of expt. and extrapolation methods of determination 4−66312
  electron diffraction intensity dependence *(German)* 4−63483
  ESCA approach to structure and bonding 4−72141
  ethylene, model cryst., bonding maxima reduction by systematic errors in struct. parameters 4−56573
  ethyne, model cryst., influence of thermal mol. vibrs. on electron density distrib. 4−56822

bonds (chemical) continued
- ferromagnetic metal, supercond. transition temp., Eliashberg eqn. *(Russian)* 4−67298
- o-, p-, m-fluoroiodobenzene, ^{127}I Mossbauer studies, mol. charge distrib., hybridization investig. 4−76197
- four-electron three-centre bonding units, wavefunctions development 4−66377
- furan, diamag. anisotropy, ring currents and chem. shifts 4−52063
- glass, alkali silicate and aluminosilicate, quantum chem. analysis of structural units 4−60413
- glass, Bi^{3+} and Pb^{2+} containing, u.v. spectra 4−61181
- group VI atom containing cpds., dipole moments 4−52116
- halogens, bond distance rel. to ionicity 4−47940
- heteronuclear bonds, length, polarity and electronegativity 4−60031
- hydrocarbon chemisorption on Ni, π-d bonding and surface reactions, photoemission obs. 4−52994
- induction effect transfer along σ-bond chain 4−69462
- inert gas halides, stability, validity of three-centre four-electron model, exchange perturbation calc. 4−66386
- iodobenzene, ^{127}I Mossbauer studies, mol. charge distrib., hybridization investig. 4−76197
- ionic approximation to chemical bonding 4−52090
- ionic crystals, comparison of polarisable models having effective many body interaction, review 4−52828
- IV-V semiconductor phosphides, effect of P-P bonds on X-ray spectra *(Russian)* 4−49478
- lattice dynamics, classical bond charge model 4−56836
- length and angle predictions for small mols. using floating ellipsoidal Gaussian orbitals 4−56081
- metal, chemisorption of H, role of collective many body effects 4−67110
- metal surface, H atom chemisorption, Hartree-Fock calc. method, overcompleteness basis 4−63992
- methyl iodide, ^{127}I Mossbauer studies, mol. charge distrib., hybridization investig. 4−76197
- naphthyl derivatives, charge transfer spectra, σ-π and n-π conjugation rel. to π Si-Si system 4−56124
- non-quantum mechanical models 4−52082
- nonbenzenoid hydrocarbons, ground state props. 4−56151
- organoantimony cpds., Mossbauer determ. of structure and bond nature 4−66367
- oxadiazoles, diamag. anisotropy, ring currents and chem. shifts 4−52063
- 5-oxy-6-acetylbenzodioxanes-1,4, H-bonding electronic spectra *(Russian)* 4−78443
- pentafluoroiodobenzene, ^{127}I Mossbauer studies, mol. charge distrib., hybridization investig. 4−76197
- phenyl derivatives, charge transfer spectra, σ-π and n-π conjugation rel. to π Si-Si system 4−56124
- phosphazo derivatives, P=N bond order determ. by ^{31}P n.m.r. 4−56285
- polyester resin-acetylene carbon black compounds, metallic cond. 4−72753
- potassium dithioformate(-d_1), i.r. and Raman spectra, C-S band force constant *(German)* 4−69494
- quantum mechanical models 4−56134
- rare earth atoms in chelate compounds, beta-ray effects 4−64717
- rhodamine C, covalent bonding to natural silk, spectroscopic obs. *(Russian)* 4−67955
- semiconductors, tetrahedrally coordinated, bond orbital model, cohesive energy calc. 4−82130
- steel, martensite ageing, carbon atom redistrib. *(Czech)* 4−79934
- tetrahedral solid, angular forces, bond-orbital method 4−69746
- three-centre valence structures, enumeration and generation 4−69460
- transition metal carbides and diborides, rel. to thermophys. props. 4−63931
- transition metal complexes, covalency parameters, e.s.r., quadrupole reson. 4−69518
- trifluoro-oxirane derivatives, F n.m.r. spectra, coupling consts. calc., C-C bond 4−69525
- trifluoroiodomethane, ^{127}I Mossbauer studies, mol. charge distrib. hyrbidization investig. 4−76197
- valence bond wavefunction, many-electron systems, doubly occupied orbital sea approx. 4−66370
- X-ray spectroscopic investigation possibilities *(German)* 4−64455
- Ag-Ge α-solid solns., chem. pot. of Ge 4−61324
- $AlCl_3$, bond angle determ. 4−56054
- As-S and As-S-Te glasses, bond-structural approach to thermal props. *(Japanese)* 4−69917
- $As_2S(Se)(Te)_3$, positron annihilation rel. to bonding and defects on vitrification 4−44838
- Au-Ge α-solid solns., chem. pot. of Ge 4−61324
- Au-Sn and Cu-Au-Sn α-solid solns., solute-solute and solvent-solute interactions 4−61323
- BH, valence bond wavefunction using doubly occupied orbital sea approx. 4−66370
- $BH_3{:}NH_3$, electronic struct. anal. using LCAO method, charge transfer, bonding investig. 4−52072
- Bi compounds, X-ray determ. of bonding nature *(Russian)* 4−49480
- Br_3^-, $BrCl_2^-$ ions, σ-bonds investig., reson. integrals calc. 4−66385
- C, glassy, K-emission, bonding character 4−76325
- C-C, C=C, anisotropic parameter calc. from n.m.r. data 4−75015
- C-H, anisotropic parameter calc. from n.m.r. data 4−75015
- CO_2, rel. to X-ray fluorescence of O 4−81716
- C=O, anisotropic parameter calc. from n.m.r. data 4−75015
- CaI_2, adsorption of methane and krypton, ionicity effect *(French)* 4−44778
- Cd compounds, X-ray determ. of bonding nature *(Russian)* 4−49480
- Cd(II) complex, ^{113}Cd n.m.r. studies of ligand bonds, effect on chemical shift 4−67474
- CeIr(Pt)(Rh), multiple bond interpret. of high stability 4−60110
- Cl, X-ray spectral study of role of 3d-orbitals in chemical bonding *(Russian)* 4−43817
- $ClF_2^{\pm}$, SCF MO LCAO calcs. in CNDO approx. 4−69445
- $CsMgBr(I)_3{:}V^2+(Mn^{2+})(Ni^{22+})$ e.s.r. determ. 4−53299
- Cu-Ge α-solid solns., chem. pot. of Ge 4−61324
- Cu-Sn and Cu-Au-Sn α-solid solns., solute-solute and solvent-solute interactions 4−61323

bonds (chemical) continued
- Cu_6Sn_5, $\eta \rightleftarrows \eta'$ transform. behaviour, metallic bonding 4−45515
- Fe complex, iron tricarbonyl butadiene, photoelectron spectra, SCF MO calcs. 4−78425
- $Fe(CO)_4$, ^{13}C chem. shift tensor rel. to π-back bonding 4−81789
- $Fe_4[M(CN_6)]_3$ where M=Fe, Ru or Os, bonding nature and semiconductivity 4−72447
- Ge, X-ray struct. factors, covalent bonding effects 4−72460
- GeO_2, GeS_2, $GeSe_2$, K absorpt. edge obs. of bonding 4−82764
- GeO_2-SiO_2 glass, rel. to i.r. spectra 4−45284
- $GeS(Se)_x$, x=1,2, positron annihilation rel. to bonding and defects on vitrification 4−44838
- GeTe, amorphous, atomic bonding, electron spectroscopy 4−44470
- H_2, metallic modification, chemical bond collapse *(German)* 4−52089
- HgI_2, Mossbauer spectra of ^{129}I, bridged and isolated form electronic struct. 4−67492
- I_3^-, IBr_2^-, ICl_2^- ions, σ-bonds investig., reson. integrals calc. 4−66385
- K_2CuF_4, covalency effects by critical neutron scatt. 4−66857
- $xKF-(1-x)B_2O_3$ glasses, e.p.r. and opt. spectra of VO^{2+} ion 4−61032
- KIO_2F_2, nonlinear optical parameters rel. to bonding 4−55517
- La_2GeSe_5, $La_2Ge_2Se_7$, DTA and X-ray analysis 4−69891
- Mg_2Ge, chemical bond, spin-orbit splitting 4−67173
- Mg_2Si, spin-orbit splitting 4−67173
- Mg_2Sn, chemical bond, spin-orbit splitting 4−67173
- N_2O_4, gaseous, vib. spectrum, torsional pot., bonding 4−74990
- Ni with chemisorbed S on (001), (110) and (111) surfaces, LEED study 4−48852
- Ni/Al_2O_3, abrasive grinding, chemical bonding of Al_2O_3 to Ni 4−67889
- $Ni(CO)_4$, ^{13}C chem. shift tensor rel. to π-back bonding 4−81789
- O_2, rel. to X-ray fluorescence of O 4−81716
- S, X-ray spectral study of role of 3d-orbitals in chemical bonding *(Russian)* 4−43817
- Sb compounds, X-ray determ. of bonding nature *(Russian)* 4−49480
- $Sb_2S(Se)(Te)_3$, positron annihilation rel. to bonding and defects on vitrification 4−44838
- $Sb_{1-x}Te_x$, amorphous film, rel. to optical and transport props. 4−44824
- Si, bond charge model of lattice dynamics, phonon and X-ray scatt. spectra 4−52834
- Si-H, rel. to dangling bond surface state removal 4−56979
- SiO_2, obs. of O Kα X-ray emission bands SCF models 4−45385
- Sn(II) complexes of ethylenediamintetracetic acid, ^{119}Sn Mossbauer parameters, temp. depend., 78-226K 4−61073
- $ZnGeP_2$, density of states and bonding, calc. and X-ray photoemission spectra 4−79290

bone *see materials*

Boolean algebra
No entries

Boolean functions
No entries

Boolean lattices *see Boolean algebra*

bootstrap models *see bootstrapping*

bootstrap theory *see bootstrapping*

bootstrapping
- bootstrap and fireball distributions for high-energy collisions *(German)* 4−71703
- bootstrap equations with restricted SU(3) symmetry, Cabibbo angle 4−71705
- denseness of bootstrap, concept correction 4−71704
- inclusive reaction central region sum rule derivation from charge conservation, Regge couplings 4−59656
- low-spin particles, meaning of bootstraps 4−47468
- peripheral orbit model, exchange degeneracies 4−66069
- Regge trajectories, dynamical calculations in bootstrap hypothesis context 4−77881
- statistical bootstrap for fireball decay in model of diffractively produced multipion enhancements 4−55654
- statistical bootstrap model, including isospin quantum numbers, without exotic fireballs 4−66060
- statistical bootstrap model, physical basis, derivation from dual resonance model, inclusion of fireball formation dynamics 4−66061
- statistical bootstrap model, single-cluster formation cross section 4−62981
- SU(3) breaking of strong interactions, superfluidity of hadronic matter 4−62979
- $e^+e^- \rightarrow \pi^+\pi^-$, angle-integrated cross sections in statistical bootstrap model 4−62980
- γ nucleus $\rightarrow \pi^+\pi^-$ nucleus, angle-integrated cross sections in statistical bootstrap model 4−62980
- $\gamma p \rightarrow (\rho\pi\pi)p$, high energy, angle-integrated cross sections in statistical bootstrap model 4−62980
- KN interactions in resonance region, duality properties of cross sections, bootstrap implications 4−55673
- pp annihilation, props, statistical bootstrap model 4−77893
- $\pi p \rightarrow (p\pi\pi)\Delta$, high energy, angle-integrated cross sections in statistical bootstrap model 4−62980

bootstraps *see bootstrapping*

Bordoni effect *see internal friction*

boron
- acoustic properties, u.s. absorpt., elastic const., β-rhombohedral phase 4−72528
- amorphous, elec. cond., thermopower, and i.r. refl. and absorpt. 4−49020
- amorphous film, electrothermal switching model 4−67295
- anomalous diffusion, in Si, use of BN wafer sources 4−57704
- atom, configuration interaction method, correlation energies, wave functions 4−47827
- atom, configuration interaction method, electron affinity 4−47828
- atom, X-ray scatt. by bound electrons, form factors 4−74878
- atomic calculations by expansion method using Gaussian basic functions 4−59899
- Borsic reinforced Al, delamination process, crack length and bond strength effect 4−61519
- Borsic reinforced Al, elastic-plastic Poisson's ratio 4−61516

boron continued
- Borsic/Al composite, dynamic fracture behaviour 4–49961
- contamination of Si surface due to common solvents, nuclear microanal. obs. 4–45475
- determination in NH_4F soln. by emission spectrographic anal. 4–68836
- diffusion, obs. in Si-SiO_2 systems implanted at 80 keV 4–57703
- diffusion in Si, interstitial-induced enhancement obs. 4–49592
- diffusion in Si from doped SiO_2 4–61299
- doping of SiC, effect on polytypic transitions 4–53657
- e.s.r. photo-induced, rel. to photoconductivity 4–82607
- evaporation coefficient determ. for autodoping model in Si epitaxy 4–49601
- fibre reinforced Al, crippling strength improvement 4–49957
- fibre reinforced Al, elastic consts. by u.s. vel. meas. 4–61509
- fibre reinforced Al alloy, tensile failure modes 4–70564
- fibre reinforced epoxy, fabrication defects effect on struct. integrity 4–49951
- fibre reinforced epoxy, prestressing effects on composite strength props. 4–49921
- fibre reinforced fibreglass-plastics, mech. props. 4–80084
- fibre reinforced plastics, structural characts. 4–45774
- fibres, B-Al composite, uniaxial compression 4–82969
- I-tetragonal, evidence against being polymorph of elementary B 4–75499
- interstellar B, upper limit in Ophiuchi direction from B II 1362.461 A line obs. 4–58437
- LCAO calculations for interstitials in diamond lattice 4–48926
- molecule, potential energy curve, correlation energy correction, Hartree-Fock density 4–52075
- nuclear reactor control rods, design and testing 4–51900
- origin in supernova explosions 4–58380
- photospheric abundance from B I 16244.66 A line obs. 4–73613
- poisoning of moderator in Diorit II, boron conc. meas. *(German, English)* 4–69279
- proton-enhanced diffusion in Si, theory and expt. 4–49590
- purification control using low energy proton X-ray excitation 4–58999
- rhombohedral β-type, abrasive power and grain strength 4–49909
- segregation at Si-SiO_2 interface, ion microprobe analysis 4–49596
- trace analysis in heat-resisting alloy standards by isotope dilution mass spectrometry *(Japanese)* 4–65586
- B I, absorption spectrum, 1350-1900 Å 4–74825
- B IV, far u.v. spectrum *(French)* 4–78327
- B IV, spectrum and term system 4–72034
- B/epoxy reinforced Al alloy, static tensile behaviour 4–80090
- B-Al composite, B-fibre reinforced, uniaxial compression 4–82969
- B-Al metal matrix composite, initial yield surfaces 4–80087
- B^+, correl. holes, pair distrib. functions calc. from Hartree-Fock and CI wavefunctions 4–51948
- B^+, prod. by electron bombardment of BX_3, (X=halide), electronic states investig. 4–60105
- B_2, $B_2{}^+$, $B_2{}^-$, Hartree-Fock-Roothaan wavefunctions 4–74951
- $B_{48}B_2$, I-tetragonal boron, comparison with $B_{48}B_2C_2$, $B_{48}B_2N_2$ 4–60447
- ^{11}B ion beams, hydrogen analysis by $^{11}H(^{11}B,\alpha)\alpha\alpha$ nucl. reaction 4–74181
- $^{11}B/^{10}B$ isotope ratio determ. by surface ionisation method *(Japanese)* 4–65585
- Cu:B, intergranular internal adsorption in Cu, ductility, intercryst. fracture *(Russian)* 4–67825
- GaAs:B, defect. activated first order Raman scatt. from phonons obs. 4–67586
- $Gd_3X_5O_{12}:B^{3+}$, X=Fe, Ga, local vibr. modes obs., i.r. absorption spectra 4–69876
- Si:[B^-(s)–Li^+(i)], high pair concentration, electro irradiation damage 4–82200
- Si:B, amorphisation influence on ion implanted B distrib. 4–73271
- Si:B, charge carrier and B implantation conc. profiles comparison 4–64504
- Si:B, chem. deposited, polycryst., B analytical determ., sheet resist. meas. 4–70424
- Si:B, compression and low temp. laser irradiation, obs. of exciton recombination spectra 4–49438
- Si:B, diffusion from gas, elec. field control of impurity conc. 4–44556
- Si:B, diffusion from glasses, controlled conc. *(Russian)* 4–76402
- p-Si:B, γ-irrad., steady state photocond. and excess carrier lifetime, theory 4–53118
- Si:B, high-dose implanted, characterization of incomplete activation 4–61312
- Si:B, interstitial props. from internal friction meas. after implantation 4–66909
- Si:B, isothermal annealing effect on sheet resist. 4–76404
- Si:B, lattice location and diffusion of B after implantation, B point defects 4–67740
- Si:B, line shapes of localised impurity phonon modes, Raman scatt. cross section meas. 4–67589
- Si:B, low-temp. photoluminesc., lattice damage due to ion implantation 4–75547
- Si:B, profile redistrib. during P diffusion, ion microprobe meas. 4–49593
- Si:B, Raman spectra, interaction between localised vibrs. and electronic excitations investig. 4–64390
- Si:B, uniaxally deformed, resistivity and magnetoresistance obs., valence band splitting 4–67238
- Si:B,P, modified relation for plastic deform. diffusion enhancement factor 4–61321
- Si:B diffusion from chemical vapour deposited BN 4–49595
- Si:B epitaxial film, diffusion profile investigation 4–64521
- Si:B thin films, X-ray microanalysis in TEM 4–77294
- Si-Ge(20 at.%):B, hot-pressed ingots, prep., vacuum hot pressing 4–73336
- $Y_3X_5O_{12}:B^{3+}$, X=Fe, Ga, local vibr. modes obs., i.r. absorption spectra 4–69876

boron compounds
- borates and boric acids, thermal dehydration, activation energies determ. *(French)* 4–54004
- borosilicate E glass fibre strand tensile failure in resins and waves 4–49927

boron compounds continued
- converging open-shell Hartree-Fock wave functions 4–69456
- hexaboride alloys, possible occurrence of semi- and supercond. phases 4–72898
- luminophor, rare-earth borates, influence of composition on luminesc. *(Russian)* 4–73153
- nuclear reactor absorbing elements, neutron irradiation tests 4–51904
- B-O_2 polymer compound films, electrophys. props. *(Russian)* 4–75992
- BAs, film deposition, energy gap meas., cryst. struct. 4–45456
- $B_{48}B_2C_2$, $B_{48}B_2N_2$, crystal chemistry rel. to $B_{48}B_2$, I-tetragonal boron 4–60447
- B_4C, metallographic preparation 4–67117
- B_4C enriched with ^{10}B, control rods for fast reactors *(Czech)* 4–59834
- B_xC_y, FBR control rod design and pre-reactor testing 4–51900
- B_xC_y, nuclear reactor control and safety rods, irradiation behaviour 4–51899
- B_xC_y, reactor material, neutron irradiation effects, physico-mechanical anal. 4–51898
- B_xC_y very pure, structure and props. as nuclear reactor control rods 4–51902
- B_xC_y/stainless steel mixture, for fusion reactor magnet shield 4–69344
- BCl_3, nutation effect *(Russian)* 4–69091
- B_2Cl_4 and B_4Cl_4, ab initio calcs. of electronic struct. 4–52081
- $BCl_3(Br_3)(I_3)$, lattice vibrs., Raman and i.r. spectra obs. 4–67568
- BCl_2SH, barrier to internal rot. calc., Huckel, CNDO/2 methods, thermodynamic functions calc. 4–74934
- BD_4, bond orbital anal. of deuteron quadrupole coupling consts. 4–66380
- BF_2, ab initio calc. of geometry, bonding and hyperfine coupling consts. 4–56060
- BF_2 radical, excited state props. from HF calcs. 4–60025
- $BF_2{}^-$, $BF_4{}^-$, heats of form., electron affinities determ., effusion-mass spectrometric method 4–78507
- BF_3, Rydberg states, calc. methods using multiple scatt. 4–56084
- BF_3, vibration spectra, intermolecular effect correlation with alterations in quadratic valence force field 4–74968
- BF_3 adducts, ab initio MO calc. of electronic structure and heats of formation 4–43797
- BF_3 neutron detector for failed fuel monitoring system, optimization of clipping time constant 4–51151
- BF^{4-}, electronic structure, nonempirical MO-LCAO-SCF calc. 4–47951
- $BF_4{}^-$, in KCl, i.r. vibr. absorption, localised modes 4–79771
- B_2F_4 and B_4F_4, ab initio calcs. of electronic struct. 4–52081
- BH, average natural orbitals use in CI calcs. 4–56119
- BH, electronic struct., correlation energy correction, Hartree-Fock density 4–52074
- BH, orbital exponent optimization in HF-SCF-LCAO-MO calc. 4–81748
- BH, valence bond wavefunction using doubly occupied orbital sea approx. 4–66370
- $BH+HD=BD+H_2$, isotope exchange, corrections to Born-Oppenheimer approx., electronic effects 4–74957
- BH^+, BH^-, FSGO open-shell calcs. 4–66379
- BH_2, electronic transition moments and oscillator strengths 4–60021
- $BH_3:NH_3$, electronic struct. anal. using LCAO method, charge transfer, bonding investig. 4–52072
- BH_4-, force fields, FSGO calcs. 4–52043
- B_2H_5 radical, cryst., e.s.r. spectal investig. of struct. 4–53282
- B_2H_6, bridge bonds, ab initio calcs. 4–52087
- B_5H_9, n.m.r., B electronegativity 4–57409
- B_xH_y and $B_xH_y{}^{2-}$, SCF wavefunctions 4–56079
- BH_3CO, electronic struct., MO calc. 4–66388
- BH_3NH_3, LCAO MO SCF calcs. of elec. field gradients, diamag. props., dipole moment 4–81768
- BH_3NH_3, two electron integrals, careful neglect 4–47927
- BN, as thermal neutron detector 4–55053
- BN, cryst., AO pots. of B and N determ., energy gap calc. 4–69983
- BN, electron momenta distribs., obs. of Compton profiles and struct. factors 4–57032
- BN, phase transforms., review 4–70555
- BN, planar sources, anomalous diffusion of B in Si 4–57704
- BN, shock compressed, struct. detn. by X-ray diffr. 4–56879
- BN, X-ray struct. factor and Compton profile, self consistent Hartree Fock calcs. 4–57033
- BN based semihard material Geksanit-R characterization 4–70557
- BN chemical vapour deposited source for Si:B diffusion 4–49595
- BN; wurtzite type, synthesized by shock compression, crystal structure 4–64635
- BO, square matrix elements of dipole moment for $A^2\pi$-$X^2\Sigma$ transition *(Russian)* 4–52120
- B_2O_3, as thermal neutron detector 4–55053
- B_2O_3, flux in prep. of SnTe single cryst. by Czochralski method 4–53600
- B_2O_3, glass, vibr. freq. spectra, disorder effects 4–67571
- B_2O_3, isothermal compressibility, 550-800K, light scatt. in glass melt 4–57517
- B_2O_3, light scatt. through glass transition 4–61146
- B_2O_3, liq., I-V characts., strong electric field effects 4–57103
- B_2O_3, thermal cond., 200-800°C *(Russian)* 4–52949
- B_2O_3, vitreous, diffusion of He, D, Ne, thermal history change effects 4–67066
- B_2O_3, vitreous, equilibrium expansivity, isothermal compressibility 4–75636
- B_2O_3, vitreous, nonlinear temp. depend. of low temp. sp. ht 4–48774
- B_2O_3 flux, protective props. for CdS fusion 4–45448
- B_2O_3-CaO glass:Fe^{3+}, heat-treated, ^{57}Fe Mossbauer and X-ray photoelectron spectra meas. 4–73054
- B_2O_3-Na_2O (PbO), glass, thermal diffusivity 4–60651
- B_2O_3-P_2O_5 glasses, radiation electron-hole centres ratio, controlled change 4–67449
- B_2O_3-PbO glasses, elastic consts. and Vickers hardness *(Japanese)* 4–70575
- $(B_2O_3)_{19}(K_2O)_5$, cryst. struct. 4–60442
- BP, as thermal neutron detector 4–55053

boron compounds continued
BP, metal-to-insulator transition under high press. 4−44975
BP, synthesis at h.p. 4−61318
$B_{13}P_2$ and Si, double-layer epitaxial growth on Si substrate, Si layer electrical props. 4−70426
BX_3, X=I, Br, Cl, F, prod. of B^+ by electron bombardment, B^+ (^3P) state investig. 4−60105
BX_2SH, X=Br, I, thermodynamic functions calc. 4−74934
$C_4B_2H_6$, 2,3,4,5-tetracarbahexaborane (6), microwave spectra, mol. struct., dipole moment determ. 4−72205
CdO-B_2O_3-SiO_2 glasses, photochromism 4−64408
CoO-Fe_2O_3-B_2O_3 system glass-ceramics, mag. characteriz. 4−79545
CuB_{28}, solubility of Cu in rhombohedral B, single crystal diffractometry, rel. to structure 4−63812
H_2N-BF_2, electronic struct., CNDO and INDO calcs. *(French)* 4−47945
$xKF-(1-x)B_2O_3$ glasses, e.p.r. and opt. spectra of VO^{2+} ion 4−61032
K_2O-B_2O_3-SiO_2 glasses, demixed, elastic and viscoelastic behaviour, Brillouin scatt. obs. *(French)* 4−49338
$K_2OB_2O_3$-SiO_2 system glasses, demixed, Young's modulus evolution with texture *(French)* 4−49965
MnB_{23}, solubility of Mn in rhombohedral B, single crystal diffractometry, rel. to structure 4−63812
MnO-Fe_2O_3(-PbO)-B_2O_3(-SiO_2) system, glass form. boundaries and crystn. tendency 4−53817
Na_2-B_2O_3-SiO_2, ion exchange, iterative deconvolution technique applic. 4−69821
Na_2O-B_2O_3 molten system, freq. depend. of elec. resist., struct. and comp. *(Japanese)* 4−50178
Na_2O-B_2O_3-SiO_2, sodium borosilicate glasses, ion exchange 4−72481
$Na_2O.3B_20_3$:Fe_2O_3 glass, u.v. absorpt. temp. depend. *(Russian)* 4−45344
PbO-B_2O_3 cryst. forming glasses, i.r. spectra, crystn. products identification *(Russian)* 4−61170
PbO-B_2O_3 flux, rare earth species, diffusion coeff., rel. to LPE growth of mag. garnet films 4−72647
PbO-B_2O_3 molten system, freq. depend. of elec. resist., struct. and comp. *(Japanese)* 4−50178
PbO-B_2O_3-SiO_2 system, phase separation in frits, i.r. refl. obs. *(Japanese)* 4−48514
Re-Co-B system, crystal structure of newly established ternary compounds 4−67019
$S_3(BX)_2$, X=Cl, Br, I, i.r. and Raman spectra 4−57522
SiO_2-B_2O_3-Na_2O-Al_2O_3 glass, comp. fluctuation kinetics 4−63767
Tl_2O-B_2O_3:Co(II), glass, light absorption, coordination depend., ligand field 4−64396
Y-Mo(W)-B systems at 1000 degrees C, phase and structural analysis 4−67020
$Y_2O_3.4BaO.B_2O_3$ phase, micro-X-ray spectral anal. investigation 4−48736

Borrmann effect *see X-ray crystallography; X-ray diffraction*

Bose-Einstein statistics *see quantum statistical mechanics*

Bose gas *see boson systems*

boson fluids *see boson systems*

boson systems
see also liquid helium-4; quantum statistical mechanics
action-angle variables in many-boson system 4−62739
attractive interactions, generalised Hartree-Fock method 4−65826
behaviour based on expansion of equation of state in (4-ε) dimensional Heisenberg model 4−53197
bicritical and tetracritical points, renormalisation group calcs. 4−79518
Bogolyubov hydrodynamics, condensate density, partial density 4−75656
Bose distribution and Lorentz-contracted geometric model for pp inclusive cross sections 4−47621
Bose gas, boundary condition effects, specific heat calcs. 4−79205
Bose gas, model Hamiltonian of BCS type 4−55374
Bose gas in finite geometry, condensation, new law of corresponding states 4−62743
Bose gases, two almost perfect, theory of solution *(Russian)* 4−72597
charged Bose gas, critical behaviour, self-consistent theory 4−59297
condensation, influence of random sources and sinks, phase diagrams 4−52870
condensation, shift in critical density due to impurities 4−51455
crystals, collective excitation spectra, normal and superfluid density relations *(Russian)* 4−81241
current algebra, local, non-relativistic, representations determ. in N/V limit, generating functionals 4−71641
degenerate system of hard-sphere bosons, linear e.m. response 4−62741
Dicke maser model 4−74481
dynamic critical exponent of n-component Bose system to O(1/n) 4−43173
dynamic scaling laws and ε-expansion 4−43172
dynamic structure function, exact and certain approximate forms 4−60659
e.m. response of degenerate system of hard-sphere bosons 4−68949
equations of motion for 4 particles with separable 2-particle interactions 4−77518
excitation spectrum temp. depend. anal. 4−77562
fermion/boson mixture thermodynamics, one dimension, repulsive δ-function potential 4−65854
free gas, equilibrium states, generating functional of canonical commutation relations 4−51454
ground state energy of interacting system 4−62733
ground-state energy of N bosons coupled by gravitational forces 4−68953
hard spheres in rectang. channel, exact and variational calcs. 4−75658
high density gas with strong interaction potential, model and exact solution 4−51458
ideal gas, Bose-Einstein condensation, coherence theory 4−62737
interacting boson model for collective excitations, in nuclei, ^{16}O example 4−63089

boson systems continued
isotropic mixture of fermion and bosons, lattice space props. *(Russian)* 4−65822
kinetic theory, quantum mechanical Boltzmann eqn. 4−51457
Lie algebra approach to Bloch and Glauber coherent states 4−71417
many-boson system, 1-dimens., ground state energy 4−65829
many-boson systems, velocity and phase operators 4−62742
metals, solid solutions in polar insulators, tunnelling mechanism of conductivity, Bose condensation 4−67193
nuclear odd-particle systems, connection between generator coordinate method and boson expansions 4−51775
nuclei, even and odd, perturbative boson expansion to all orders 4−51774
nuclei, even and odd, perturbative boson expansions to all orders 4−51773
pair distribution functions, binary kernel for Coulombic interacting system 4−62740
partition function, integral representation over complex Gaussian random fields 4−68951
partition function, integral representation over Gaussian random fields 4−68950
photon gas, Compton cooling, Compton-Fokker-Planck eqn. 4−59301
photon gas, finite temporal coherence anal. 4−74409
quantum liquid, capillary waves, variational principle 4−60658
quantum vortices, effect on phase transition to superfluid state 4−51459
quasifree, relaxation, amplification and KMS conditions 4−65820
superconductivity theory, energy spectrum of collective excitations, T=0K 4−67299
superconductor, mag. props. formalism 4−49102
superfluid, sources of particles in Hamiltonian, behaviour under time inversion 4−52954
superfluid, sources of particles in Hamiltonian, density of condensate rel. to particles density 4−52953
superfluid, sources of particles in Hamiltonian, real part exam. 4−52952
superfluid, thermodynamics of flow in degenerate statistical equilibrium *(Russian)* 4−69938
thermal conductivity, crit. anomaly near λ-transition 4−72594
thermodynamic properties, virial expsn. 4−60665
trimer ground-state energies, Jastrow trial function calc. 4−65827
two-component changed particle system in magnetic fields, quantum conservation laws 4−55370
two-liquids mixture, microscopic theory with dissipative effects, linearized eqns. and Green functions 4−52951
two-liquids mixtures microscopic theory with dissipative effects, hydrodynamic eqns. 4−52950
type II/1 superconductor theory 4−45033
Weyl systems, U-cyclic O-invariant, vacuum system properties 4−59031
AgBr, Bose-Einstein condensation of free excitons, photoluminesc. obs. 4−60766
CdSe, Bose condensation of excitonic mols. 4−60765
He at 0K, hard sphere model applic. 4−63952

bosons
see also alpha particles; boson systems; deuterons; gravitons; intermediate bosons; meson resonances; mesons; photons
angular momentum, boson representation, operators, eigenfunctions and coherent states 4−68923
binding energy, wave function, solns. of integral eqns. for four identical particles 4−63081
coupled boson-fermion model theories, semi-Euclidean approach 4−59475
mass spectra in extended J-model 4−62892
massive boson field of arbitrary spin, Poincare-invariant Lagrangian theory 4−59490
pair creation, example of method of imaginary times for periodic fields *(Russian)* 4−47448
pair creation from vacuum by homogeneous electric field in canonical formalism 4−51695
spectral properties of mass operator for particles in six dimens. space *(Russian)* 4−74569
superconductivity, type II superconductors, derivation and application of boson method 4−67301
transition operator boson reln. to nuclear ang. momentum operator 4−55747

boundaries *see boundary layer flow; boundary layers; boundary value problems; grain boundaries; metal-insulator boundaries; semiconductor-insulator boundaries; semiconductor-metal boundaries*

boundary layer flow
see also boundary layers
aerodynamic self-excited feedback loop, generation of discrete tones of isolated airfoils 4−72291
aerodynamics appl. of generalised capacity matrix 4−78619
aerofoil design by conformal mapping 4−48269
aerosol, inertial impaction in stagnation flow 4−72347
air, isothermal turbulent boundary layer, turbulent stresses rel. to mean flow parameters 4−44008
air, turbulent free convection from vertical surfaces, computer calcs. 4−78580
air bearing, circular, moving at low forward speed 4−81860
air injection, turbulent transition, characts. 4−48202
air-sea interface, log-linear wind profile, shear stress and stability 4−70665
air-water two-phase flow, 180° pipe bend, disturbed flow region obs. *(Japanese)* 4−81958
airfoil, lifting and nonlifting potential flow, curvilinear coord. system 4−75126
asymptotic boundary conditions 4−78603
atmosphere, of geostrophic shear on cross-isobar angle of surface wind 4−70700
atmosphere, wind structure rel. to diurnal cycle and nonuniformity of surface temp. 4−58022
atmospheric, statistical props. of vertical shear of lateral velocity 4−64912
atmospheric planetary boundary layer, similarity theory *(Russian)* 4−61775
atmospheric stratified flow of boundary layer, turbulence and dispersion 4−58013

boundary layer flow continued
atmospheric surface boundary layer, momentum and mass transfers 4−80360
atmospheric surface layer over sea, turbulent and wave components *(Russian)* 4−64843
attractive force due to impulsive start of two parallel plates 4−60192
axisymmetric potential flow separation at sharp trailing edge 4−60193
binary gas mixture, accelerating compressible laminar boundary layer flows, Mach no. effect 4−81883
blunt bodies in supersonic flow, heat transfer, missile domes with i.r. seekers design *(German)* 4−52432
blunted wedges, Navier-Stokes solns. for laminar incompressible flow 4−81886
boundary layer flow on plate temp. and turbulent Prandtl number profiles 4−43937
Boussinesq fluid between horizontal rotating discs, thermally induced meridional cell 4−81850
bursting phenomenon in turbulent boundary layer 4−56391
bursts in turbulent boundary layer, Reynolds stress structure 4−56392
cavitation inception on axisymmetric bodies, viscous effects 4−48363
channel flow, integral eqns. for continuity, momentum and energy *(German)* 4−63551
chemically reacting laminar, analysis during hybrid combustion 4−48384
ciliary propulsion, viscous fluid, oscill.-boundary-layer theory 4−81888
compliant surface, interaction with turbulent flows 4−72280
compressible adverse pressure gradient flow, turbulent boundary layer shear stress distribs. 4−78613
compressible boundary layer equations, soln. using method of parameter differentiation 4−52424
compressible boundary layer equations, soln. using method of parameter differentiation 4−52425
compressible boundary layer within shock wave induced adverse press. gradient, Reynolds shear meas. 4−72296
compressors, supersonic stratified flows *(French)* 4−48277
condensation heat transfer to wall from gas-vapour system 4−63527
conducting flow between a sliding and stationary cylinder, strong blowing 4−56435
conducting liquid, boundary layer flow on cylinder, radial mag. field *(Russian)* 4−63608
continental shelf turbulent thermal boundary layer on continental shelf, current struct. 4−73532
convection, natural, shallow cavity, differentially heated end walls, numerical solns. 4−75095
convection, natural, shallow cavity, differentially heated end walls 4−75096
convective flow along inclined plate, vortex mode instability 4−43941
convective flow over flat plate, three dimensional heat transfer 4−66574
corner layer flow, optimisation of ADI method 4−78617
between corotating discs, laminar and turbulent regimes 4−66605
dielectric film, on flat plate, crit. electrostatic field strength 4−52476
diffuser behaviour 4−43926
diffuser channels with near-separating turbulent boundary layers, aerodynamic characts. 4−48276
diffusion in atmospheric surface layer, wind tunnel simulation 4−58014
discrete hole cooling with free-stream turbulence and favourable press. gradient 4−75090
displacement thickness of higher order boundary layers *(German)* 4−56401
drag minimisation optimum design, variational anal. 4−56397
dusty gas, MHD flow past flat plate 4−56452
eccentric laminar Couette flow around moving cylinder in pipe 4−72287
eccentric rotating discs, drag evaluation 4−78601
elliptic cylinder 45° incidence, abrupt. accel., vortex shedding 4−81863
equilibrium states of periodic waves on fluid film down vertical wall 4−48330
error bounds, two-dimensional laminar boundary layer at wall 4−48240
falling liquid film, cooling of hot surface 4−75101
falling liquid film, gas phase shear stress 4−60187
film flow wave inception, linear theory anal. 4−56389
finite difference version of quasilinearisation applic. 4−81879
finite element least squares analysis of laminar boundary layer flows 4−81830
flame, turbulent chemically reacting flow, two dimensional analysis 4−44170
flat plate, impulsive motion in viscous fluid 4−48251
flat plate, impulsive motion in viscous fluid 4−48252
flat plate, leading edge shape influence on transition processes 4−48257
flat plate motion in viscous fluid, rigid plane boundary 4−48250
fluid insufflation, boundary layer breaking away *(Russian)* 4−48255
fluid with microstructure, between parallel plates 4−52413
fluid with microstructure, channel flow 4−56398
fluid with microstructure, past accelerated plate, Rayleigh's problem 4−52414
fluid-fluid moving interface on solid surface 4−72289
forced convection in slow flow through ducts and packed beds, boundary layers in cubic sphere array 4−52488
gaps and slots, including ablation effects 4−75127
gas, nonlocal generalization of eqn. *(Russian)* 4−52418
gas flow around reactive body, non-equilib. chem. reactions, heat-mass transfer *(Russian)* 4−60264
gas injection, effect of hole geometry and gas density on film cooling 4−44055
gas injection in heat conducting channel modelling 4−75153
gas mixture, reactive laminar flow over plate heat transfer, friction stress *(Russian)* 4−75098

boundary layer flow continued
gas-liquid interface, wavy disturbance effect on heat transfer 4−63586
grey gas, radiation-convection interaction in bounded flow past hot plate 4−63526
grid turbulence in stream with constant velocity gradient *(Russian)* 4−56393
ground effect wing, induced drag 4−48270
heat transfer, second order boundary layer flow, dissipation effects 4−69571
heat transfer in turbulent separation zones, local flow parameters at boundary 4−43961
hurricane boundary layer, quasi-empirical model 4−70727
hydrofoil, Kutta's trailing edge condition *(German)* 4−81891
hypersonic, Reynolds stress meas. by X-array hot wire probe technique 4−48262
hypersonic flow around blunt body, non-equilib. air stream *(Russian)* 4−60197
hypersonic laminar, near sharp compression and expsn. corners, momentum integral method 4−44021
hypersonic rarefied viscous interaction over semi-infinite plate 4−44090
ideal incompressible liquid, motion of deforming body 4−52416
immiscible incompressible fluids, two, with uniform suction at stationary plate, plane Couette flow 4−48253
incompressible flow, aerodynamic calc. of wings of finite span *(Rumanian)* 4−56405
incompressible fluid, highly accelerated flow at moderately large Reynolds number 4−81876
incompressible turbulent, tangential stress distrib. 4−44006
incompressible viscous liquid, stationary laminar flow over plate with moving surface 4−78611
interference of streamwise vortex on two-dimensional wing 4−48229
internal boundary layer, effect of sudden roughness change 4−70712
inviscid shear layer, periodic in space, stability 4−66600
jet, two-dimensional free and parietal, universal relationship for mean vels. *(French)* 4−75148
jets, wall layer, deviation from law of the wall 4−48308
kerosene flowing in PTFE pipe, electrostatic streaming current and potential 4−79401
laminar, compressible, universal eqns. *(German)* 4−63559
laminar, energy of small wave-like perturbations *(German)* 4−63557
laminar, eqns. for Howarth flow in presence of suction, computer calcs. *(Russian)* 4−52408
laminar, large amplitude l.f. solns. 4−81873
laminar, on continuously moving surfaces, thermal radiation 4−52390
laminar, Prandtl-von-Mises form of differential eqn. soln. 4−59060
laminar, soln. of momentum eqn. in Krocko's variables *(Russian)* 4−44014
laminar, three-dimens., in incompressible liq., approx. soln. *(Russian)* 4−69579
laminar, three-dimens., near stagnation pt., transpiration cooling 4−44002
laminar, two-parameter approx. *(Russian)* 4−52407
laminar, with free convection on vertical porous surface, heat and mass transfer 4−43960
laminar axisymmetric, on circular cylinder, transition mechanics 4−63556
laminar axisymmetric, periodic crossflow effect on heat transfer 4−48199
laminar boundary layer on rotating three-dimensional blade, flow investig. 4−75131
laminar film under side cyclic motion, thermal analysis 4−52392
laminar flow through rod bundles 4−75114
laminar forced convection film condensation of vapour flowing around circular cylinder 4−52353
laminar gas flow past plane plate *(German)* 4−69585
laminar in presence of suction or induction automodelling problem *(Russian)* 4−75124
laminar incompressible boundary layer with variable dynamic viscosity, approx. soln. of eqns. 4−78606
laminar incompressible wall jet on moving plate 4−78640
laminar layer under intensive injection and radiant heat exchange 4−44007
laminar layers over inclined blunt bodies, open type of separation 4−66601
laminar transonic flow, shock wave boundary layer interactions 4−78624
laminar viscous flow past finite flat plate, Kuo's soln. 4−56396
laminar viscous flow past flat plate with finite thickness 4−63552
Leipzig wind profile and boundary layer wind-stress relationship 4−76717
lifting-surface programs evaluation 4−78618
linear cascade of supercavitating hydrofoils 4−66606
liquid, non-Newtonian, flow in cylindrical tubes 4−78605
liquid film, downward flow along vertical surface with attendant heat transfer 4−43947
liquid film, falling, heat exchange during evap. 4−66570
liquid film, gravitational instability in thermal entry region 4−48198
liquid film, heat transfer in nucleate boiling 4−52384
liquid film, turbulent, motion in vertical tubes 4−66599
liquid film, two phase flow system, rel. to shear stress distribution 4−52494
liquid film, vertical falling, hydrodynamics and heat transfer 4−48201
liquid film flow on inclined plane, wave state stability *(Russian)* 4−75158
liquid jet stationary nodes, spherical surface contact 4−56413
liquid lenticular filament, longit, flow down inclined plane 4−78610
liquid mixture with temp. gradient, laminar flow stability 4−69557
liquid with polymer additive in boundary layer, reduction of turbulent friction 4−78590
low Reynolds number flow past circular cylinder, unsteady heat transfer 4−81849
macroscopic body in gas flow, drag coeff., generalised Boltzmann eqn. 4−44011

boundary layer flow continued
MGD flows of finite cond. past wedge profile, Hall effects investigation 4—60233
MHD, inclined mag. field, flow past thin profile *(Russian)* 4—81947
MHD boundary flow in transition from crossed fields to aligned fields 4—66645
MHD boundary layer equations, existence and uniqueness of soln. *(Russian)* 4—63610
MHD channel, cooling effect on semi-hot wall 4—44098
MHD equation, integration by Meksyn's method 4—44105
MHD flow past finite flat plate, nonaligned mag. field 4—60229
MHD flow past flat plate, soln. by initial value method 4—78679
MHD ionised gas flow round body, heat flux *(Russian)* 4—75165
MHD unsteady flow near infinite flat wall 4—56437
multicomponent gaseous mixture, absorpt. in presence of instantaneous reaction 4—53960
neutral planetary boundary layer, accelerating, frequency dependence 4—64896
Newtonian fluid flow through random array of rigid objects, drag 4—63553
non-Newtonian fluctuating flow past porous plate, time-varying suction 4—52454
non-Newtonian fluid, boundary value problem *(Russian)* 4—63582
non-Newtonian fluid, motion in gap between rotating cylinders 4—63581
non-Newtonian foodstuffs, wall effect 4—44147
non-Newtonian media reln. to shear stress potential model *(German)* 4—69580
non-Newtonian power law fluids, laminar 4—56425
non-Newtonian power-law fluids, universal form of equation, numerical soln. 4—44087
nonequilibrium, over blunt bodies, time dependent calc. 4—78620
nonstationary Prandtl system, asymptotic integration by averaging 4—56400
numerical method for eqns. soln. 4—78602
oceanic shoaling internal gravity waves, incipient sediment movement 4—57989
oils, turbulent free convection from vertical surfaces, computer calcs. 4—78580
Oldroyd fluid flow in inlet region of channel, injection effect rel. to boundary layer 4—48324
parachute, unsteady vortex flow past inflating, decelerating wedge 4—81862
particle-fluid suspension, boundary layer flow past flat plate 4—75185
plane blunt body, in nonviscous supersonic flow, oscillations *(German)* 4—78622
plane-parallel flow along deforming boundaries, hydrodynamic stability Squire's theorem 4—48248
planetary boundary layer, height variation of turbulent kinetic energy budget 4—64895
planetary boundary layer, time-dependent integrated flow 4—64894
plasma, ion boundary layer, continuum solns. 4—48407
plasma, ion boundary layer, continuum solns. 4—48408
Poiseuille flow, bifurcating, in annulus, friction factors 4—81890
polyacrylamide soln. role of molecular aggregates in liquid drag reduction 4—48171
polyethylene oxide soln. role of molecular aggregates in liquid drag reduction 4—48171
polymer solution near rough surface, logarithmic vel. profile 4—78657
polymer solution turbulent flow around enclosed disc, friction reduction 4—75156
porous layer, inclined, natural convection, extremity effects influence on stability *(French)* 4—44152
potential and axially symmetric generalized potential theories, three part boundary value problems 4—66594
power-law fluid, unsteady flow 4—48318
power-law fluids, nonlinear boundary layer eqns., approx. method of soln. 4—56428
power-law fluids, unsteady flow 4—48319
Prandtl-Meyer flow of dusty gas with small deflection angle 4—78703
pseudoplastic falling film, surfactant stabilizing effect 4—78649
pseudoplastic fluid in laminar boundary layer over porous flat plate with suction, initial-value method 4—44086
reacting gas flow in tubes, hydrodynamics and heat transfer *(Russian)* 4—52531
rectangular wings moving near screening surface, calculation of characteristics 4—75134
rotating annulus, effect of upper boundary condition on thermal convection 4—66564
rotating disc in casing, influence of peripheral conditions on flow *(Japanese)* 4—66602
near roughness elements, flash photolysis technique 4—44003
secondary currents in straight conduit 4—48195
secondary flow around oscillating cylinder 4—60191
semi-infinite flat plate in shock tube, shock induced unsteady boundary layer 4—78626
separation of dimensional boundary layer, secondary flow influence *(Russian)* 4—75121
separation response to impulsive changes of outer flow 4—81881
sharp wedges, symmetric laminar incompressible flow, Navier-Stokes solns. 4—81887
shooting method for soln. of flows with massive blowing 4—48239
simple fluid between two surfaces in rotation, secondary flow *(German)* 4—66592
singular points in three-dimens. flow in turbulent boundary layer 4—56383
slender and blunt bodies, in hypersonic flow, pressure tap geometry effects on pressure meas. *(German)* 4—77328
slender body, in low density hypersonic flow, static pressure meas. 4—46990
slow motion of spherical cap in viscous fluid, free suspension in shear field 4—60190
slow viscous flow caused by translation and rot. of spherical cap 4—60189
source flow between two porous discs 4—44004

boundary layer flow continued
spacecraft shrouds, in-flight fluctuating, vibration response 4—69582
spinning sharp body at angle of attack 4—81885
spiral flow in circular gap, stability *(Russian)* 4—75109
stagnation point, unsteady three-dimensional 4—66607
steam condensation on horizontal finely-finned surface, liquid film flow mechanism 4—78577
steam-air mixtures flowing downward over horizontal tube, film condensation 4—48219
Stokes drag for asymmetric flow past spherical cap 4—44015
Stokes flow about sphere attached to slender body 4—69576
Stokes flow past impulsively started circular cylinder 4—66597
stratified gas-liquid flow, natural convection 4—78581
subsonic flow around wings, vortex-lattice method extension, w.r.t. leading-edge separation effects 4—48274
subsonic flow over biconvex airfoil, numerical soln. of Cauchy-Riemann eqns. 4—60198
supersonic, near flat plate trailing edge, numerical and asymptotic solns. 4—52427
supersonic, turbulence structure, effect of mean compression and dilatation 4—48275
supersonic, upstream propagation of unsteady disturbances 4—44022
supersonic gas flow past blunt body of revolution 4—48279
supersonic gas flow past conical body, method of matched asymptotic expansions 4—44023
supersonic nonuniform fields over cones at angle of attack 4—81907
supersonic separated flows, sweep effects, numerical analysis 4—56402
supersonic turbulent, eddy viscosity models, numerical analysis 4—52420
supersonic turbulent, temp. decrease of adiabatic surface 4—44024
suspension, fine solid particle gaseous, turbulent flow, suppression of gas turbulence 4—44144
suspension, fine solid particle gaseous, turbulent flow, suppression of gas turbulence 4—44145
swimming motion effects, flow expt. around waving plate 4—52412
swirling turbulent boundary layers, prediction of momentum, heat and mass transfer 4—75103
tape in viscous medium, frictional resistance *(Russian)* 4—78607
temperature, in plane convective fluid flow *(Russian)* 4—48256
temperature and turbulent Prandtl number profiles, flow over plate 4—43937
thermal convection, upper bounding approach, moderate Rayleigh numbers 4—63522
thermodynamic coupling, rapid coupling-factor estimate 4—60160
three-dimensional, eqns. soln. for swept infinte cylinders and small cross flow 4—81882
three-dimensional unsteady flow in shear layer, linearised integral theory 4—81900
trailing edge flow, numerical soln. of asymptotic eqns. 4—66608
transient laminar boundary layer, parametric calculation 4—75120
transition on large flat plate in anechoic wind tunnel, wall pressure bursts 4—44016
transonic flow, around aerofoils at zero incidence, improved calculation 4—48292
transonic flow past bodies, stabilisation law 4—81905
transpired turbulent layer, statistical props. in inner region 4—56387
transpired turbulent layers, model for mixing length distrib. 4—52417
tubulent wave flow, velocity structure in bottom region 4—81935
turbine cascades, supersonic exit 4—81884
turbulence in internal boundary layer 4—56390
turbulence model predictions 4—81877
turbulent, ahead of step on flat plate, approx. method 4—48258
turbulent, mean vel., shear stress distrib. 4—44010
turbulent, memory effect due to axial variation of mean vel. gradient 4—60184
turbulent, on cone in incidence, wall boundary flow *(French)* 4—63562
turbulent, perturbations, large scale struct. of internal region *(French)* 4—48241
turbulent, perturbations struct. in discontinuous region *(French)* 4—60186
turbulent, quadrature method *(German)* 4—48249
turbulent, shock wave interaction, two-parameter calc. scheme 4—48290
turbulent, smooth and rough surfaces, velocity profile 4—75117
turbulent, thermally developing on flat plate, behaviour of temperature-velocity fluctuations and turbulent Prandtl number 4—69575
turbulent, two parametric family of velocity profiles 4—78604
turbulent, wall pressure instantaneous structure 4—44017
turbulent, wall pressure structure obs. by interferometry with high-speed cinematography *(German)* 4—68861
turbulent, with time depend wall temp., unsteady heat transfer 4—52395
turbulent air stream, heat transfer from cylinders 4—56414
turbulent boundary layer on continuous moving smooth surfaces 4—48245
turbulent shear, viscous wall flow anal. *(German)* 4—63543
turbulent swirling, axisymmetric, high Reynolds no. model 4—81878
turbulent wall jets over logarithmic spiral surfaces, flow near wall 4—69590
turbulent wall jets over logarithmic spiral surfaces 4—66618
turbulent wall layer, flow over uniform roughness 4—44012
unsteady free-convection, propagation of disturbances 4—81847
unsteady potential flow past group of spheres 4—78687
unsteady turbulent layers in two- and three-dimens. flows, calc. method 4—81880
vertical component of wind velocity in atmospheric boundary layer *(Russian)* 4—64873
vertical flat plate, hydromagnetic free convective flow with variable viscosity and thermal cond. 4—75169
vertical flat plate, uniform surface heat flux 4—52372
vibrating profiles, vortex wakes *(Russian)* 4—56406
viscoelastic fluid, fluctuating flow past flat plate with suction 4—60213
viscous fluid, slow motion of spinning sphere, Navier-Stokes eqns. 4—66593
viscous fluid, stationary flow round body *(Russian)* 4—48254

boundary layer flow continued
  viscous fluid, steady streaming induced by oscillating flat plate, theory 4−66595
  viscous fluid, Stokes equations soln. for torus 4−75115
  viscous fluid, theory of elastic body vibrs. 4−52470
  viscous fluid nonlinear surfaces waves in inclined channel 4−78674
  viscous gas in narrow extended space, Navier-Stokes eqns. 4−48278
  viscous homogeneous gas, laminar boundary layer flow 4−56404
  viscous incompressible flow between eccentric coaxially rotating spheres 4−81893
  viscous incompressible fluid flow between rotating porous cylinders 4−56426
  viscous incompressible fluid flow normal to uniformly accelerated cylinder investig. 4−78608
  viscous liquid film flowing along inclined plane, fine amplitude side-band stability 4−44005
  viscous stagnation point flow, stream function and vorticity struct. numerical anal. 4−60179
  vortex generation in boundary layers on tide-free sea surface *(Russian)* 4−73511
  vortex-sheet model for mixing between two parallel streams 4−60183
  wake behind two-dimensional surface obstacle in turbulent boundary layers 4−63572
  wall eddies identification, from fluctuating vel. gradient phase relation 4−81837
  wall pressure fluctuations with distributed suction of turbulent layer 4−56399
  wall shear at three-dimens. stagnation pt. with moving wall 4−81874
  wall turbulence, viscous sublayer, fluid with relaxation potential *(Russian)* 4−52410
  water, flow visualisation by electrolysis, behaviour of tracer particles 4−75116
  water, laminar boundary layer at solid surfaces, onset of turbulence 4−48246
  water layer between penetrable surfaces, approx. solns. *(Russian)* 4−75192
  wavy surface, boundary layer theory 4−81909
  wedge flow, comparison of numerical solns. to inviscid fluid motion eqns. 4−60204
  wind and turbulence simulation of atmos. boundary layer flow 4−46046
  wind stress drag coeff., air-coast interface 4−68171
  wind tunnel scaling, transonic, high Reynolds number test facilities 4−78621
  wind tunnel wall interference minimisation 4−48272
  wind tunnel with sinusoidal walls 4−78614
  wing characteristics, expt. study of spanwise air jet influence 4−75135
  wing-body combinations, slender properties nonlinear lift and pitching moment *(German)* 4−75137
  Ar, ionized radiating non-equilibrium flow over blunt body 4−60260
  H_2-O_2, hot mixture, past blunt body, detonation wave form 4−48297
  H_2O, turbulent free convection from vertical surfaces, computer calcs. 4−78580
  N_2, dissociating, hypersonic flow over wedge 4−66678
  O_3, gas transfer near Earth's surface 4−61770

boundary layers
  see also boundary layer flow
  : 4−75079
  α-dynamos, boundary layer anal., and general eigenvalue problem 4−56438
  aerodynamic sound generation in presence of solid boundaries, unified approach 4−81908
  aerodynamics problem applic. 4−63567
  air-sea, spectral dissipation of waves due to white capping 4−57970
  air-sea, turbulent momentum, heat and water vapour fluxes 4−58006
  air-sea interaction, momentum, heat and water-vapour turbulent fluxes 4−54173
  air-sea interface, bulk aerodynamic coeffs. for heat and moisture fluxes 4−58008
  air-sea interface, tropical Atlantic, wind velocity and water temp. variations 4−58009
  air-sea interface, velocity fluctuations rel. to convection 4−54172
  air-sea interface, vertical wind velocity, temp., radiorefractive index fluctuation meas. 4−57975
  air-sea momentum exchange 4−57971
  airfoils, harmonically oscillating, aerodynamic interference, vortex wake 4−81933
  atmosphere, centimetre radio wave propagation 4−46042
  atmosphere, dryline motion, boundary layer slab symmetric numerical model, turbulent vertical mixing 4−76690
  atmosphere, Lagrangian-Eulerian time scales from balloon flight past tall tower 4−58017
  atmosphere, low freq. temp. spectra from 444 meter tower 4−76703
  atmosphere, Sydney, Australia, downwind temp. increase in July advective boundary layer model 4−70695
  atmosphere, turbulence application of Taylor's hypothesis 4−76692
  atmosphere, turbulence characts. numerical model *(Russian)* 4−64884
  atmospheric, Lagrangian similarity theory of diffusion 4−58016
  atmospheric boundary layer modelling 4−54205
  atmospheric turbulent surface layer, wind wave-induced disturbances 4−54174
  axisymmetric cavities, anal. of small perturbations *(Russian)* 4−78695
  binary vapour mixtures, direct contact condensation on laminar coolant 4−75085
  carbon tetrachloride-air mixture, vertical surface condensation from turbulent stream 4−75622
  Chaplygin profile, acoustic streaming and friction forces *(Russian)* 4−52415
  condensation of organic vapour on water film, heat transfer coeffs. 4−75084
  convection, nonlinear, layer with imposed energy flux, appl. to solar granulation 4−73609
  convection from vertical plate with given heat flux in const. temp. gradient medium 4−43956

boundary layers continued
  convectively unstable boundary layer, thermodynamic models 4−58011
  Couette cylindrical flow with radial temp. gradient *(German)* 4−63549
  curved walls, covariant formulation *(German)* 4−63558
  deflagration wave, stabilization around an obstacle in high speed shock tube flow 4−72350
  deformable body motion in viscous fluid, anal. of forces *(Russian)* 4−75123
  density interface, turbulent struct. 4−72281
  diffusion in non-viscous parallel channel flow with discontinuous velocity distrib. *(German)* 4−81848
  dissolution roughness, turbulent flow near soluble surface 4−81974
  drag reduction, dilute polymer solns. rough and smooth rot. discs. 4−78655
  drag reduction, pipe flow of dilute polymer solns. 4−78656
  droplet, diffusion drag in slowly evaporating droplets 4−44130
  drops and bubbles in disperse one-component system, charact. function modification 4−62766
  duct, flat, inlet region, turbulence anal. 4−43933
  dynamic roughness eqn. rel. to wind stress at air-sea interface 4−50276
  eddy flux measurements, over Lake Ontario 4−54162
  Ekman boundary layer, parametrization of turbulent exchange *(Russian)* 4−83092
  elastic-plastic field determination in vicinity of crack tip 4−67834
  electrode, rot. hemisphere, turbulent regime mass transfer rate eqn. 4−69558
  elliptic cylinder, boundary-layer-induced pot. flow 4−81889
  elliptical cylinder, acoustic streaming at large Reynolds number 4−58652
  expansion tube, accelerating-gas boundary layer to test-gas boundary layer on flat plate 4−72311
  Faraday MHD generator, boundary layer development effects 4−69664
  film condensation, correl. of data, similarity parameter applic. 4−63534
  film cooling, analysis of heat transfer 4−78586
  film cooling under real conditions in moving systems 4−66571
  flow around plate, interaction between radiation and convection *(German)* 4−63541
  flow stability of compressible boundary layer *(Russian)* 4−75112
  free convection turbulent flow in conducting fluid, MHD 4−75168
  friction layer above tropical ocean, semi-diurnal wind variation 4−54198
  gas injection, supersonic flow, effects of He, Ar, H injection, stagnation conditions 4−81972
  gas mixtures, temp. factor effect on heat and mass transfer in flat parallel channel *(Russian)* 4−63533
  gas-liquid interface, thermal interaction 4−66573
  heat and mass transfer near rotating surfaces, review 4−78588
  heat transfer from hot-wire, free convection flow, effect of interfaces 4−75080
  heat transfer increase due to mass injection 4−81833
  heterogeneous shear flow stability, inflexion free profiles 4−72285
  highly anisotropic plane elasticity 4−74294
  horizontal anisotropic porous layer, criterion for appearance of natural convection *(French)* 4−48378
  hydraulic bearing, moving pin stability, Navier-Stokes eqn. *(Russian)* 4−52411
  hypersonic eqns. modification for chemical non-equilibrium in atmospheric reentry *(German)* 4−63560
  hypersonic unsteady flow near wedge and cone 4−66609
  immiscible two-fluid interfacial solitary waves 4−44093
  interfacial waves, Rayleigh-Taylor instability, viscous effects 4−66640
  jet, free-surface problems, finite element anal. 4−72328
  jet, plane, temp. distrib. soln. 4−78647
  jets, simple soln. for normal impingement 4−66621
  Kelvin-Helmholtz hydromagnetic instability of plasma-plasma interface 4−56488
  laminar, at elliptic cylinder in supersonic stream *(German)* 4−69584
  laminar, in noncentred unsteady waves 4−48263
  laminar, response to freestream disturbances 4−81871
  laminar, thermal wall gradient numerical evaluation 4−56374
  laminar and turbulent, forced convection heat and mass transfer 4−43930
  laminar boundary layer, similarity transformation in heat and mass transfer 4−43931
  laminar boundary layer above membrane supported on viscous fluid layer, stability 4−48247
  laminar separation, effect of blowing 4−44013
  lift and drag forces on sphere and transverse cylinder in shear flow 4−69578
  under lift forces, influence of convection on heat transfer 4−69563
  lifting using cylinder combinations, transonic flow, calcs. 4−72294
  liquid condensate film, laminar stability anal. 4−63535
  liquid drop motion in supersonic shock layer around wedge shaped body 4−66654
  liquid film, motivated, surface wave effects on triple-phase front of dry path 4−72332
  liquid film in inclined tube, flow breakdown 4−63550
  liquid layer adjacent to supersonic gas stream, nonlinear stability 4−44025
  long shelf wave generation by wind, boundary layer approx. 4−50273
  magnetospheric plasma flow from 30 eV-30 keV proton studies, rel. to boundary layer nature 4−61872
  Marangoni instability in liq. layer with non-uniform heat source 4−75092
  marine boundary layer, temp. and humidity spectra 4−76713
  Maxwell fluid, drag on sphere accelerating rectilinearly 4−56424
  membrane, deformable, laminary boundary layer stability 4−48243
  membrane, reverse osmosis and ultra-filtration in diffusion boundary layer 4−69610
  mesometeorological boundary layer, nonstationary two-dimensional model *(Russian)* 4−73535
  MHD, development in viscous incompressible fluid 4−44099

boundary layers continued
MHD, laser Doppler velocimetry 4—69655
MHD, multiple layer growth, electrically conducting rotating fluid 4—78682
MHD, secondary flows between rot. coaxial cylinders 4—81949
MHD, unsteady, enthalpy, skin friction and heat tensfer anal. 4—44102
MHD two-phase liquid metal generator, boundary layer control 4—69660
mixed convection in isothermally heat horizontal pipe, theory 4—75087
mixing layers between two gas streams, density effects, large structure 4—66569
natural convection around semi-infinite vertical plate, higher order effects 4—56372
natural convection heat transfer from high temp. wires to gases, low Rayleigh number 4—56373
natural convection on vertical cylinder, local nonsimilar solutions 4—75102
Newtonian liquid film on vertical surface 4—48242
non centred wave geometry influence on unsteady wall boundary layer development 4—72314
non-Newtonian fluid, free surface jet, rel. distrib. rheological props. depend. 4—48304
non-Newtonian fluid, thermal boundary layer, eqns. of motion and energy 4—48204
non-Newtonian power law fluids for arbitrary press. gradients 4—44079
nozzle discharge coeffs., compressible flow, boundary layer development 4—66629
ocean surface, microwave scatter semi-empirical model 4—80369
ocean wave, momentum transfer, influence of stability and wind-wave coupling 4—57977
ocean-atmosphere, ice cover regime, theoretical model 4—57972
oscillating cylinder, high Reynolds no. steady streaming 4—63554
parallel shear flows inviscid nonlinear instability 4—52403
pipe, curved, flow near inlet investig., appl. to haemodynamics 4—78609
plane EHD wall jet, propagation above conducting plate, boundary layer 4—48336
planetary, 2-layer model *(Russian)* 4—64880
planetary, baroclinic influence on resistance law *(Russian)* 4—64874
planetary, convective, structure from higher order closure model calcs. 4—70713
planetary, diurnal variations in mesoscale model 4—76691
planetary, equilibrium theory of layer with inversion lid 4—58005
planetary, geostrophic drag coeff., radiosonde data *(Russian)* 4—64881
planetary, model for predicting changes *(Russian)* 4—64883
planetary, neutral barotropic, asymptotic similarity rel. to aerodynamic model *(Russian)* 4—64885
planetary, parametrization of barocline effects *(Russian)* 4—70702
planetary, thermal fluxes, temp. and vel. gradients *(Russian)* 4—64882
planetary, turbulent fluxes, heat, momentum, moisture, parametrization *(Russian)* 4—64879
planetary, vertical struct. in undisturbed trade winds 4—58007
planetary, wind in baroclinic conditions, radiosonde data anal. 4—76693
planetary baroclinic boundary layer with linear variation of geostrophic wind, vorticity, divergence and vert. vel. 4—68170
planetary boundary layer, eddy diffusion coeffs., vertical profiles 4—58015
planetary boundary layer, temporal spectra and cross-spectra of kinetic energy 4—76716
planetry, optimum averaging times for short term wind prediction 4—68191
plasma, rarefied collisionless, influence of electron-solid surface interactions on e.m. field 4—56505
plastic cylinder in viscoplastic medium, longitudinal motion *(Russian)* 4—75122
plate, circular, stress distrib. along break-line formed during bending *(Russian)* 4—74321
plate, gas suction from thermally insulated laminar boundary layer 4—48244
plate, turbulence charact. consts. 4—78587
at porous plate, variable blowing, in mag. field *(Russian)* 4—63555
potential vortex interaction with free stream sink flow at stationary surface 4—66590
pressure hole errors in turbulent boundary layers 4—63578
pressure measurement, effect of turbulence at low free-stream rels. 4—43932
Rayleigh-Taylor plasma instability, finite ion-Larmor radius effect 4—78745
review of research in Germany 4—81875
rotating disc, exptl. study of heat and mass transfer is laminar, transient and turbulent regimes *(Russian)* 4—60171
rough sphere, effects of roughness and tunnel blockage on flow 4—72290
screen-covered and smooth cylinders in crossflow, comparison of Nusselt number and drag coeff. 4—75106
sea surface, dynamical anal. of drag conditions 4—54171
sea surface eddy currents in off shore boundary layer *(Russian)* 4—83074
shallow sea water, drag coeff. 4—54175
shallow sea water surface, drag and bulk transfer coeffs. 4—57976
shearing boundary layer, relative instability with imbedded shearing mag. fields 4—44103
shock induced, laser interferometer examination 4—72309
shock induced, on semi infinite flat plate 4—72312
shock tube flow, boundary layer growth 4—72310
spatial variations principle, applic. 4—60194
sphere, gravitating, rapid, boundary layer a radial jet 4—56384
sphere drag coefficient, subsonic speeds in continuum and free-mol. flows 4—75119
sphere heat transfer coefficient, $3 \times 10^4 < R_{e\infty} < 3.3 \times 10^5$ 4—60170
spheroid/liquid, rot. friction coeffs. of spheroids in viscous fluid with slip 4—66554

boundary layers continued
stably stratified planetary boundary layer, mixed layer height 4—54202
steady-state convective motion, plane inclined fluid layer 4—52370
Stokes flow, numerical computation of optimum profile 4—75074
subsonic turbulent boundary layer on line constrained membrane, pressure field 4—80818
supersonic, stability w.r.t. three-dimens. excitation *(Russian)* 4—52430
supersonic flow, vibr.-dissoc. relax. in laminar boundary layer, catalytic effects 4—48265
supersonic jet, impinging on plate, near wall jet 4—81929
supersonic turbulent, total temperature probes for 4—46594
surface drag, effect of non stationarity, resistance law determ. *(Russian)* 4—68185
surface to geostrophic wind relationship, German Bight 4—57973
thermal, temp. profiles during liq. boiling in free vol. 4—52379
three-dimensional perturbations, numerical analysis 4—52409
three-dimensional separation for shock wave interaction with turbulent boundary layers 4—48287
time-independent temperature field, band and layer under mixed boundary conditions 4—69566
transition on cones near Mach one 4—81897
transition on large flat plate in anechoic wind tunnel, wall pressure bursts 4—44016
tropical convective boundary layer 4—57974
turbulent, beneath intense vortices, mixing length theory 4—66589
turbulent, free stream turbulence effect 4—56395
turbulent, friction reduction by polymer additive *(Russian)* 4—56394
turbulent, incipient separation due to skewed shock wave 4—48288
turbulent, mean period between bursts, obs. 4—43970
turbulent, press. perturbation 4—81892
turbulent, wall pressure calcs. 4—75118
turbulent axisymmetric, in conical nozzle 4—66628
turbulent boundary layer, aerosol particle transport, Mednikov's eqn. 4—72345
turbulent boundary layer, incompressible fluid, large press. gradients *(Russian)* 4—60188
turbulent boundary layer evolution in severe press. gradient 4—66598
turbulent boundary layer on rough surface, wall pressure *(Russian)* 4—75113
turbulent gas jet, influence of kinetic energy and compressibility on boundary layer eqns. *(Russian)* 4—52445
turbulent heat flux, over Baltic Sea 4—57969
turbulent layer growth over nonstationary boundaries 4—81872
turbulent mixing layer between parallel turbulent streams 4—66603
turbulent shear flow, model eqns. effect of viscosity, compressibility and density variations 4—56379
turbulent temp. multiparameter integration method calc. *(German)* 4—69573
turbulent with severe press. gradient, heat transfer and flow development 4—75081
turbulent/non-turbulent decisions, intermittent flow 4—66566
turbulent/non-turbulent properties, intermittent region of boundary layer 4—66567
two-dimensional duct, effect of mean-velocity profile shape on sound transmission 4—73927
two-phase ascending twisted stream, interphase heat transfer in film flow regime *(Russian)* 4—63614
two-phase liquid, interface Rayleigh-Taylor instabilities due to electromagnetic forces *(Russian)* 4—63601
tyre profile slots, flow in rapid rotation *(German)* 4—69574
uneven film thinning, parallel disc model 4—72288
upwelling region off Oregon, diurnal variation of wind 4—58004
urban air pollution, meteorological modelling 4—58019
vapour bubble motion in subcooled heated channel 4—52496
vertical cylinder, natural convective flow temp. field, interferometric obs. 4—75082
viscometric shear flow in parallel-plate and cone-and-plate apparatus, generalised torsional flow 4—66604
viscosity effects on stability of relative motion of two plates interacting with liquid 4—78612
viscous fluid between rot. surfaces of revolution, eqns. of motion 4—69577
viscous liquid, interfacial waves, space charge dynamics 4—75171
viscous liquid thin layer on cylinder, heat exchange, diffl. eqn. *(Russian)* 4—56370
Vlasov equations of layer separating field free plasma form vacuum mag. field 4—44175
vortex wall interaction, vel. inversion 4—43996
vortices shedding mode, transition, separation point *(Japanese)* 4—63547
wake nonisothermal flow, viscosity temp. depend., anal. 4—44050
water, turbulent flow, temp. depend. viscosity variation effect on skin friction *(French)* 4—63523
water, turbulent flow in entry region of rough pipe 4—66580
water vapour, condensation in inclined tube, hydrodynamics, heat transfer 4—66563
water-air, wind-wave generation 4—54197
wing, free flight, laminar boundary layer, control of form drag 4—44019
Co_2, nucleate boiling departure of h.p., temp. conditions 4—43950
N_2 liquid in tube, boiling, subcooled liq. film, hydraulic resist. 4—60253
N_2O_4 liquid-vapour stream, admixture content of boundary layer, effect on heat exchange *(Russian)* 4—60254
N_2O_4 liquid-vapour stream in vertical tube, heat exchange in ascending flow *(Russian)* 4—63618

boundary-value problems
see also numerical analysis
α-dynamos, boundary layer anal., and general eigenvalue problem 4—56438
a.c. faceplate motors, e.m. field in gap determ. 4—47265
aerodynamics appl. of generalised capacity matrix 4—78619
aerofoil, response to oblique gust 4—75130
annular plate, postbuckling analysis 4—51313
atmospheric Limited-Area Model, formulation of lateral boundary conditions 4—61786
automatic numerical generation, body fitted curvilinear coordinate system, field containing two dimension bodies 4—75126

boundary-value problems continued
boundary layer eqns., asymptotic boundary conditions 4−78603
boundary-integral equation method, solid mechanics applic. 4−59109
bounds, existence and uniqueness for free boundary problems *(German)* 4−74229
brittle damage mechanics 4−60547
capillary-gravity wave, transient linear, varitational principle from angle of contact boundary condition 4−52467
Cauchy, application of constraint and evolution equations to Schwarzschild and Friedmann metrics 4−55356
circular disc, thermoelasticity 4−43055
conical shell, hydrostatically loaded, buckling analysis by collocation method 4−47069
convective diffusion in infinite band, mixed boundary-value problem soln. 4−59310
convective heat transfer, supersonic recirculating flow region, Telenin's method 4−78584
coordinate stretching, interface location, general relaxation method, application to composite polytropes 4−76531
corner layer flow, optimisation of ADI method 4−78617
Couette flow, pressure-stabilized, with variable viscosity and mech. energy dissipation 4−43922
coupled systems, one term approximations for lowest eigenvalues, sandwich plate vibrs. 4−71339
cylindrical deformations of reinforced elastic tube 4−47077
cylindrical shells, thick, impulsive deform., numerical analysis 4−43075
deformation of anisotropic shells and plates, variational anal. *(Russian)* 4−51349
differential equation system, periodic solutions by interval analysis methods *(German)* 4−74233
differential equations, fourth-order systems, boundary conditions, matrices *(Russian)* 4−55208
differential equations, third and fourth order, periodic solns., existence via coincidence degree 4−47028
differential equations, Volterra functional second-order, finite difference method 4−47040
differential equations with implicit terms in variable argument, approximate solution *(Russian)* 4−51284
diffusion, free-boundary problems solution method 4−62761
diffusion equations with concentration dependent coefficients, solution with Gauss elimination method 4−77356
diffusion in non-viscous parallel channel flow with discontinuous velocity distrib. *(German)* 4−81848
diffusion wave equation, Wentzell's boundary condition, rel. semigroup 4−51429
distillation column, parametric study, boundary-value problem, GPM method 4−48344
domains with non-fixed boundaries *(Russian)* 4−74216
dusty gas, two-dimens. flow through infinitely long pipe 4−48374
elastic body with rectilinear orthotropy, initial function method soln. *(Russian)* 4−77419
elastic contact problem for half-space indented by flat annular rigid stamp 4−77417
elastic disc layer, translation parallel to contact plane 4−74292
elastic half-space, dynamic indentation 4−59126
elastic material, homogeneous isotropic, iterative method for plane strain and stress problems 4−59121
elastic plate strips, internal stress state anal. *(German)* 4−65692
elastic wave propagation in inhomogeneous media 4−43101
elastic wedge, stress analysis using Fourier-Bessel series 4−77422
elasticity, face element theory using potential functions 4−62684
elasticity theory, spatial multiply connected non-canonical domains *(Russian)* 4−74286
elasticity theory in three-dimensional domain 4−59123
elastodynamics, finite, uniqueness theorems 4−51338
elastoplastic, velocity discontinuities 4−59189
elastostatics, singularity formation for integral method *(German)* 4−65689
electrodynamic differential-difference eqns. anal. 4−47035
elliptic, existence theorem for solution of equations with Cauchy boundary conditions *(Russian)* 4−55203
elliptic eqns. with two lines of degeneration 4−77352
elliptic pseudo differential eqns. with small param. in principal operat. asympt. soln. 4−81126
elliptical differential equations *(Russian)* 4−74215
e.m. oscillations, boundary and eigenvalue problems *(German)* 4−62782
e.m. theory, absorbing and radiating cylinders, hybrid TE and TM fields 4−62777
e.m. wave diffraction in helical wave *(Russian)* 4−62790
e.m. wave reflection from cryst., boundary-value problem including spatial dispersion, polariton mixing 4−70288
e.m. wave scatt. by inhomogeneous dielectric bodies of revolution, numerical soln. 4−74464
e.m. wave scattering, profile characteristics inversion of conducting spheres, applic. of e.m. inverse boundary conditions 4−68995
e.s., using Friedrich's method 4−68989
even-order, linear, in ordinary differential eqns., field method of integration 4−77433
external mixed boundary problem, exact solns. *(Russian)* 4−74227
fast chemical reaction, multidimensional anal. model 4−53956
finite element method, boundary and interior approx. errors 4−43133
finite element methods, local error bounds 4−59066
finite-element approach for soln. in domain with sharp cutout *(Japanese)* 4−43033
flexible circular foundation, stresses and displacements in presence of friction or adhesion 4−77440
flexible plate with opening, state of stress, effect of material props. 4−43062
flow through annulus with porous walls, quasi-linearisation technique 4−78708
fluid flow, soln. of temp. boundary layer problem *(Russian)* 4−48256
forced oscillations in heat- and mass-transfer system with finite transfer rate 4−43205
Fortran programs, standard methodology for design, construction, operation, OLYMPUS system 4−65623

boundary-value problems continued
generalised axisymmetrical potential, numerical-analytical soln. of boundary problem *(Russian)* 4−55214
granular materials, flow behaviour, transducer and X-ray meas. 4−45860
Green function of moving boundary problem, asymptotic soln. *(Russian)* 4−55217
Gurtin's variational principles, initial value problem 4−51263
heat conduction, Kantorovich's method applic. 4−51485
heat conduction, plane problems with mixed boundary conditions of first and third kind, soln. *(Russian)* 4−43212
heat conduction, time variable heat transfer coeff. 4−47248
heat conduction equation, free boundary value problem, global convergence of implicit difference method *(German)* 4−74440
heat conduction equation with complex boundary conditions, soln. construction method 4−62759
heat conduction equations with nonlinear relations on boundaries, soln. method 4−43194
heat conduction in hollow cylinder, transfer functions 4−43203
heat conduction of body with cylindrical surface 4−77571
heat conduction problems for hollow cylinder, Green's functions 4−65844
heat equation, one-dimensional, appl. of general similarity soln. 4−47247
heat exchanger, multistage forced-circulation, approx. soln. of eqns. of thermal dynamics 4−65841
heat transfer of laminar wall jet with non-isothermal surface conditions 4−75093
Helmholtz equation, smoothing process on mode-matching technique 4−71462
hollow cylinder and parallelepiped with moving boundaries, temp. field determ. *(Russian)* 4−43210
holomorphic functions belonging to Hilbert spaces carrying analytic representations of semisimple Lie groups 4−51260
Hopf method application to solution in normalised Dini spaces *(Russian)* 4−55205
hydromechanics, partially unknown boundary *(Russian)* 4−75187
hyperbolic operator, decomposition into wave multipliers, analogue of multipoint problem *(Russian)* 4−55219
initial value method for inverse problem in wave propagation 4−47034
integral formulation, elasticity problems applic. 4−59177
integro-differential equations, reduction to Cauchy system 4−74224
integrodifferential equations, nonlinear two-point boundary problem, averaging method *(Russian)* 4−74252
interfacial tension, Chebyshev polynomial series soln. *(Russian)* 4−55220
invariant bedding reflection equations, Lie series perturbation solution 4−81529
inward solidification with radiation-convection boundary condition 4−52873
laminated cantilevered beams, deflections, upper and lower bounds, transverse shear deform. effects 4−43073
linear diffusion theory for finite media 4−47241
liquid acoustic wave, fractional harmonic components 4−65298
liquid oscillation anal. for deep bodies of liquid *(Russian)* 4−52469
magnetic dipole excited cylinder, iterative perturbation soln. 4−77590
membrane deflection, governing differential eqns. 4−74278
membrane eigenvalues, lower bounds by anisotropic auxiliary problems 4−68903
MHD, nonlinear nonstationary boundary-value problem soln. 4−78685
MHD boundary layer equation, integration by Meksyn's method 4−44105
MHD channel flow, periodic boundary conditions, boundary value problem *(Russian)* 4−63600
MHD flow past flat plate, soln. by initial value method 4−78679
micropolar cylinder, thick-walled, state of plane strain, stresses, displacements 4−74297
micropolar medium, force-and couple-stress singularities from concentrated loads *(Polish)* 4−71324
micropolar medium, stress singularity from discontinuous loads *(Polish)* 4−71325
Navier-Stokes eqn. numerical proof of existence of Hopf's weak soln. *(Russian)* 4−52343
Neumann eigenvalue problem 4−68865
neutron flux calc. in cylindrical geometry, accuracy of white boundary condition 4−81526
neutron slowing down density, semi-infinite cylindrical pile, integral operator soln. 4−78136
neutron transport, monoenergetic, homogeneous nonmultiplying medium, reflecting boundary conditions 4−43584
non-Newtonian fluid, boundary layer equations *(Russian)* 4−63582
nonlinear, for surface solitary waves 4−60223
nonlinear differential equation involving small parameter, Coddington and Levinson's results exam. 4−81122
nonlinear differential equations, convergence of approximate methods of soln. *(Russian)* 4−55212
nonlinear dual-mass systems, normal models 4−65708
nonlinear parabolic second initial boundary value problems, positive solns. 4−43208
nonlinear quasi-geostrophic equation, solutions on a bounded domain 4−64892
nonlinear reln. to finite displacements of axisymmetric shallow shells of rotation *(Russian)* 4−51334
nonlinear two-point, reduction to Cauchy system 4−81156
nonpolynomial field theories, analytic distributions, superpropagators as boundary values 4−74547
OLYMPUS, standard control and utility package for initial-value Fortran programs 4−65624
open resonator embedded in uniaxially anisotropic medium 4−71475
ordinary differential equations; conf. Austin, Tex., USA, 19-20 Oct. 1972 4−59084
parabolic second order equation, parameter affecting solution *(Russian)* 4−55199
partial nonlinear equations with mixed derivatives and Neumann type boundary conditions, finite difference method *(French)* 4−77351
penny-shaped crack lying on bimaterial interface, torsional wave scatt. 4−48688

- **boundary-value problems** continued
  - piezoelectric plates, thin bending by action of electric changes *(Russian)* 4-53377
  - plane elasticity theory of inhomogeneous regions in curvilinear coordinates *(Russian)* 4-51350
  - plane layer, cond. temp. depend. effect on temp. distrib., current and e.m. field 4-51482
  - plane wave diffraction on edge, at supersonic velocity with nonregular shock interaction *(Russian)* 4-75144
  - plasma physics, computer methods applic. 4-69615
  - plastic wave propag. in linearly work hardening material 4-43094
  - plate potential problem, two-dimensional, soln. using integral transforms 4-74281
  - polywave equation, numerical soln. 4-81135
  - porous tube, transient temp. distrib., analytical soln. 4-65845
  - potential and axially symmetric generalized potential theories, with appl. in elasticity and fluid dynamics, three part problems 4-66594
  - potential problems involving annulus 4-59054
  - potential theory, soln. of Laplace eqn. by method of seaming *(Russian)* 4-51294
  - power-law fluids, unsteady flow 4-48319
  - pseudoplastic fluid in laminar boundary layer over porous flat plate with suction, initial-value method 4-44086
  - quasilinear, multistep method, stability and convergence *(German)* 4-81128
  - quasilinear partial differential eqns. solns. 4-65634
  - rectilinear plate on elastic foundation, Monte Carlo method 4-55259
  - rod, rapidly rotating slender, fourth-order differential eqn. for transverse vibration 4-55295
  - Rossby waves in circular basin and ocean, interior boundary value problem *(Russian)* 4-73512
  - Runge-Kutta-Nystrom methods, dynamical astronomy 4-58195
  - scalar, flow anal. using substructure theory with isoparametric finite elements *(German)* 4-63518
  - scalar wave propagation, smoothed boundary conditions for randomly rough surfaces 4-47036
  - scattering, by an arbitrarily shaped object, variational method 4-59080
  - scattering potential for straight line segment 4-65738
  - second-order fluids, Holder stability 4-69555
  - semi-linear parabolic differential equations, monotone nonlinearity, analyticity in time of solutions 4-77361
  - semiconductors, galvanomag. props. local determ. potential theory 4-82432
  - sensitive, two-point type, shooting-splitting method 4-60153
  - shock propagation, noncentred analysis 4-78629
  - shock stability in fluids with viscosity and heat conduction, soln. of initial-value problem 4-44042
  - shock waves, weak, of differing strengths irregular interactions *(Russian)* 4-48295
  - singular-perturbation, numerical soln. 4-55222
  - singularities of stresses at conincal notches or inclusions 4-65681
  - skew plates, orthotropic, Ritz solution 4-55279
  - sound radiation, cylinder, immersed in acoustic fluid, bounded by elastic half-space 4-80783
  - spatial, rotation computation for vector fields *(Russian)* 4-55185
  - statistically irregular waveguides, Green's function method for perturbed boundary conditions 4-71467
  - steam-generating channel, thermo-hydraulic low-freq. stability, computer investigation using D-partitioning 4-43939
  - stress analysis of elastic wedge, boundary-value problem, using Fourier-Bessel series 4-77422
  - surface wave, in channel, effect of surface tension 4-52468
  - surface waves, linear theory, method of reflections 4-81940
  - thermal conductivity in boundary region of complex shape, structural method *(Russian)* 4-55408
  - thermal stresses, around circular holes in spherical shells 4-71330
  - thermal stresses in open cylindrical shells of arbitrary boundary conditions, by a finite strip method 4-59167
  - thermoelastic axially symmetric problems, infinite region with finite number of spherical cavities *(Russian)* 4-51346
  - thermoelasticity, stress temperature distribution as function of time for rectangular plate *(Russian)* 4-51345
  - two body in electrodynamics and special relativity, specifications of well posed problem 4-65982
  - two-dimensional, integral eqn. derivation using Green's third identity 4-59061
  - two-point, generalised perturbation method 4-81119
  - two-point, Jacobian matrix characterized by large positive eigenvalues 4-74220
  - two-point for ordinary differential eqn. with small parameter, averaging method *(Russian)* 4-74253
  - variational-difference method, construction of system of coordinate functions *(Russian)* 4-51283
  - vibration of pre-twisted beams 4-77463
  - viscous fluid nonlinear surfaces waves in inclined channel 4-78674
  - viscous fluid reaction with torsionally oscillating spheroid, linearized weak separation soln. 4-48333
  - viscous liquid, circular flow *(German)* 4-81870
  - viscous liquid, plane circular-symmetric boundary-initial value problem *(German)* 4-78600
  - Vlasov-Maxwell eqns. linearized, for hot dilute plasma, mixed value problem 4-56467
  - Volterra integrodifferential equations, initial value problem *(Italian)* 4-77348
  - wave propagation in continuous random media 4-59210
  - wedge, three-dimensional, mixed boundary problem for finite number of contact segments *(Russian)* 4-55249
  - wedge entry into incompressible fluid 4-77396
- **bowing** *see bending*
- **Bragg reflection** *see X-ray crystallography*
- **brain**
  - alpha rhythm, wavelike props. 4-83302
  - anterior hypothalamic heating, influence on fast wave sleep episode duration 4-58499
  - catecholamines location using ^{17}O(n,α)^{14}C reaction 4-83328
  - cells, 3-D computer reconstruction, from serial electron microscope montages 4-62273
  - cerebral dominance, associated e.e.g. asymmetries 4-58501
- **brain** continued
  - cerebral hemisphere reconstruction technique, from serial sections 4-51193
  - cerebral ischemia, in rabbits, computer e.e.g. anal. 4-58500
  - cerebral operations for vascular lesions, per-operative angiography 4-58559
  - cerebral structure, radio-anatomical atlas *(French)* 4-46399
  - cortical potentials, coupling meas. to study functional relationships 4-68489
  - differential brainstem pathways, auditory frequency following response conduction 4-54652
  - echoencephalography, compact instrumentation 4-83335
  - head section, Fourier reconstruction 4-71111
  - hemispheric asymmetries, during speech, electrophysiological assessment 4-68493
  - left hemisphere, right ear superiority for speech, language 4-50771
  - mammalian brain tissue dielectric meas. in S-band 4-65575
  - midbrain cooling, effect on generalised penicillin epilepsy in the cat 4-54645
  - neurotransmitter detection, differential electrically stimulated release of ^{3}H-noradrenaline and ^{14}C-α-aminoisobutyrate from brain slices 4-76946
  - olfactory bulb bioelectric rhythm simulation 4-62279
  - pigs, miniature, brain irradiation, fractionated supralethal doses increased radioresist. 4-80761
  - radionuclide cisternography, rel. to neurosurgical shunting, communicating hydrocephalus 4-62325
  - regions, spindle activity correlation 4-71093
  - scan abnormalities, rel. to electroencephalographic procedures 4-68524
  - scintigrams, computer analysis 4-50881
  - superfusion of cerebral cortex, unanaesthetized unrestrained rats, cannula 4-81057
  - X-ray effects, delayed swelling and functional derangement in monkeys, after irradiation of visual cortex 4-54714
  - ^{99m}Tc-pertechnetate, brain scanning clinical limitations, metastatic disease 4-80739
  - ^{99m}Tc-pertechnetate, positive brain scan in toxoplasmosis 4-80743
  - ^{169}Yb-DTPA cisternography, radiation absorbed dose 4-80744
- **brain models**
  - *see also neural nets*
  - alpha rhythm model, thalamic 4-62281
  - cerebellar cortex, mammalian, computer model 4-65246
  - Marr's theory of the cerebral neocortex *(Japanese)* 4-80699
  - neuronal models, improved, for studying neural networks 4-62280
  - olfactory bulb bioelectric rhythm simulation 4-62279
  - review and comparisons with computers and maths. 4-80703
  - wave model of temporal learning and habituation in the dentate gyrus of the mammalian brain 4-80702
- **brass**
  - α-brass, ductility, tensile, at intermediate temp., effect of strain rate *(Japanese)* 4-45628
  - α-brass single crystal, tensile ductility at elevated temp., strain rate effects *(Japanese)* 4-45629
  - acoustic reflected pressure for sphere in water 4-73921
  - bicrystal, β-phase, stress/strain relations 4-45646
  - α-brass, Fermi surface investigation by positron annihilation 4-82350
  - contact resistance in liquid N 4-70061
  - creep and rupture of primary solid solns. *(Czech)* 4-80001
  - creep of 70-30 α-brass, sigmoidal transient creep behaviour 4-53765
  - cyclic stress/strain relation and fatigue strength of α-phase, grain size depend. *(Japanese)* 4-82889
  - Debye characteristic temperature, rel. to ordering parameter, α-phase 4-44634
  - dezincification rate of β-brass in vacuum at high temp. *(Japanese)* 4-64579
  - dezincification test based on potentiostatic polarisation 4-49745
  - dezincified α-brass, concentration curve determ., comparison of methods 4-69935
  - elastic constants and pressure derivatives, α-brass single crysts., u.s. meas. 4-45621
  - elastic constants of α-phase solid solns. 4-67853
  - electronic density of states, X-ray photoemission spectra, β-phase 4-72690
  - fatigue life in high cycle region 4-67855
  - friction, external static coeff., temp. depend. *(Russian)* 4-67830
  - lattice thermal conductivity of cold-worked polycryst. α-phase rods and single crysts., 0.5-4K 4-44640
  - long-range order in β-brass, neutron diffr. obs. 4-64225
  - machinability, aqueous copper-ammonium complex solns. influence *(Russian)* 4-45601
  - mechanical properties of thin bands, estimation method *(Polish)* 4-64569
  - Morse potential appl. 4-44617
  - plastic stress/strain response in high cycle region 4-67854
  - Portevin-Le Chatelier effect, structural aspects, α-phase specimens 4-67802
  - quenched, annealing of secondary defects, α-phase 4-73299
  - recrystallisation micromechanisms in $\alpha+\beta$ specimens 4-76447
  - roughened surface, bidirectionally reflected thermal radiation analysis 4-82880
  - shape memory effect in β-brass, model 4-82838
  - slip band dislocations in α-brass, influence of athermal friction stress 4-57748
  - sputtering in glow discharge lamp., burnt-spots anal., investig. 4-55156
  - strain hardening, slip band generation at dislocation pile up 4-57750
  - stress corrosion cracking in aliphatic amine solns., α-phase specimens 4-49746
  - superlattice, long period formation in Cu rich γ-alloy 4-52720
  - superplastic deformation of 60/40 type, phase behaviour *(French)* 4-67806
  - Widmanstatten precipitate growth from β-brass 4-49724
  - work hardening, Ashby's model for polycrystal grain boundaries 4-57749
  - X-ray microanalysis in TEM of bulk and thin film specimens 4-77294
  - yield surfaces of M-63 brass prestrained by cyclic biaxial loading 4-61406

brass continued
  Young's modulus, Zn content depend., α-phase 4-79988
  α-CuZn, electronic struct., average-t-matrix approx. 4-53036
  Cu_5Zn_8, γ-brass type, cryst. struct. investig. 4-56647
Bravais lattice *see crystal atomic structure*
braze bonding *see brazing*
brazing
  see also soldering
  steel, stainless, brazed joints, high temp. creep rupture props. 4-45705
  vacuum, equipment and appl. as metal joining technique 4-57756
  Al waveguides, brazing seam form. during joining with Ga alloys *(Russian)* 4-80055
  Au-Mo-Ni filler, brazing of graphite, microstruct. of brazed joints *(German, English)* 4-49866
breakage *see fracture*
breakdown (electric) *see electric breakdown*
breakdown (mechanical) *see mechanical strength*
breakdown diodes *see avalanche diodes*
breaking strength *see mechanical strength*
breeder reactors *see nuclear reactors*
bremsstrahlung
  see also electron radiation; gamma-ray spectra; gamma-rays; X-ray emission spectra; X-rays
  absorbing medium, ultrarelativistic electrons, spectral-angular distribution *(Russian)* 4-77856
  atmospheric bremsstrahlung at satellite altitudes emitted by electrons, transport calcs. 4-64940
  beam spatial distribution, determ. by In^{115}activation *(Russian)* 4-51186
  coherent, by electrons and positrons in Si and Nb crysts. *(Russian)* 4-75554
  coherent surface effect for LEED or refl. high energy diffr. 4-44567
  Compton magneto-bremsstrahlung in charged cloud rel. to Crab Nebula 4-50719
  Coulomb multiphoton bremsstrahlung T-matrix in Glauber approx. in low freq. e.m. field 4-59232
  defect determ. by radiometric method, improvement using two-beam betatron 4-46918
  diffractive production in high energy hadronic interactions, bremsstrahlung model 4-63001
  dispersed bremsstrahlung of betatron 42 MeV *(Czech)* 4-58879
  electron, near nucleus located in stationary external field *(Russian)* 4-62967
  electron beam, pulsed, high-power, spatiotemporal distrib. meas. by new analysis method *(French)* 4-54868
  electron field, intermediate electron energies, Hode's formula evaluation for differential cross section 4-81385
  electron spectrometer, time-resolved, kinetic energy of intense, relativistic beams using bremsstrahlung spectrum 4-46889
  gamma-ray infinite medium buildup factors including bremsstrahlung contribution 4-81701
  graviton, high-energy, frequency and ang. distribs., total radiated gravitational energy 4-47209
  hadronic, of independently produced clusters, diffractive production on nuclei 4-71865
  high frequency limit of bremsstrahlung cross section, comment 4-74573
  inner, in nuclear zero-zero transitions, final state distrib. 4-55768
  inner-bremsstrahlung in e^+e^- pair creation in general nuclear transitions 4-81475
  laser produced plasma, X-ray emission spectra 4-66765
  magnetobremsstrahlung radiation at high energies, kinetics and integral characts. *(Russian)* 4-62968
  migma neutralised, radiation balance and electron temperature 4-69641
  monitor for high-energy beams following photodisintegration expts. 4-42899
  neutron stars, neutrino pair bremsstrahlung, finite nuclear size effects 4-65155
  nonrelativistic, from charged particle in nonlocal potential, soft-photon theorem 4-51694
  nucleon-nucleon collisions, theoretical aspects, review article 4-55661
  optical bremsstrahlung of relativistic electrons, effect of multiple scatt. on coherent radiation 4-77766
  photon particle intensity frequency functions determination 4-46828
  plasma, laser produced, fast electron meas. 4-44404
  pulsar magnetosphere, radio wave conversion of longitudinal plasmons 4-58398
  reflection by nonhomogeneous media, energy and ang. distrib. *(Russian)* 4-61252
  single crystal, due to relativistic electrons, interference max. suppression 4-79818
  spectra, 25 MeV linear accelerator, 19 MeV betatron expt. and calc. 4-71266
  spectra, thick target, experimental and theoretical comparison 4-42897
  strong interaction model, bremsstrahlung emission of pions from high energy nucleons 4-74664
  supernova early γ-rays from bremsstrahlung and inverse compton heated photons 4-46265
  ultrarelativistic electrons in atomic freq. range, medium effect *(Russian)* 4-69168
  variable intensity source, anal. for appl. to zero-g propellant gauging system 4-80981
  weighted cross section, two-body correl. in nuclei, ^4He, ^{16}O, ^{40}Ca 4-77969
  X-ray diagnostic generator production, computation 4-42932
  α-α bremsstrahlung cross sections, 11.5-13.5 MeV 4-43558
  e^+ beam prod. by high-energy bremsstrahlung 4-77161
  $e^+e^- \rightarrow e^+e^-\gamma$, standard QED analysis of Frascati data 4-62957
  e^+e^- pair prod. calc. in colliding electron beams *(Russian)* 4-66038
  $\mu^+\mu^-$ pair prod. in colliding electron beams, calc. *(Russian)* 4-66038
  $\pi^\pm p \rightarrow \pi^\pm p\gamma$, pion and proton bremsstrahlung, hard photon theorems 4-74660

bremsstrahlung continued
  Z boson, in muon-hadron collisions, total cross section, high energy asymptotes *(Russian)* 4-77845
  Al, electron scatt., atomic field bremsstrahlung, cross section coincidence meas. 4-59954
  Al, neutral atom, electron bremsstrahlung cross section calcs. 4-72085
  Au, electron scatt., atomic field bremsstrahlung, cross section coincidence meas. 4-59954
  Au, neutral atom, electron bremsstrahlung cross section calcs. 4-72085
  ^8Be, generation by bremsstrahlung γ-quanta, 1.5, 2.0, 3.0 GeV 4-59739
  H, atom, inverse bremsstrahlung excitation cross section 4-74892
  $^1H(p,p\gamma)$ bremsstrahlung cross section, double scatt. and Coulomb effects 4-78066
  $^{90}Zr(\gamma, \gamma)$, radiative widths of ground state transitions 4-59736
bridge circuits
  see also bridge instruments
  crack propagation gauge using Cu film sensor 4-50087
  differential temperature comparator having unmatched diodes 4-62430
  flowmeter, thermal, with constant heating power 4-74197
  thermometer containing Si diode *(German)* 4-68634
bridge instruments
  see also bridge circuits
  asymmetrical closed freq. system, nonlinear admittance meas. with large loss angle *(Polish)* 4-54977
  colour radiation pyrometer, linear current output 4-46593
  d.c. inductance bridge, supercond. current quantum phase meas. 4-62486
  detector and gate integrator for electrochem. meas., design 4-68007
  differential microcalorimeter, for interactions in disperse systems 4-65396
  exhaust analyser for internal combustion engines 4-71132
  gas temperature meas., high, rapidly changing, using electrically heated resistance probe *(Czech)* 4-54847
  Hall magnetometer, sensitive *(Spanish)* 4-46766
  modified Schering bridge for meas. of complex permittivity of liquids 4-68733
  tensile testing, superplastic materials 4-50064
  thermal coupling meas., using embedded heated wire 4-74016
  thermostatic controller, PID, self-optimising, indicating instrument incorporation 4-46591
  thin film internal stress meas. using capacitance bridge 4-42728
  transducers, signals from resistance thermometer conversions 4-50978
brightness
  see also sky brightness
  chromospheric surface brightness of visual continuum during 1970, March 7 eclipse 4-80484
  colorimetry, luminance representation in colour space design 4-54888
  Coma cluster of galaxies redshift-magnitude bands 4-46272
  comets, ageing and brightness decrease, instrumental effects 4-70948
  comets, brightness and unpredictability of bright nonperiodic objects 4-58280
  coronal brightness distrib. at 80 and 160 MHz, coronal helmets and holes 4-80497
  definition and meas., psychosensory and photometric aspects *(French)* 4-54910
  BY Dra conis-type star props. characteriz. *(Russian)* 4-73706
  Fabry-Perot axicon fringe brightness, azimuthal variations 4-68695
  flash source, EV-39, calibration 2.4 to 5.3μ, 20000K brightness temp. 4-58783
  full-form object, inherent contrast conditions 4-76681
  1620 Geographos, UBV obs., light curves and polarization 4-54440
  heterochromatic matching, effects of blur and overlap 4-65257
  hue discrimination, luminance contrast influence 4-76972
  isolated coloured lights, apparent brightness 4-58523
  l.e.d. radiant flux and brightness meas. instrument calibration *(Czech)* 4-51026
  M 2-9, brightness changes of peculiar planetary nebula 4-54580
  outer planet satellites, brightness var. rel. to planetary magnetospheres 4-54410
  perceptual scaling expts., classification of observer types 4-58534
  Periodic Comet Tuttle-Giacobini-Kresak (1973b), spectrographic obs. after brightness jump in July 1973 *(French)* 4-54443
  plastic sheets with metallic gloss, colour difference meas. 4-54911
  Population II Cepheids, luminosities and distance determ. 4-50564
  Rayleigh spectral radiance unit 4-77069
  Saturn's rings, optical thickness of rings A, B, D, and B ring structure 4-65097
  solar chromospheric network, time variations analysis using K_{232} spectroheliograms *(Russian)* 4-73615
  solar corona, photographic photometry during total eclipse, 1972, July 10 *(French)* 4-70909
  solar coronal brightness and electron density variations according to solar activity *(Japanese)* 4-54403
  solar eclipse of 1971, February 25 in Crimea, 10 cm wavelength obs. *(Russian)* 4-70889
  solar fine structure at 1.3 cm 4-58232
  solar type III bursts, brightness temps. relationship 4-70917
  spatial frequency response at low luminance 4-62302
  spectral radiance and irradiance standards, 0.25 to 2.5 μm *(Japanese)* 4-80889
  stellar apparent magnitudes in several catlogues and UBV system 4-46219
  surface colour saturation and luminance functions, expt. 4-58535
  thermal radiosource continuum spectra and brightness contours 4-58385
  underwater light field, brightness fluctuations *(Russian)* 4-83075
  vertical attenuation of irradiance, coefficients *(Russian)* 4-71501
  vision, brightness gradations number discernible by eye 4-71100
  vision contrast threshold, sine wave patterns 4-62297
  vision response defect 4-62311
  Westheimer effect, spatial interaction 4-62299
  zodiacal light intensity in 1969 Jan-1973 Jan period 4-54459

brightness continued
- Al coloured surface brightness, visual and tristimulus colorimeter meas. 4-54912
- CO_2, furnace emissivities investig., band model calcs. of spectral intensities 4-69488
- GaP high-brightness yellow and green LED display prod. by vapour phase epitaxy 4-49630
- KI:Tl, X-ray radioelectroluminesc. obs., brightness waves 4-79794
- Mg-$NaNO_3$, pyrotechnic flame, radiative transfer model for predicting spectral radiant flux 4-76597

Brillouin scattering *see Brillouin spectra*

Brillouin spectra
- acetone hypersonic dispersion and vibrational relaxation, 1 to 1000 atm., determ. by stimulated scattering 4-52818
- amorphous solids, model for Brillouin scattering 4-64383
- autocorrelation light scatt., effect of finite collection aperture 4-43252
- benzene hypersonic dispersion and vibrational relaxation, 1 to 1000 atm., determ. by stimulated scattering 4-52818
- diamond, elastic consts. determ. 4-56796
- fluid, shock-compressed, stimulated scatt. rel. to sound velocity meas. 4-54831
- glass systems of various fictive temps., config. changes 4-61150
- intensity fluctuations of Brillouin scatt. laser light from amplified vibr. waves 4-45292
- light scattered by ternary mixture 4-67578
- macromolecular solns., mol. weight determ. 4-48164
- metal, h.f. stimulated and spontaneous scatt. 4-72352
- paramagnetic crystal, stationary stimulated Mandelstam-Brillouin scatt. under a.p.r. conditions *(Russian)* 4-65944
- phonon phase velocity and attenuation interpretation, discussion 4-75574
- piezoelectric crystals, nonlinear interaction of light and longwave acoustic lattice vibrations *(German)* 4-45253
- plasma, h.f. stimulated and spontaneous scatt. 4-72352
- plasma, laser heated, stimulated backward Brillouin scatt. 4-44189
- plasma, laser produced, Brillouin backscattering and parametric double resonance 4-48425
- plasma stimulated Brillouin backscattering from laser produced plasma 4-72360
- polymer, amorphous, phonon vel. temp. depend. 4-70296
- stimulated Mandel'shtam-Brillouin scattering for broadband pumping case *(Russian)* 4-69096
- thiourea, elastic stiffness constants meas. by Brillouin scatt. 4-44585
- Ar, liquid, rel. to zero bulk viscosity 4-70298
- CS_2, liq., depolarised Brillouin spectra 4-57516
- CS_2 hypersonic dispersion and vibrational relaxation, 1 to 1000 atm., determ. by stimulated scattering 4-52818
- $Ca_2Pb(C_2H_5CO_2)_6$, Brillouin scatt. exam. of phase transition 4-79720
- CdS, obs. of off-axis acoustoelectric domains 4-44971
- CdS, with acoustoelectrically amplified phonon flux, time evolution of freq. spectrum 4-79719
- $Gd_2(MoO_4)_3$, anomalous damping of acoustic phonons near phase transition, Brillouin linewidth meas. 4-67588
- para H-He binary gaseous mixture, Rayleigh-Brillouin scatt., relax. time and transport coeffs. 4-43917
- HIO_3, elastic parameters determ., 20°C *(French)* 4-45280
- HfO_2 crystal, Mandel'stam-Brillouin light scattering 4-53394
- KCl, determ. of photoelastic consts., comparison with toluene 4-45270
- KH_2PO_4, ferroelec. transition, elastic anomaly, Brillouin scatt. obs. 4-49309
- KI, photoelastic consts. determ. 4-45270
- K_2O-B_2O_3-SiO_2 glasses, demixed, elastic and viscoelastic behaviour *(French)* 4-49338
- $LuAsO_4$, elastic consts. and Debye temp. determ. 4-72517
- $LuPO_4$, elastic consts. and Debye temp. determ. 4-72517
- $(NH_4)_2SO_4$, paraelec. phase near T_c *(French)* 4-67562
- NaCl, determ. of photoelastic consts., comparison with toluene 4-45270
- NaF, photoelastic consts. determ. 4-45270
- $NaNO_2$, phase transition regions 4-45288
- $PrAlO_3$, second order phase transition at 118.5K, soft modes 4-72572
- ZnSe, velocity and attenuation of injected GHz sound waves, Brillouin scatt. obs. 4-75578

Brillouin zones
- *see also band structure*
- base-centred monoclinic lattice *(Russian)* 4-72534
- critical temperature, superconductor rel. metal props., effect of Brillouin zones 4-69980
- crystals heat motion and phonon concept *(Norwegian)* 4-44609
- free electron-like conductors, approx. sum rule for de Haas-van Alphen freq., extended zone scheme 4-48896
- liquid crystal, cholesteric, Brillouin zone effect, sound wave propag. investigation 4-66827
- metal, f.c.c., b.c.c., h.c.p., geometrical plane wave parametrization, fermi surfaces 4-72682
- metal, white tin structure, lattice harmonics 4-69862
- multiple scattering by Dirac comb 4-73944
- rocksalt structures, ionicity as function of valence band gap 4-72695
- selection rules for indirect transitions, effect of time-reversal symm., full-group procedure 4-48903
- semiconductors, layered, perturbation treatment of electron-phonon interactions 4-56833
- special point sets, appl. to cubic and hexagonal Bravais lattices 4-44843
- tetragonal lattice, phonon dispersion law *(Russian)* 4-60560
- X-ray thermal diffuse scattering, intensity calc. *(Russian)* 4-60377
- zincblende structures, ionicity as function of valence band gap 4-72695
- Al, Born-von Karman force constant model 4-79111
- EuO, electronic energy band struct. investigation using APW method 4-67164
- α-Fe, Debye-Waller factors using lattice dynamical models, Brillouin zone contrib. 4-67005
- HCl, crystalline, lattice dynamics in low temp. phase for complete Brillouin zone 4-79115

Brillouin zones continued
- K_2CuF_4, two-dimensional ferromagnet, parallel pumping of Brillouin-zone-boundary magnons 4-76096
- $KTaO_3$, phonon energy at crit. points, press. depend. 4-60574
- $KTaO_3$, vibr. props. at Brillouin zone crit. points, differential Raman and fluoresc. meas. 4-61161
- MO, Debye-Waller factors using lattice dynamical models, Brillouin zone contrib. 4-67005
- MnO, group theoretical anal. of phonon spectrum 4-72539
- MoS_2, layer struct., rel. to anomalous effective mass 4-44840
- $(NH_4)Cl_{1-x}Br_x$, tetragonal phase, Raman spectra, obs. of acoustical peaks 4-49353
- Ni, Debye-Waller factors using lattice dynamical models, Brillouin zone contrib. 4-67005
- Pu, and alloys, rel. to evidence for antiphase type struct. 4-48754
- Sn, third and fourth zones, press. depend. of cross sections of isoenergetic surfaces *(Russian)* 4-72694
- $SrCl_2$, thermal vibr. amplitudes, Debye-Waller factors 4-72546
- $SrTiO_3$, soft transverse R-corner mode, central peak, hydrodynamic theory 4-67015
- V, lattice vibr. freq. distrib. in first Brillouin zone 4-72531
- W, Debye-Waller factors using lattice dynamical models, Brillouin zone contrib. 4-67005
- $Zn_xCd_{1-x}Te$, $0 \leqslant x \leqslant 1$, refl., 2.9-9,5 eV, energy gap determ. 4-82715

bristles *see fibres*

brittle materials *see brittleness*

brittleness
- *see also hydrogen embrittlement; mechanical strength*
- aeronautic materials testing, acoustic emission applic. *(French)* 4-73397
- alloy, liq. metal embrittlement, specificity concept 4-53766
- anisotropic materials, cubic equation, biaxial and triaxial normal stress interaction 4-63852
- boundary-value problem of brittle damage mechanics 4-60547
- α-brass, tensile ductility at intermediate temp., effect of strain rate *(Japanese)* 4-45628
- brittle fracture statistics, inverse formulation 4-60542
- brittle materials characterization 4-61432
- brittle materials seminar, USA (Oct. 1973) 4-61431
- ceramic, brittle fracture statistics 4-64692
- ceramic, K_{Ic} factors determ. with diamond saw cuts 4-73349
- ceramic, static strength testing, error sources 4-64691
- composite, fibre reinforced, fracture mechanics approach to failure 4-64633
- composite, particulate type, brittle fracture and failure criteria 4-49959
- crack morphology in relatively brittle materials 4-63853
- crack propagation, Japanese studies review 4-48692
- cylindrical solids, failure under thermal loading 4-64675
- dynamic strength theory 4-63854
- electrodeposit, inspection of embrittlement by acoustic emission 4-67972
- electron channelling patterns applic. to embrittlement studies 4-80012
- explosion induced fracture of solids, theory 4-48678
- fracture dynamics, wave fractographic investigs. 4-48677
- fracture mechanics, generalized theory 4-60544
- Hertzian ring cracks initiation and propag., fracture toughness eval. 4-64698
- high temperature embrittlement, He injected Zircaloy-4 4-81617
- Homalite-100 sheets, crack branching 4-67936
- metal, cavitational surface failure *(Russian)* 4-53718
- metal, influence of electron irradiation, review *(Russian)* 4-80019
- metal, static eval. of strength, effect of temp. 4-61461
- metallic glasses, mech. characts. 4-76453
- microhardness measurement in liq. metal media 4-61561
- nonductile pipe, strength determ. device 4-67974
- plastic metals, embrittlement by melts of low-melting metals 4-61449
- PMMA, biaxial orientation effect on physicomech. props. 4-45812
- PMMA, crack acceleration meas. 4-50035
- PMMA, fixed boundary fracture model, vel. characts. 4-50034
- polyaxial stress states, Weibull statistics 4-49899
- polyethylene film, low-density, brittleness criterion 4-64639
- polymer, lens formation, uniform impact loading, shape and Poisson's ratio relationship 4-80095
- polymer, vitreous, relax. theory of fracture *(German)* 4-82979
- porous materials, model for strength 4-64604
- pyroceramics, microbrittleness determ. 4-49880
- rock, brittle crack growth under uniaxial compression 4-50248
- rupture toughness testing of brittle materials 4-67971
- shape factor of specimen rel. to time depend. of brittle strength 4-80133
- steel, alloy type, temper mechanism 4-82906
- steel, austenitic Cr-Ni and Cr-Mn, low temp. strength and ductility 4-80030
- steel, austeno-ferritic Cr-Ni-Mo type, hot embrittlement, coated electrode tests *(French)* 4-49801
- steel, brittle-ductile transition, temp. depend. of fracture energy and microfractography applic. limits *(Russian)* 4-53715
- steel, cast structural, cold resistance after heat treatment 4-61436
- steel, cold shortness threshold and impact strength *(Russian)* 4-76461
- steel, crack propagation resistance decrease by embrittlement, stress wave attenuation test 4-49857
- steel, crack-branching meas. applics. 4-49859
- steel, embrittlement and recovery, boron effects *(French)* 4-45690
- steel, embrittlement during plastic deform. *(Russian)* 4-53745
- steel, fatigue and brittle failure at low temp. 4-61451
- steel, ferritic, stabiliser influence on heat-affected zone props. *(French)* 4-49800
- steel, ferritic chromium, 475°C embrittlement influence on u.s. attenuation and elastic modulus *(German)* 4-64580
- steel, ferritic-pearlitic, rupture resist. and low-cycle fatigue correl., real structs. 4-49824
- steel, fracture by intergranular microvoid coalescence, comp. and heat treatment depend. 4-45680
- steel, high-strength, cooperative relation between temper and hydrogen embrittlement 4-82908

brittleness continued
- steel, irreversible temper brittleness 4-45697
- steel, low-alloy, cold brittleness, effect of microheterogeneities 4-82928
- steel, low-C, with rare earth metal inclusions, cold resist. and ductile-brittle transition temp. 4-82915
- steel, maraging, heat treatment conditions effect on microstruct. and mech. props. 4-80027
- steel, medium-C, fracture surfaces and brittle fracture resist., B influence *(Russian)* 4-53714
- steel, mild, deform. processes during cracking due to static and pulsating tensile stresses *(German)* 4-53705
- steel, mild plate, plastic flow at crack apex influence on transition to brittle condition 4-61467
- steel, neutron irrad., tolerable embrittlement, crack arrest temp. and stress wave attenuation 4-49856
- steel, plate and submerged arc weld, irrad. strengthening and fracture embrittlement 4-45716
- steel, pressure vessel type, damage-function analysis of neutron induced embrittlement 4-45722
- steel, radiation strengthening and impurity-defect interactions 4-45721
- steel, reactor vessel, brittle rupture, prevention methods *(French)* 4-74790
- steel, spring wire, ductility drop after low temp. tempering 4-82920
- steel, stainless, 17%Cr, vanadium effect on 475°C embrittlement 4-64583
- steel, stainless, ferritic and austenitic, high temp. fast neutron embrittlement 4-43670
- steel, stainless, high-purity ferritic, high temp. props. 4-57746
- steel, stainless, high-temp. embrittlement, helium distrib. and grain size effects 4-43643
- steel, structural, irrad. embrittlement sensitivity, comp. effect 4-45718
- steel, structural, phosphorus effect on mech. props. 4-82926
- steel, structural, radiation-induced changes in fracture extension resist. 4-45717
- steel, structural, susceptibility to reversible temper brittleness 4-76490
- steel, temper brittleness and grain boundary etching 4-64552
- steel sheet, brittle crack formation, grain size effect 4-64589
- stress corrosion cracking, fluid flow in propagating crack analysis 4-82911
- stress pulses relation to brittle fracture, review of recent work 4-49858
- thick-walled structural elements, internal stresses and brittle fracture under tensile load *(German)* 4-45583
- three-dimensional solid bodies weakened by cracks, strength determ. *(Russian)* 4-44594
- torsional strength under hydrostatic press., stat. approach *(Japanese)* 4-79094
- Al alloys, embrittlement by liq. Ga and brazing of waveguides *(Russian)* 4-80055
- Al/steel wire reinforced, mech. props. and brittleness *(German)* 4-49935
- β-B, rhombohedral, abrasive power and grain strength 4-49909
- Cd, embrittlement in presence of Hg, twinning influence *(Russian)* 4-53732
- Co-Fe-Ni-Al-Ti alloys, annealed, titanium effect on β and β_2 phase props. 4-61441
- Cr, deformed iodised, mech. props. *(Russian)* 4-80016
- Cr, recrystallised, rare earth metals effect on struct. and mech. characts. 4-80025
- Cr and alloys containing rare earth metals, carbide forming elements influence on mech. props. *(Russian)* 4-80015
- Cr-rare earth (0.5-5.0%) alloy, influence of alloying element *(Russian)* 4-80022
- Cr-TaB(TaC) dispersion strengthened alloys, comp. and thermomech. condition effects on mech. props. 4-80010
- Cu, grain boundary cohesion, effect of dilute additions of Bi 4-49805
- Cu, polycryst., tensile ductility at intermediate temp., effect of strain rate *(Japanese)* 4-45628
- Cu-Sb and Cu-Sb-B solid solns., cold-shortness *(Russian)* 4-73295
- Fe, cast malleable, phosphorus effect on cold brittleness 4-82917
- Fe, radiation strengthening and impurity-defect interactions 4-45721
- Fe-Co, brittle to ductile transition, non-stoichiometry and V addition influence *(French)* 4-67801
- Fe-Co-V alloys, mag. and mech. props. correl. with microstruct. 4-80014
- Fe-Cr and Fe-Cr-Co alloys, phase decomp. and 475°C embrittlement *(Japanese)* 4-45501
- Fe-Ni-Al alloy, tensile fracture rel. to microstruct. 4-45571
- Fe-P solid solns., reversible temper brittleness and phase transform. in adsorption layers at boundaries *(Russian)* 4-73315
- Mo, vacuum-melted, annealing temp. and addition effects on struct. and mech. props. *(Russian)* 4-45709
- Mo-C, cast and recrystallised, effect of alloying with Fe, Ca, Ni, Ir, mechanical props. 4-82948
- Mo-Re (15at.%) alloys, brittle fracture surface exam., plasticity 4-70492
- Mo-Re alloys, electron beam melted, rhenium effect on mech. props. 4-45651
- Mo-Zr (0.2 wt.%) alloy, small boron additions effect on mech. characts. 4-76478
- $NH_4H_2PO_4$, whisker cryst., 70°C brittle-plastic transition, dislocations influence *(Russian)* 4-72664
- Ni alloys, intergranular embrittlement by sulphur, Auger spectra obs. 4-76505
- Ti-Al-Zr-W-Si alloy, creep resist. and embrittlement 4-64551
- TiC, TiC-Co, TiC-Ni and TiC-NiCr, fracture mechanics, statistical analysis and fractography 4-67919
- W, coated wire 4-82944
- W alloy, electron beam melted low-alloy, mech. charcts. and recrystn. 4-76477
- W-C alloys, struct., fracture type and ductile-brittle transition temp. 4-76489
- W-Re-Hf-C alloys, comp. effects on mech. props. 4-80003
- WC and WC-Co, fracture mechanics, statistical analysis and fractography 4-67919

brittleness continued
- Zn, embrittlement in presence of Hg, twinning influence *(Russian)* 4-53732
- Zr_3Al-based alloys, oxidation process in CO_2 and CO_2-water vapour mixtures 4-82951
- ZrO_2, partially stabilized with CaO, thermal shock structures 4-49896

broadband amplifiers *see wideband amplifiers*

broadcasting
- *see also radio broadcasting; television broadcasting*
- educational, conference, London, England (July 1974) 4-58674
- educational, continuing role 4-58681
- studios, noise insulation and isolation 4-50916

bromine
- atom, collisional excitation, autoionisation, autodetachment of Br^- 4-78361
- atom, electronegativity from microwave spectra 4-74953
- atomic electron impact ionization cross-section for M shell meas. by Auger spectroscopy 4-63368
- crystalline, spontaneous and stimulated Raman scatt. obs. 4-67581
- determination in water by X-ray spectrometric method 4-54342
- diffusion in inert gases 4-52333
- impurities, CdS and ZnSe single cryst., thermal neutron activation 4-73264
- ion collisions, molecular orbital K X-ray spectral yields 4-52114
- isotope separation, laser selective photochemistry of Br_2+HI system 4-68020
- liquid struct. by neutron diffr. obs. 4-72420
- molecule, cross section for $1\rightarrow0$ vibrational transition *(Russian)* 4-52266
- molecule, long-range interaction consts. determ. using [1, 0] Pade approximant 4-63499
- molecule, rot. analysis, Franck-Condon factors and long range pot. in $^3B_{0u^+}$ state 4-60038
- molecule + alkali metal atom (50-350 eV), ionising collisions 4-78527
- molecule in solution, mag. circular dichroism, overlapping $0_u{}^+(^3\Pi)$ and $^1\Pi$ bands 4-67599
- reactions with cyclohexane, carbon tetrachloride, radiative neutron capture, IT isotope effects 4-50181
- solid, intermol. pots. and lattice dynamics 4-79119
- $Ba+Br_2=BaBr_2{}^*$, chemiluminescence 4-73413
- $Br+H_2$ collisions, electronic to vibr. energy transfer, quantum reson. effects 4-81807
- Br + HBr system, Monte Carlo quasi classical trajectory study, energy transfer, kinetics 4-73423
- Br^- ion, in molten, $KNO_3+Ca(NO_3)_2$, diffusion coeff. meas., transport props. investig. 4-52920
- Br^* + HBr(HCl), laser excitation, electronic-to-vibr. energy transfer, i.r. emission obs. 4-51979
- Br_2 quasimolecule, X-ray emission 4-52113
- $Br_3{}^-$ ion, σ-bonds investig., reson. integrals calc. 4-66385
- $^{79}Br_2$, $^{81}Br_2$, hyperfine spectra near 633 nm, saturated absorpt. method 4-72175
- CdTe:Br, self-compensation, time of flight technique 4-72761
- CdTe:Br transport characterisation for γ detectors 4-46816
- Fe:Br, single crystals, ^{81}Br location, angular distrib. calcs. and channelling technique 4-56766
- $^3He(Br_2)$ filled Geiger counters for slow neutrons, efficiency and γ sensitivity 4-81018
- $K+Br_2$ system, harpooning elementary processes, model calcs. 4-50138
- $KI:Na^+$, $Cl^-(Br^-)$, far i.r. spectra, localised pair modes investig. 4-70333
- Kr-Br discharge, Kr metastable atomic state population 4-81721
- $Li+Br_2\rightarrow Li^+$, dynamics of electron transfer collisions, up to 14 eV 4-78372
- $Ne+Br_2$, discharge atomic state population of Ne metastables 4-56026

bromine compounds
- BrCN, vacuum u.v. photolysis, energy partitioning in photodissociation and photosensitization 4-61633
- BrCl, i.r. Raman scatt. parameters 4-56249
- $BrCl_2{}^-$ ion, σ-bonds investig., reson. integrals calc. 4-66385
- BrCn, mol. photodissoc., predissoc. investig., quantum mech. model 4-75021
- $BrO_3{}^{2-}$, mol. motion in X-irrad. $KBrO_3$, e.p.r. 4-79597
- $BrO_3{}^{x-}$, X-ray electron spectra, valency levels *(Russian)* 4-45371
- $Br^{16}O_3{}^-$, $Br^{18}O_3{}^-$, normal coord. analysis, mean vibr. amplitudes 4-52106
- $^{79}Br^{35}Cl$, $^{81}Br^{35}Cl$, $B^3\Pi(0^+)\leftarrow X^1\Sigma^+$ band system, rot. vibr. anal. 4-47995
- $KBrO_3$, $KNO_3:BrO_3$, X-irrad., e.s.r., nature of Br containing species 4-57356

Brownian motion
- *see also colloids*
- coupled harmonic oscillator assemblies Brownian motion in limits of generalized Langevin eqns. 4-55378
- diffusion, two dimens. 4-74418
- dilute gas, persistent velocity correlation effect 4-60148
- effects, high voltage electron microscopy 4-68826
- ferromagnetic particle suspension, mag. viscosity tensor *(Russian)* 4-79555
- Fokker-Planck approximation for collisional relaxation of atomic and molecular systems 4-62751
- Gaussian model, probability distribs. and diffusion 4-74419
- Gaussian white noise, average powers, limit theorem 4-51306
- hard sphere fluid, mol. dynamics calcs. of Brownian motion onset, binary collision rates calc. 4-51464
- heat-conducting liquid, velocity correl. function, theory and appl. to Na and Ar *(Russian)* 4-81242
- hot particle in dense medium 4-55376
- isotopic impurity particle in linear diatomic chain 4-43187
- Langevin, equation based on hydrodynamic models, limitations 4-43176
- Langevin equation, generalized, random integral eqn. formulation 4-62745
- light, doubly scattered, autocorrelation function 4-47308
- liquid spectra, influence on intermolecular energy transfer 4-49331

Brownian motion continued
local irregularity, function analysis *(French)* 4−47223
macromolecule adsorption, computer simulation 4−52988
metal surface, Brownian motion friction parameter of ion 4−68025
molecule, rot. Brownian motion rel. to fluorescence intensity fluctuations 4−63448
molecules, spherical-top, undergoing rot. Brownian motion, n.m.r. relaxation rates 4−48099
molecules in liquids, anisotropic ESR parameters averaging 4−68956
nitroethane-iso-octane, critical mixture, Brownian motion of Teflon particles, K-depend. diffusion 4−80147
nitroethane-isooctane critical mixture, suspended teflon particles, light scatt., Brownian diffusion constant 4−44692
paramagnetic molecules, tumbling in liq. orientation depend. spin density matrix 4−53318
permeation through thin membranes, mol. model, effect of hydrodynamic interaction 4−81969
polar liquids, Debye dielectric relaxation theory, rotational Brownian motion of sphere 4−82096
rotation, review of theory, methods of testing, inertial effects 4−62746
solid, rate theory, classical Brownian motion model 4−79184
solid, rate theory, quantum Brownian motion model 4−79185
spherical molecules, circularly polarised fluoresc. investig., relax. mechanism 4−70346
surface chemical reaction model, infinite mass limit 4−54081
trajectory behaviour of functions *(French)* 4−43174

Brownian movement *see Brownian motion*

brush discharges *see discharges (electric)*

bubble chambers
application to prebreakdown phenomena obs. in diethyl ether 4−61106
bubble chamber data, automatic processing problems 4−51161
CERN, refrigerating systems 4−77197
CERN, systematic and random error investigation 4−55080
computer scanning, conference, Oxford, England (April 1974) 4−77258
c.r.t. display for use with SATR bubble reconstruction and track following routines 4−81013
cryogenic, protection from contamination by solidified gases 4−77053
data, methods of measurement and initial processing, review 4−51161
data analysis, Brussels POLLY system 4−77219
data analysis, hardware description for NAL SAMM device 4−77217
data analysis of BEBC film, report on ERASME system 4−77216
data recovery, programming techniques for NAL SAMM device 4−77218
data reduction, performance report on Toronto POLLY 4−77208
data reduction operation, automatic film measuring apparatus KAMA 4−77209
data reduction operation, c.r.t. scanning devices AELT-1, AELT-2 4−77210
data reduction operation, experience of M.I.T. PEPR system 4−77203
data reduction operation, general description 4−77201
data reduction operation, Nijmegen PEPR I performance 4−77204
data reduction operation, production report on Washington Univ. vertex guidance system with PEPR 4−77207
data reduction operation, programmed controller for c.r.t film scanner 4−77211
data reduction operation, resolution improvement for flying spot digitizer 4−77212
data reduction operation, status report of Purdue POLLY 4−77206
data reduction operation, status report on PEPR and POLLY systems 4−77202
data reduction operation, technical developments in Oxford PEPR system 4−77213
data reduction operation, Univ. of Maryland PEPR system 4−77205
data reduction operation, use of satellite processor in Oxford PEPR system 4−77214
film analysis, performance of Padova PEPR system 4−77224
film measurements, TV system incorporation into PEPR hardware 4−81012
gas, applic. to prebreakdown phenomena in liquids 4−82654
giant, meas. of 12 foot film using ANL POLLY III 4−77220
ionisation meas. with PEPR-I, p, π and K track identification 4−74136
ionisation measurements with PEPR-I machine 4−77215
MIR, scanning and measurement tables for large chambers 4−46865
MIRABELLE, c.r.t. device for picture analysis 4−77221
Mirabelle, software for c.r.t. system for picture analysis 4−77222
NAL 30 in hydrogen bubble chambers strong interaction expts. 4−69189
photography, appl. of holographic particle sizing technique 4−74073
picture analysis, new PEPR system 4−81010
picture analysis, track following in agreement signal analysis mode 4−77223
picture scanning, half-automatic measuring (HAM) device 4−81011
picture scanning and measurement, automatic machine using TV device 4−77225
pictures, vidicon read-out system 4−77227
track measurements in 1-20 GeV/c range using Sweepnik system 4−55076
H track-sensitive target in Ne-H bubble chamber, geometrical reconstruction of events 4−55075
Ne concentration variation monitoring with $\pi^+ \to \mu^+ \nu$ decay 4−42906
Ne/H mixtures, bubble growth and density meas. 4−46867

bubble nuclei *see nuclear density*

bubble point *see boiling point*

bubble points *see bubbles*

bubbles
see also foams
acoustic transmission loss, ocean meas., choice of explosive source, processing filter 4−77034

bubbles continued
acoustic wave interactions, effect in nonlinear dispersive medium 4−80788
acoustic wave propagation nonlinearity due to uniformly distributed air bubbles *(Russian)* 4−52510
air, in water, damping, from desinent threshold for subharmonic-$^{1}/_{2}$ 4−78691
air, in water, drag coeff., Reynolds number 2-40 4−66656
air, liquid film formed behind bubble in sloping channel 4−52497
air, three-phase fluidised bed, rising vel. 4−78690
air bubble formation in water, glycerine, glycerine-water systems, heat transfer 4−56443
air bubbles in Newtonian fluid, enveloping water layer effect on rise time 4−66660
antifoam agent effect on bubbly flow 4−52495
boiling, bubble detachment frequency, size depend. 4−44127
boiling heat transfer on nonwetted surface 4−48361
cavitating bubble stream, dynamic behaviour and compliance 4−48364
cavitation, studied using high speed cinematography *(German)* 4−72341
collapse in viscous liquid, surface tension determ. 4−60679
cooling, hot gas in liquid, numerical anal. 4−48358
deformable, motion in liquid, asymptotic soln. *(Russian)* 4−52503
dewar, bubble no. reduction in liq. N_2 4−77055
disperse one-component system, charact. function modification 4−62766
drag in water-glycerol mixture, periodic wake 4−60246
fluctuation velocity of bubbles and solid particles, electrode reaction expt. *(Japanese)* 4−48362
fluidised bed, gaseous, heat transfer during bubble form. 4−52505
fluidised bed, large particle fluidisation bubble eruptions 4−60244
fluidised bed, model for bed-wall heat transfer 4−44110
in fluidised bed, press. distrib. 4−66657
fluidised bed, three-phase, bubble break-up 4−52498
fluidised bed, wall effects in point probe meas. of radial bubble distrib. 4−48353
fluidised beds, gas flow, two-phase theory 4−48352
froth flotation rate distributions, numerical inversion of Laplace transform 4−48356
fuel-coolant interaction, bubble expansion and collapse with jetting 4−56445
gas, in water, mass transfer, surfactant influence 4−60245
gas, liquid metal interaction at high temperatures reviewed, rel. to process metallurgy 4−67744
gas, mixed in aqueous electrolyte, interfacial area and mass transfer simultaneous meas. 4−68853
gas, non-Newtonian fluid, external sound induced fluctuations *(Russian)* 4−60250
gas, translating, in liq., instability under effect of pressure step 4−60255
gas bubble, expanding reaction force of liquid 4−66658
gas bubble-liquid mixture, shock waves, relaxation effect due to relative bubble motion 4−81960
gas-filled, collapse near boundaries 4−72343
gas-fluid dispersion, size, distrib. investig. in acid/alcohol system by photographic technique *(German)* 4−44123
gas-liquid, flow pattern correls. 4−63616
gas-liquid nozzle, dynamics of bubble-type flows 4−48360
growth and density in cryogenic bubble chamber with Ne/H mixtures 4−46867
growth by mass transfer, radial convection effect 4−52506
heat and mass transfer, criterion eqns. 4−56442
laminar pipe-flow resistance of liquid with gas bubbles *(German)* 4−63520
laser beam heating applic. to single bubble nucleation and growth obs. 4−52504
liquid metal, flow at heated wall, random walk theory 4−44131
liquid metal, incipient, superheat, slug-annular regime 4−44136
liquid-bubble system, two phase, shock wave propag. exam. 4−78633
low Reynolds number bubbles, fluidised beds 4−81959
mass transfer from gas bubbles in liquid, influence of surface-active agents 4−52499
mass transfer in laminar flow 4−44121
metal, superheat effect on nucleation, dynamic boiling 4−44662
metal, superheating, nucleation mechanism 4−44663
in nonuniform pressure fields, dynamics 4−78699
nuclear reactor boiling channels, systematic errors in discrete time-interval transmission method for void statistics estimation 4−81563
nuclear reactor primary containment, dynamics of HCDA bubble 4−78184
oscillating in size ultrasonically and moving along pressure gradient, dynamics rel. to viscosity *(Russian)* 4−52511
oscillation of gas-filled spherical cavity in viscoelastic polymeric media *(Russian)* 4−56448
oscillations, simultaneous excitation of surface waves and subharmonics, thresholds 4−78692
pressure beneath a growing rising bubble 4−44120
propylene glycol, superheated, bubble nucleation by fission fragments and fast neutrons 4−52878
quartz glass, effect of gas saturation rel. to density of disperse silica 4−53798
response to underwater sound, subharmonic 4−54756
spherical, rising in dilute surfactant solns. 4−56446
spherical cap, rise time at intermediate Reynolds number 4−60248
stability in fluidised beds investig., growth rates, wavelengths for disturbances predicted 4−44125
stationary motion of fluid particles *(German)* 4−52501
in subcooled heated channel, vapour bubble motion 4−52496
surface shape, surface tension calc. using max. press. 4−52980
surfacing in electroconductive liquid, longitudinal mag. field *(Russian)* 4−63617
underwater explosion, hydrodynamic models of ‘sultan’ 4−81914
unsteady potential flow past group of spheres 4−78687
vapour bubble collapse in subcooled water 4−48355
viscoelastic liquid, bubble pulsation and cavitation, theory 4−52509
in water, collapsing, causing aerating of gassy liquids by ultrasonic fields 4−78697

bubbles continued
water, superheated, bubble nucleation by fission fragments and fast neutrons 4−52878
Ar, in water, damping, from desinent threshold for subharmonic-$^1/_2$ 4−78691
CO_2 bubbles in Newtonian liquids, mass transfer 4−48357
H_2, in water, damping, from desinent threshold for subharmonic-$^1/_2$ 4−78691
He, in Al, coalescence 4−70498
He, in water, damping, from desinent threshold for subharmonic-$^1/_2$ 4−78691
^{4}He liquid, electron bubbles, dynamics and field emission 4−79214
N_2, in water, damping, from desinent threshold for subharmonic-$^1/_2$ 4−78691
Na, incipient boiling superheats 4−44664
Na, reactor coolant, local boiling, hydraulic model 4−43626
O_2, in water, damping, from desinent threshold for subharmonic-$^1/_2$ 4−78691
UO_2, swelling under conditions of gas release, coalescence of fission gas bubbles 4−78257

buckling
annular plate, postbuckling analysis 4−51313
annular plate reinforced with surrounding edge beam, stability 4−77439
antisymmetric, for lateral vibrations of hanging pendular beams *(Rumanian)* 4−55269
antisymmetrically laminated angle-ply rectangular plates 4−43130
axially compressed cylinder, buckling stresses 4−74326
beam, variably loaded, lateral stability, transfer coeffs. *(Italian)* 4−71331
bearing capacity of plates and shells edge loaded by distributed moments, lower bounds 4−59187
biaxially loaded longitudinally stiffened composite structures, elastic stability 4−47067
circular cylindrical shell, under circumferentially varying edge loads, approx. stability analysis 4−43072
coincident buckling systems, imperfection sensitivity 4−65679
composite, fibre reinforced, microbuckling compression failure 4−49953
conical shell, hydrostatically loaded, buckling analysis by collocation method 4−47069
cross-ply rectangular plates, unsymmetrically laminated 4−53821
curved anisotropic plates, transverse vibrs. rel. to stability 4−53823
cylinder, onset of necking under uniaxial tension, bifurcation analysis 4−43087
cylinders with random imperfections, externally pressurized, asymptotic anal. 4−43089
cylindrical shell, dynamic buckling under impulsive loading 4−77436
cylindrical shell, internal press. axially loaded, stress/strain state 4−55261
cylindrical shell, shear compliant, connected with elastic foundation, stability, nonlinear approach 4−77424
cylindrical shell subjected to torsion, dynamic stability, energy method of analysis 4−59112
elastic bar in longitudinal impact *(Russian)* 4−74328
elastic body, lower bounds for buckling loads and fundamental freqs. 4−74324
elastic plate under longitudinal impact 4−81187
elastic stability, general theory, book 4−59145
elastic structure, generalisation of Van der Neut's engineering approach 4−51366
elastically restrained circular plates, lateral vibr. and stability relationship 4−47119
glass reinforced plastic cylindrical shells, creep buckling 4−45776
glass reinforced plastic cylindrical shells in axial compression, buckling mode and crit. load 4−45784
glass reinforced plastic shells, initial imperfections and buckling modes under hydrostatic press. 4−53841
graphite, transverse buckling effects on discrete and pseudo models of neutron waves 4−71973
heavy water pressure tube and light water thermal reactors, material buckling role 4−63242
Hostaphan, cylindrical tube, prediction from natural frequency 4−57797
imperfect elastic structures, flexural-torsional buckling 4−51368
linearly viscoelastic structures, flexural-torsional buckling 4−51368
membrane, deformable, laminary boundary layer stability 4−48243
NDT, force/stiffness technique 4−50103
orthotropic circular plates, buckling analysis 4−51314
orthotropic sandwich cylinders, axial compression and bending, analysis 4−74320
panel, cylindrical, under longitudinal impact 4−81187
plate, magnetically soft, magnetoelastic buckling 4−65686
plate assemblies under combined loadings, anal. of buckling and vibration 4−51361
plate problems, irregular mesh finite difference approximation applic. 4−59202
plates, rectangular, multiple buckled states 4−74317
polymer rod, creep stability theory applic. 4−80129
post-buckling behaviour of thin plates and shells 4−59201
postbuckling, unsymmetrically layered anisotropic rectangular plate 4−74325
postbuckling behaviour of structures, finite element analysis 4−47066
rectangular orthotropic plate, dynamic buckling analysis 4−47070
rod, rotating, comment on previous paper 4−77448
sandwich caps, static and dynamic buckling anal. 4−77447
sandwich panels, shallow, imperfection sensitivity 4−59193
sandwich plates on longit. elastic line supports, compressive buckling 4−47104
shell, nonlinear elastic material, symmetrically loaded, mode of buckling *(Russian)* 4−81177
shell, pressurized cylindrical, nonlinear behaviour analysis 4−47103
shell, shallow spherical, dynamic buckling 4−81170
shell, under initial stress, force-displacement matrix eqns. 4−47117
shells with geometrical imperfections, incremental variational method 4−59198
stability analysis, of shell-like structures, by complementary energy 4−59199

buckling continued
steel, tubular specimens, stresses involved in tearing *(German)* 4−45875
stiffened panels, flat, buckling and failing stresses 4−47105
test rig design for combined loading of circular plates and shallow shells 4−61554
thin-walled sections, instability analysis 4−71336
toroidal shells under axial tension, asymmetric buckling 4−81152
vibration, non-linear approx. to Duffing eqn. 4−81191
viscoelastic rod, Euler stability under longitudinal compression force *(Russian)* 4−47089
Al alloy cylindrical shells, integrally ring stiffened, buckling under axial compression 4−82885
Al alloy rod, with large length/diameter ratio, buckling failure modes on rigid plate impact 4−49861
Be, transverse buckling effect on discrete and pseudo modes of neutron waves 4−71973
Zn, single crystal, kinking and buckling, h.v. electron microscopy meas. 4−82178

budgeting
sequencing and scheduling problems, dynamic programming theorem 4−58124

building
see also architecture; civil engineering
cavity masonry walls, direct and flanking sound transmission, resilient filling effect 4−68573
noise standards for dwellings, prediction 4−68574
roofing products manufacture, hydrocarbon emission control 4−50904

bulk density *see density*

bundling *see packaging*

Burgers vector *see dislocations*

burning *see combustion*

burnout *see combustion*

bus conductors (electric) *see busbars*

busbars
e.h.v. substations, crossing bus conds., field intensity calc. *(Russian)* 4−55419

BWT *see backward-wave tubes*

C invariance
charge superselection rule, proposed experiment using space-separated superconductors 4−77776
charge symmetry and neutral current unified model of weak and electromagnetic interactions 4−81405
inclusive reaction central region sum rule derivation from charge conservation, Regge couplings 4−59656
Mueller-Regge models for inclusive pion data in central region 4−59653
orthopositronium decay into four photons, test of charge-conjugation invariance 4−81412
strong interactions, search for violation in Coulomb energy shifts of A = 18, 42 nuclei ground states 4−55760
K° semileptonic decays, charge asymmetry, measurement of K_l-K_s mass differences 4−77810
ν, ν inclusive scattering, tests of charge symmetry and scaling 4−47488
ν-induced deep inelastic reactions, charge symmetry and isospin constraints on pion multiplicities 4−55605
$\nu_\mu(\nu_\mu)N \rightarrow \mu^-(\mu^+)$ + hadrons, high energy, scaling variable distribs. C invariance test 4−81406

cable insulation
see also insulating oils
d.c. aged mass-paper, field strength calc. *(German)* 4−55420
low temperature miniature cables for use at 4 K 4−42759
oil-paper film, dielectric response and electrical cond. 4−45250
plastic, radiation resistance tests 4−48643
polyethylene, cross-linked, stress distrib. and J-F characteristics under d.c. voltages, calc. *(Japanese)* 4−48989
polythene, dielectric strength, testing *(German)* 4−45248
solid dielectric comparative properties 4−49967

cables (electric)
see also power cables; superconducting cables; telecommunication cables
low temperature miniature cables for use at 4 K 4−42759
twisted cable cct., electromagnetic field 4−43228

cadmium
atom, photoemission spectra, initial-state configuration-interaction satellites investig. 4−81705
atom and ion, diffusion in Ar plasma 4−52551
creep, low stress, obs. of grain boundary diffusion, 207-309K 4−53760
creep, single crystal effective shear stress 4−61408
diffusion in $CdGeAs_2$, glassy and cryst., temp. depend. and activation energy 4−56913
diffusion in glassy $CdGeAs_2$, temps. near onset of crystn. 4−56914
diffusion in Sn, substitutional-vacancy mechanism 4−44707
doppleron propagation in inclined mag. field 4−79376
effect on halophosphor synthetic reaction kinetics *(German)* 4−49464
elastic constants, bonding force calc., lattice symm. and electron distrib. correl. *(Russian)* 4−66850
electric field gradient sign determ. by PAC technique 4−61081
electron impact spectra, obs. of charact. energy loss peaks 4−61267
embrittlement in presence of Hg, twinning influence *(Russian)* 4−53732
e.p.r. in X-irrad. borate glasses, g-tensor distrib. and anisotropy *(French)* 4−61026
friction, external static coeff., temp. depend. *(Russian)* 4−67830
Hall resistivity, temp. depend., mechanism 4−60787
ion bombardment, I beam, cross section for K X-ray production 4−45395
liquid, density, pycnometric method *(Polish)* 4−67743
liquid, electrical resistivity using modified perturbation theory 4−79330
photoelectron spectra, high resolution valence band, adsorpt. effects 4−53573
proton-enhanced diffusion in InSb, theory and expt. 4−49590

cadmium continued

- residual electrical resistance, grain boundaries influence *(Russian)* 4−73289
- sound velocity, quantum oscills., up to 70 kOe, $1.5K \leqslant T \leqslant 4.2K$ 4−79276
- spin orbit energy gap, induced torque data 4−64013
- strain rate sensitivity, polycrystal versus single crystal, grain size depend. 4−61446
- surface, spreading of Hg under cathodic polarisation conditions 4−64712
- trace element determ. using high yield e.m. isotope separator and neutron activation 4−46958
- trace metals in crude oil determ. by nonflame atomic absorption spectroscopy 4−77284
- transverse magnetoresistance obs. at 4.2K of filamentary crysts. 4−57080
- vacancy clusters in splat-cooled Cd, small angle X-ray meas. 4−79928
- vapour, $M_{4,5}N_{4,5}N_{4,5}$ and $M_{4,5}N_{4,5}O_1$ Auger electron spectra 4−66331
- X-ray photoemission spectra, characteristic energy loss structure 4−67698
- AgCl:Cd, cryst., form. of ionising particle tracks, model 4−77192
- AlSb:Cd, impurity radiative recomb., 4.2K 4−82747
- $Ca_5F(PO_4)_3$:Cd,Sb colour centre growth dynamics and models 4−57580
- Cd II He-Cd laser discharge, perturbation spectroscopy 4−59395
- Cd:In, temp. depend. of elec. field gradient, γ-γ angular correlation meas. 4−64313
- Cd-As contact fusion, phase diagram *(Russian)* 4−61339
- Cd + Hg, excited atom collisions, sensitized fluorescence 4−51987
- Cd^+ + He collision, Cd $5^2P_{3/2}$, $5^2P_{1/2}$ states lifetime and depolarisation, Hanle effect meas. *(French)* 4−47904
- Cd_2 fluorescence in inert gas and NH_3 matrices 4−67629
- CdII, $4d^95s^2$ config. transition in He-Cd laser 4−65898
- ^{109}Cd, use in body composition assay, errors and reproducibility 4−46418
- Ga:Cd liq., tracer impurity diffusion 4−56900
- GaAs:Cd, impurity ion capture by vacancies in implanted layers 4−75648
- GaN:Cd, epitaxial layer, luminesc., 1.6-300K, energy depend. 4−61207
- He-Cd, c.w. 4416 Å laser, noise and output power 4−43305
- He-Cd laser, metal-ceramic, hollow cathodes, output characts 4−43299
- He-Cd laser discharge, perturbation spectroscopy 4−59395
- He-Cd^+ laser, development and performance *(German)* 4−47345
- He-Cd^+ laser, noise generating processes 4−43290
- He-Cd^+ two-anode laser, optimum operating conditions 4−55462
- He^+ + Cd, charge exchange cross section meas. *(Russian)* 4−78377
- Ho with ^{111}Cd impurities, temp. depend. of mag. hyperfine field 4−76201
- LiCl:Cd^+, X-irradiated, e.s.r. and optical absorption spectra obs. 4−70211
- NaCl:Cd^+, X-irradiated, e.s.r. and optical absorption spectra obs. 4−70211
- Si:Cd, current oscills., theory 4−60808
- Ti:Cd, impurity electric quadrupole interaction, temp. depend. obs. 4−57047

cadmium alloys

- *see also cadmium compounds*
- Ag-Cd, Morse potential appl. 4−44617
- Ag-Cd, thermoelastic martensite form. and reversal, charact. temps. 4−79891
- Ag-Cd(52 wt.%), lattice const. and at vol. expansion, 17°C to 560°C 4−78949
- AgZn-AgCd quasibinary alloys, phase diagram and superlattice form. 4−67759
- Au-Cd(47.5 at.%), nucleation dynamics and growth of thermoelastic martensite 4−76410
- Bi-Cd eutectic systems, partial diffusion coeffs. *(Russian)* 4−53650
- Cd-Ag, dilute, Hall resistivity, temp. depend., mechanism 4−60787
- Cd-Ag, single cryst., critical resolved shear stress, 77 to 199K 4−53707
- Cd-Al-Sn, liquid eutectic, atomic distrib. *(Russian)* 4−56598
- Cd-Bi alloy, liquid, density pycnometric method, and molar vol. *(Polish)* 4−67743
- Cd-$CuCd_3$ eutectic struct. obs. by selective sublimation 4−82851
- Cd-In, dilute, Hall resistivity, temp. depend., mechanism 4−60787
- Cd-Mg (below 10 at.% and above 90 at.%), Hall effect, resist., and lattice parameter 4−48967
- Cd-Mg alloys, distorted struct. formation 4−64533
- Cd-Zn, electron transfer in melt *(Russian)* 4−70008
- Cd-Zn(0.44 at.% Zn), single crystals, discontinuous creep curves, temp. dependence 4−67814
- Cd_3Mg based nonstoichiometric alloys, deform. and strength characts. 4−76451
- Cu_5Cd_8, γ-brass type, cryst. struct. investig. 4−56647
- Gd-Sn, eutectic structures at low growth rates 4−57724
- Hg-Cd, dilute liq., convection effects during electrotransport 4−44691
- In-Cd, dilute alloy, band-struct. effects on supercond. 4−64156
- LaCd, mag. props. and resistivity meas., supercond. transition point 4−60953
- Mg-Cd, preferred orientation in powder samples, rel. to X-ray diffr. 4−66796
- Mg-Cd, superconducting transition temp., Mg content depend. 4−53172
- Mg_3Cd, powder samples, X-ray diffr. at room temp., preferred orientation, Debye temp. 4−66797
- Mg_3Cd, two-phase region, electron microscopy, continuous precipitation phase transformations 4−53639
- Pb-Cd-Sb, substruct. development and mech. props. improvement 4−45649
- Pb-Sn-Cd eutectic, solidification, direct obs. using surface relief contrast 4−45509
- Sm-Cd system, partial phase diag. and cryst. structs. 4−63892
- SmCd, ferromagnetic props. and resistivity meas. 4−60953
- Sn-Cd, eutectic, coarsening during unidirectional solidification 4−45549

cadmium alloys continued

- Sn-Cd, resistance measurements 4.2-55K, deviations from Matthiessen rule *(Russian)* 4−82389
- Tl-Cd, localized phonons, lattice order transformations, superconductive tunnelling 4−64157
- TmCd, low temp. thermal expansion and magnetostriction obs. 4−82598
- Zn-Cd, dilute supersaturated alloy, electronic struct. changes with room temp. ageing 4−53030
- Zn-Cd, pre-precip. phenomena, Guinier-Preston zones 4−79930
- Zn-Cd alloy, liquid, density, pycnometric method, and molar vol. *(Polish)* 4−67743

cadmium compounds

- *see also cadmium alloys*
- acetate dihydrate, anion radical, e.p.r. determination of hyperfine constants 4−79575
- acetate trihydrate:Mn^{2+}, allowed and forbidden hyperfine transitions in e.p.r. 4−67440
- c $Cd_2(NH_4)_2(SO_4)_3$, improper ferroelec., birefringent and electrooptical props. 4−70280
- carboxylates, gamma-irrad., Cd^+ form., e.s.r. obs. 4−75537
- Cd(II) complex, 2-dimens. layer, for i.r. optical phonon spectra 4−73110
- n-CdS, coherent spin flip Raman scatt. 4−57535
- fluoperovskites, e.p.r. of Fe^{3+} and Cr^{3+}, distortion due to Cd^{2+} vacancy *(French)* 4−79582
- formate dihydrate:Cd^+, γ-irrad., electron trapping, and Mn^{2+} e.s.r. obs. 4−57364
- formate dihydrate, cryst. struct. 4−60486
- halides, photoelectron spectra rel. to electronegativity 4−78513
- phosphates, preparation and physicochemical props. 4−52714
- X-ray spectra, inner electron bonding energy *(Russian)* 4−49480
- As_2Se_3-CdO, glass, photocond., conc. depend., struct. effect 4−44960
- (Ca, Cd)S phosphors, structural and luminescence properties 4−49427
- (Cd, Zn)S film, elec. domain form. in dark, photo-excitation interruption 4−75981
- (Cd,Zn)S, evaporated film, l.f. photocurrent oscill., phase memory effects 4−64116
- Cd complex, polyethylenepolyaminecadmium(II), i.r. spectrum and structure 4−48165
- Cd-Hg-S system, phase diagrams, lattice parameters of mixed sulphide phases *(French)* 4−48730
- $CdAs_2$, stable and metastable equilibria near melting curves up to high pressures 4−52860
- $(Cd_3As_2)_{1-x}$-$(2CdSe)_x$ system, phase diagram 4−69884
- $Cd_3(As_xP_{1-x})_2$, temp. depend. of optical transmission edge, effect of Fermi distrib. spreading 4−49332
- $CdBr_2$, cryst., Raman Scatt. tensors 4−61143
- $CdBr_2$, O addition, luminesc. props., 77-450K *(Russian)* 4−82732
- $CdBr_2$, photocond., 90-300K, zone-zone transtions *(Russian)* 4−72816
- $CdBr_2(Cl_2)(I_2)$, adsorption of NO, two-dimens. polymorphism *(French)* 4−48836
- $Cd(CH_3)_2$, photodissoc., polarized light 4−68018
- $CdCl_2$, cryst., Raman scatt. tensors 4−61143
- $CdCl_2$, gas, photoelectron spectra rel. to molec. orbitals data 4−52255
- $CdCl_2$ O addition, luminesc. props., 77-450K *(Russian)* 4−82732
- $CdCl_2$:I^-, optical absorption, luminesc., localized exciton effect 4−57581
- $CdCl_2(Br_2)$:Cu^{2+}, vibronically allowed d-d transitions, i.r. spectra 4−64406
- $CdCl_2.2NaCl.3H_2O$, cryst. struct. determ. *(French)* 4−78959
- $CdCr_2S_4$, obs. of magnetostriction and mag. anisotropy by ferromag. reson. at 10 GHz 4−49205
- $CdCr_2S_4(Se_4)$, Debye effective parameter, X-ray diffr. 4−63876
- $CdCr_2S_4(Se_4)$, mag. props., Curie Weiss obs. 4−60970
- $CdCr_2Se_4$, cryst., prep. and basic props. 4−79878
- $CdCr_2Se_4$, prep. by chem. transport reaction *(German)* 4−49617
- $CdCr_2Se_4$, spin wave amplification, plasma effects and s-d interaction considered 4−82572
- $CdCr_2Se_{4-x}$, paramag. Curie point, comp. depend. 4−60945
- $Cd_{1-x}Cu_xCr_2S_4$, mag. props., Cu conc. depend. 4−60945
- CdF_2, Raman spectra meas. rel. to press., phase transform., Gruneisen coeff. investig. 4−76246
- CdF_2:Er^{3+}, Yb^{3+}, Tm^{3+}, Ho^{3+}, Tb^{3+} absorption and fluorescence spectra, obs. 4−57610
- CdF_2:Mn, luminescence, evidence for two channel excitation 4−79791
- $Cd_{1-x}Fe_xCr_2S_4$, single crystals, prep. elec. and mag. props. 4−44976
- $CdFe_2O_4$, calc. nucl. quadrupole couplings, dipole polarizability of O ion, spinel struct. 4−82634
- $CdGeAs_2$, chalcopyrite, efficient doubling and c.w. difference freq. mixing in i.r. 4−47375
- $CdGeAs_2$, glassy, impurity diffusion, temps. near onset of crystn. 4−56914
- $CdGeAs_2$ crystal struct., microhardness and sublattice distortion 4−75492
- $CdGeP_2$, cryst.-melt phase transition, elec. cond. meas. 4−72777
- $CdGeP_2$, obs. of energy spectrum and carrier mobility, 200-400K 4−48981
- $CdGeP_2$, phonon dispersion, polarised i.r. refl. spectra obs. 4−45293
- $CdHfO_3$, growth from melt, dielec. and optical props. *(Russian)* 4−53381
- $Cd_{0.15}Hg_{0.85}Se$, form of absorpt. edge, conformity to Urbach's rule *(Russian)* 4−82704
- $Cd_{0.25}Hg_{0.75}Te$, magnetophonon oscillations of transverse magnetoresistance 4−57114
- $Cd_xHg_{1-x}Te$, diffusion of Cu and Au, p-n junction displacement obs. 4−48806
- $Cd_xHg_{1-x}Te$, film, reflectivity spectra, 1.7-5.5 eV 4−45328
- $Cd_xHg_{1-x}Te$, galvanomagnetic props. under pressure *(Russian)* 4−82436
- $Cd_xHg_{1-x}Te$, longit. magnetoresistance and Hall coeff. meas. in strong mag. fields, 1.8 to 300K 4−75891
- $Cd_xHg_{1-x}Te$, negative longit. magnetoresistance obs., field depend. 4−75899

cadmium compounds continued
$Cd_xHg_{1-x}Te$ p-n junction, photoelec. props. 4−82478
CdI_2, adsorption of methane and krypton, interaction energies determ. *(French)* 4−44778
CdI_2, effect of pulsed magnetic field on pulsed n.q.r. 4−49261
CdI_2, gas, photoelectron spectra rel. to molec. orbitals data 4−52255
CdI_2, photocond., 90-300K, zone-zone transitions *(Russian)* 4−72816
CdI_2, polytypes, occurrence of Zhdanov numbers >3, Cd/I glide considerations 4−56656
CdI_2, polytypes, stacking fault energy 4−72477
CdI_2, single crystal, Raman spectra anal. 4−57529
CdI_2 polytypes, growth by dislocation controlled phase transformation 4−52711
CdI_2-As_2S_3, evaporated layer, hole drift mobility 4−75855
CdI_2 + K, crossed mol. beam reacts., mechanism, complex intermediate investig. 4−50152
Cd(II) complex, ^{113}Cd n.m.r. studies of ligand bonds, effect on chemical shift 4−67474
$CdInGaS_4$:Au, photoconductivity obs., 105-300K, recomb. scheme, forbidden band 4−67254
$CdIn_2S_4$ single crystal, phonon energy modes from tunnel effect 4−82234
$CdIn_2S_4:Cr^{3+}$, impurity effect on thermal cond., phonon scatt. 4−56922
$CdIn_2S_4:Er^{3+}$, cryst. field symm., optical spectra, calc. of props. 4−57582
$CdIn_2Se_4$, photoconductivity meas. at 4.2 K 4−44966
$CdIr(OH)_6$, prep. and characterisation 4−60456
$CdMn_7O_{12}$, high press. synthesis, crystal struct., perovskite like cpds. 4−75495
$Cd(NO_3)_2$, polymorphism and thermal expansion by X-ray diffraction method *(French)* 4−63799
$Cd(NO_3)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4−69729
CdO, $CdCl_2$, matrix anions, influence on arc plasma and spectrochem. determs. 4−60336
CdO, thermal expansion and Debye temp. determ. 4−52912
CdO microcryst., i.r. absorpt. by surface modes *(Japanese)* 4−79710
CdO-B_2O_3-SiO_2 glasses, photochromism 4−64408
CdO-GeO_2-H_2O system, hydrothermal synthesis, X-ray exam. 4−52738
CdO-GeO_2-NaCl-H_2O system, hydrothermal synthesis, X-ray exam. 4−52738
CdO-GeO_2-NaOH-H_2O system, hydrothermal synthesis, X-ray exam. 4−52738
$CdO_{1-x}S_x$, vacuum deposited film composition, model 4−44803
CdP_2, anisotropy of two-photon absorpt. 4−74530
CdP_2, nonlinear absorpt., introduction in laser resonator for pulse lengthening 4−81343
CdP_2, photocond. high excitation levels 4−72821
Cd_3P_2, cond. band, non parabolicity determ. from electron effective mass 4−53047
Cd_3P_2, large single cryst. growth from vap. 4−82817
Cd_3P_2, magnetic field and concentration dependence of thermoelectric power at room temp. 4−79373
Cd_3P_2, optical props. and energy band struct. investigation 4−70318
$Cd_2P_4O_{12}$, anhydrous, chem. prep. and crystallographic data *(French)* 4−75486
CdP_2S_4, single cryst. growth and characteriz. 4−61301
$CdPb_2O_5$, hydrothermal synthesis from CdO + PbO_2 4−49569
Cd_2PbO_4, hydrothermal synthesis from CdO + PbO_2 4−49569
CdS, 28μ-visible conversion using bound excitons 4−65933
CdS, acoustoelectric interaction, adsorbed gas influence 4−79397
n-CdS, anomalous mobility behaviour, elec. evidence for impurity pairs 4−72798
CdS, backload to transducer, light effect in modulus for sound modulation 4−77036
CdS, biexciton energy levels 4−75833
CdS, biexciton states, electron-hole exchange contributions 4−60763
CdS, changes in local centres, ionising action of γ-rays 4−72724
CdS, class I crysts., thermally stimulated desorpt. and its effect on elec. props. 4−67249
CdS, crystals exciton spectra, absorpt. and luminesc., exciton-exciton interaction effects 4−75829
CdS, crysts. with nonparabolic cond. bands, one, two-photon absorpt., freq. depend. 4−76279
CdS, Cu compensated, s.c.l. conduction in thin structures 4−44933
CdS, current oscillations due to moving temp.-elec. domains 4−57100
CdS, current oscills., nonuniform illumination at 4600Å 4−60829
CdS, current saturation 4−82424
CdS, depend. of photocond. on free electron conc., calc. for three types of recomb. centres 4−53125
CdS, diffusion constants of Cd vacancies and In-Cd vacancy pairs 4−79186
CdS, dispersion abnormalities in exciton absorpt. region *(Russian)* 4−76282
CdS, effect of pressure on spectral distrib. of photosensitivity *(Bulgarian)* 4−57131
CdS, effects of two photon transition optical props., obs. of stimulates light emission 4−51645
CdS, elastic surface wave amplification, 30-240 MHz 4−48827
n-CdS, electron irrad., radiation damage, annealing kinetics, isothermal Hall effect obs. 4−44564
CdS, energy level spectra of biexcitons and related optical transitions 4−82381
CdS, epitaxial growth, close spaced technique 4−82813
CdS, epitaxial growth on $CuGaS_2$ for l.e.d. prep. 4−45452
CdS, evaporated film, adsorption of O_2, electrical conductance change 4−48837
CdS, evaporated film, l.f. photocurrent oscill., phase memory effects 4−64116
CdS, exciton line profiles, wavelength modulated refl. spectra obs. 4−57573
CdS, exciton orientation by circularly polarized light 4−48948
CdS, far i.r. cyclotron reson., intense mag. fields 4−75790
CdS, film, growth model explaining preferred orientation depend. on thickness 4−72662

cadmium compounds continued
CdS, film, negative resist., hysteresis effect 4−82500
CdS, film, r.f. bias evaporation, ion plating 4−79882
CdS, film on Cr mirror, optical consts., ellipsometric meas. method 4−65447
CdS, fine struct. of exciton spectrum of luminesc. *(Russian)* 4−73165
CdS, fusion, protective props. of B_2O_3 flux 4−45448
CdS, highly excited, thermal relax., I_1 line shape as temp. probe 4−79789
CdS, hole capture cross section of class II centres, photocurrent determ. 4−72722
CdS, hot-pressed, investigation of thermal and ultrasonic props. 4−63877
CdS, I_1 luminesc. line as phonon spectrometer 4−79788
CdS, inhomogeneous elec. cond., effect on Hall mobility meas. 4−44935
CdS, Joule heating influence on continuous amplification of ultrasound 4−67262
CdS, light diffr. by electron wave accompanying acoustic wave *(Russian)* 4−67553
CdS, long wavelength bound exciton emission 4−49421
CdS, luminesc. of high density excitons, 4.2-90K 4−67641
CdS, luminesc. spectrum, free to bound recomb., screening effects, 4.2-80K 4−49420
CdS, luminesc. transmission, exciton reson., spatial dispersion 4−57629
CdS, luminescence at 1.3 K not due to biexcitons, but to radiative decay of exciton-impurity complexes 4−48941
CdS, luminescence of dislocation in single crystals *(German)* 4−76322
CdS, moving temp.-elec. domains 4−49035
n-CdS, negative photoplastic effect, illum. with Xe lamp 4−75563
CdS, nonlinear acoustic gain meas. 4−44972
CdS, obs. of elec. oscills. under uniform illum., existence of trapping centres 4−53126
CdS, off-axis acoustoelectric domains, Brillouin scatt. 4−44971
CdS, ohmic contacts of In, heat treatment effects 4−72856
CdS, PbN_6 treatment, sensitization of photolysis by inorganic semiconductors 4−76617
CdS, photocond., high elec. field domain nucleation due to acoustoelec. flux 4−44968
CdS, photocond., surface wave acoustoelectric domain excitation 4−75926
CdS, piezoelec. crystals, u.s. propag. meas., 300 to 900K 4−57147
CdS, piezoelectric coupling of exciton to acoustical phonons 4−67531
CdS, piezoelectric cryst., nonlinear interaction of elastic waves resulting in electric field oscillations 4−76217
CdS, polaron effects in resonant Raman scatt. 4−76257
CdS, powder layers, corona charging props., heat effect 4−60842
CdS, prep. by gas transport reactions, thermodynamics 4−49587
CdS, pure and Ag activated, positron annihilation and fluoresc. mechanisms *(French)* 4−56775
CdS, radiation detector, photocurrent oscill., impurity induced breakdown 4−72826
CdS, red band luminescent field effect kinetics *(Russian)* 4−61224
CdS, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
CdS, single cryst., electron conc., mobility, component v.p. effect 4−72768
CdS, single cryst., halogen impurities, thermal neutron activation 4−73264
CdS, single crystal, effects of bound excitons in photocurrent spectrum 4−44963
CdS, strong magnetic field, formation of stationary domain 4−64120
CdS, sulphur Kβ emission spectra and electronic struct. 4−79809
CdS, temp. depend. of exciton luminesc. intensity 4−57626
CdS, thin film, Hall coeff. meas. 4−58863
CdS, thin film, surface scatt. effects 4−45029
CdS, three-photon luminesc. obs. 4−67644
CdS, trap parameter determ. from temp. depend. of acoustic gain 4−48934
CdS, two-photon absorption by lower power CW laser 4−64427
CdS, u.s. amplification with electron injection from contacts 4−57148
CdS, with acoustoelectrically amplified phonon flux, time evolution of freq. spectrum 4−79719
CdS, work function, {0001} faces, air exposure effect, surface resist. depend. 4−60841
CdS, wurtzite polarised vac. u.v. photoemission, band struct. 4−73239
CdS barrier, light induced Josephson current obs. 4−76022
CdS dynamic holographic gratings with characteristic lifetime of 5×10^{-9} sec 4−46683
CdS field emission cathodes, microplasma bistable state in elec. breakdown 4−79857
CdS film, acoustic surface wave amplification by transverse electric current 4−57142
CdS film, heteroepitaxial, optical transmittance and photolum., 77-400K 4−76335
CdS film, hypersound absorpt. at 9.4 GHz 4−79108
CdS film, stimulated emission, N_2 laser excited 4−53470
CdS film, thermoelec. and photothermoelec. effects 4−53161
CdS film, up to 100 microns thick, orientation effects 4−53021
CdS films, elec. domain form. in dark photo-excitation interruption 4−75981
CdS films, photocond., changes resulting from SO_2 chemisorption 4−75985
CdS phonon maser, light diffraction, polarisation effects 4−65889
CdS phonon maser with off-axis cavity struct., light diffraction 4−65890
CdS single crysts., cond. inhomogeneity effects on elec. and optical props. 4−70015
CdS surface photopotential, spectral distrib., effects of oxygen and water vapours adsorption 4−60838
CdS switching, dark stimulation of conductivity *(Russian)* 4−75884
CdS thin films, hexagonal growth forms 4−82332
CdS:Bi, film, photocond. response speed 4−44967

cadmium compounds continued
CdS:Cl, high temp. green luminesc. 4−76307
CdS:Cr^{2+}, e.p.r. spectra, Jahn-Teller coupling coeffs., ligand-field model 4−49226
CdS:Cu, single crystals, impurity structures, electrical properties 4−64079
CdS:Dy, photocond. and charge phototransfer, 297 and 77K *(Russian)* 4−82459
CdS:Eu^{3+}, luminesc. and photocond. *(Russian)* 4−79797
CdS:In, photoluminesc. emission, elec. cond. 4−53509
CdS:Li, photochem. effects, photocond. meas. 4−72820
CdS:N^+, deep centre luminesc., electronic transition 4−82738
CdS:Te, single crystals, obs. of radioluminesc. 4−53488
CdS/indifferent electrolyte system, electron transfer involving tunnelling from surface states 4−68009
CdS-Au thin film Schottky diodes, obs. on heat treatment 4−49069
CdS-Cu thin film Schottky diodes, obs. on heat treatment 4−49069
CdS-Ge p-n heterojunction, elec. and optoelectronic props. 4−82482
CdS-ZnS phosphor, radical recomb. luminesc., H^+ chemisorption *(Russian)* 4−61204
CdS-ZnTe heterojunction, light-emitting emission mechanism, expt. 4−61232
$Cd(SO_3F)_2$, i.r. spectra 4−49334
CdSSe-ZnO, photoresponse mechanism 4−51100
CdS_xSe_{1-x}, crysts. with nonparabolic cond. bands, two-photon absorpt., freq. depend. 4−76279
CdS_xSe_{1-x}, elec. field excited, light generation at intensity of 10^9 W/cm² *(Russian)* 4−73199
CdSb, Pendellosung fringes obs. *(Russian)* 4−79226
CdSb, valence band struct. using **k.p** method 4−75774
n-CdSb:In(Te), obs. of anomalous temp. depend. of elec. cond. and thermopower 4−48983
CdSe, Bose condensation of excitonic mols. 4−60765
CdSe, compressed powder, V-I characts. 4−44917
CdSe, down-convertor, difference mixing of parametric oscillator output, 9.5 to 24 μ tuning 4−74521
CdSe, dynamical processes of high density single excitons and excitonic molecules, luminesc. and absorpt. obs. 4−44877
CdSe, electrical characts. of free surface determ. by method of electroabsorption 4−67266
CdSe, electroabsorpt. and electrodispersion in exciton region, obs. at 90K 4−49384
CdSe, emission, absorption and refl., high density excitons 4−76312
CdSe, epitaxial growth rate from thermodynamic model 4−44798
CdSe, exciton condensation, optical spectra evidence *(Russian)* 4−82379
CdSe, film, incompletely ionized donors as bulk traps 4−45030
CdSe, film, s.c.l. and thermally stimulated currents 4−60885
CdSe, film, sensitizing centre form., Li effect 4−60890
CdSe, fine struct. of exciton spectrum of luminesc. *(Russian)* 4−73165
CdSe, granular metal Schottky barrier, Au or Ni cosputtered with SiO_2 or Al_2O_3 4−44993
CdSe, luminesc. from acoustoelec. domains 4−53534
CdSe, luminesc. of high density excitons, 4.2-90K 4−67641
CdSe, nature of fast recombination centres 4−67257
CdSe, obs. of laser induced phase grating by free carrier generation 4−53547
CdSe, photoexcited hot electrons and excitons, obs. of recomb. radiation at 2K 4−53519
CdSe, photolum., effects of deep centres and impurities 4−73170
CdSe, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
CdSe, single cryst., exciton-exciton and exciton-electron interaction *(Russian)* 4−76298
CdSe, singly resonant parametric oscill., HF laser pumped, tuneable output 4−55513
CdSe, synthesis from reaction of gaseous SeO_2 with CdS 4−50149
CdSe, VPE growth on sapphire, CdS, elec. resist. meas. 4−70422
CdSe, with cond. memory, conc. and Hall mobility of electrons *(Russian)* 4−72838
CdSe film, free surface potential determ. *(Czech)* 4−70085
CdSe film/$LiNbO_3$ monolithic layered struct., acoustoelec. e.m.f. and electronic gain 4−57146
CdSe single cryst., growth condns. for tabular crysts., crystn. temp. and element ratio 4−53595
CdSe single crystals, refl., absorpt. and luminesc. fine struct. obs., surface effects 4−73136
CdSe sintered layers, phase comp. rel. to heat treatment 4−52896
CdSe thin films, donor ionis. energy determ. 4−60881
CdSe-CdS heterojunction, elec. and photoelec. characts. *(Russian)* 4−72860
$CdSe_xTe_{1-x}$ mixed crystals long wavelength optical phonons, random element isodisplacement model 4−76254
$(CdSe)_x(ZnTe)_{1-x}$ photoreflection spectra obs., excitons 4−67613
$CdSiAs_2$ single cryst., growth and phys. props. 4−49570
CdSi(Ge)(Sn)As_2, investigation of refl. and electrorefl. spectra 4−49371
CdSi(Ge)(Sn)P_2, investigation of refl. and electrorefl. spectra 4−49371
$CdSiP_2$, Raman scatt. and reststrahl meas., optical phonons obs. 4−57537
$CdSiP_2$:Na(Bi), photocond. and optical quenching, recomb. and trapping centres 4−79381
$CdSiP_2$:Zn(Cd), photoelectric effects, recomb. and trapping centres 4−72829
n-$CdSnAs_2$, elec. cond. and complex band struct., pressure depend. to 10 kbar 4−75856
$CdSnAs_2$, X-ray photoemission, up to 16 eV 4−79290
$CdSn(As_xP_{1-x})_2$, $0 \leqslant x \leqslant 0.6$, lattice parameters and microhardness determ. *(Bulgarian)* 4−57693
$CdSnP_2$/InP heterojunctions, LPE growth from Sn soln. and props. 4−61304
p-CdTe, absorption spectrum, optical props. of donor-Cd vacancy complex 4−57587
CdTe, amorphous and cryst. films, densities of valence states, photoelectron obs. 4−60742
n-CdTe, anomalous mobility behaviour, elec. evidence for impurity pairs 4−72798

cadmium compounds continued
CdTe, $Cd_xHg_{1-x}Te$, creep phenomena *(Russian)* 4−44593
CdTe, compressed, dislocation effects on dark cond. and photocond. 4−60826
CdTe, Debye-Waller factors and melting criteria 4−75605
CdTe, diffusion constants of Cd vacancies and In-Cd vacancy pairs 4−79186
CdTe, dislocation struct., transmission microscopy 4−60507
n-CdTe, domain elec. instability 4−60809
CdTe, e.p.r. meas. of shallow donors, g-factor 4−76157
CdTe, electro-optical modulator, extinction ratio meas. 4−46703
p-CdTe, electron irrad., defect annealing behaviour 4−60755
CdTe, epitaxial growth in quasiclosed volume, effect of vapour comp. 4−67727
CdTe, epitaxial growth in hydrogen current 4−70418
n-CdTe, exciton-exciton interactions, obs. of laser emission 4−49392
CdTe, exciton-neutral donor complex luminesc. in mag. field 4−73181
CdTe, excitons, degenerate in mag. field, magneto-optical studies 4−75835
CdTe, growth from Te rich soln., purification and impurity segregation coeffs. 4−57677
CdTe, heat treatment effects, surf. cond., lattice ordering ion implantation studies 4−45479
CdTe, high purity single crystal, elec. props., photoluminescent props. 4−64424
CdTe, ion implantation, lattice disorder and elec. activity 4−79886
CdTe, ion implanted layer, electrical activity and radiation damage 4−72498
CdTe, laser window, beam damage, threshold and morphology 4−55502
CdTe, magneto-optic studies of donor excitation spectra 4−64362
CdTe, optical and electrical properties of centres with deep levels, photoluminescence spectra *(Russian)* 4−67636
CdTe, optical props., for i.r. 4−53408
CdTe, photoemission spectroscopy using synchrotron radiation, valence band struct. 4−64477
CdTe, photosensitivity, Hall mobility and photoresponse meas. 4−53124
n-CdTe, plasmon phonon interaction and free carriers obs. i.r. reflectivity meas. 4−53443
CdTe, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
CdTe, thermoreflectance spectra, obs. of struct., 4-9 eV 4−53466
CdTe, undoped, high resistivity, growth for nuclear radiation detector 4−67734
CdTe, Zeeman splitting and chemical shifts for the shallow donor states 4−64038
CdTe detectors grown from In-doped Te-rich solns. 4−46814
CdTe detectors with MIS type contacts, continuous high-field operation 4−46888
CdTe film, electret effect 4−70084
CdTe film, epitaxial, synthesis 4−48871
CdTe film, obliquely deposited on glass substrate, struct. and morphology 4−57010
CdTe films, multiple p-n junction structures, photomag. effect spectrum 4−75958
CdTe gamma-ray detectors, time-dependent polarisation 4−46886
CdTe halogen-doped γ detector developments 4−46824
CdTe m.s.m. struct., electret and electretphotovoltaic effects 4−67519
CdTe medical probes, high spatial resolution, appl. to dental pathology 4−50821
CdTe n-type surface barrier detectors, energy resolution 4−62540
CdTe:Al, In, Cl, I electron conc. and self-compensation obs. 4−53056
CdTe:Be, impurity-induced far i.r. absorpt. spectra, perturbation model calcs. 4−64414
CdTe:Br transport characterisation for γ detectors 4−46816
CdTe:Cl transport characterisation for γ detectors 4−46816
CdTe:Cl(Br) self-compensation, time of flight technique 4−72761
CdTe:Cr^{2+}, e.p.r. spectra, Jahn-Teller coupling coeffs., ligand-field model 4−49226
p-CdTe:Ge, capture centre parameters, recomb. process *(Russian)* 4−67239
CdTe:O, luminesc. and elec. props., form. of complex centres 4−76309
CdTe/ThF_4, laser mirror, i.r. beam damage 4−55503
CdTe-In system, phase diagram 4−60590
CdTe-Pb(Sn) systems, equil. phase diagrams *(Japanese)* 4−67025
$CdTe_xSe_{1-x}$ films, photocond. meas. 4−60883
$CdTe_xSe_{(1-x)}$, semicond., interdiffusion coeffs. of chalcogens meas. rel. to conc., temp. *(German)* 4−56921
$CdVO_3$, preparation, characterisation, crystallographic, electrical and magnetic properties 4−66880
CdV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4−72448
$CdWO_4$, luminesc. excitation in fund. absorpt. region using synchrotron emission *(Russian)* 4−61227
$CdYb_2Se_4$ spinel, cryst. field theory interpretation of paramag. susceptibility 4−76050
$Cd_{1-x}Zn_xS$, photoconductive film, prep. by r.f. sputtering 4−79883
$Cd_3[GeO_4](OH)_2$, structure 4−82148
Cds, transmission spectra, spatial dispersion effect, exciton absorption lines 4−70319
$ClBr_2$, gas, photoelectron spectra rel. to molec. orbitals data 4−52255
Cu/CdS/Cu multilayer, anomalous behaviour of junctions 4−72867
Cu_2S-CdS, heterojunction photovoltaic cell, heat treatment effects 4−60824
$GdGeAs_2$, glassy and cryst., impurity diffusion, temp. depend. and activation energy 4−56913
GdTe, phonon dispersion relation, 300K, neutron diffr. obs. 4−79121
$Hg_{0.8}Cd_{0.2}Te$, Auger limited carrier lifetimes, photocond. meas. 4−60828
n-$Hg_{0.8}Cd_{0.2}Te$, galvanomagnetic props., high and low mobility samples 4−67234
$Hg_{1-x}Cd_xTe$, electron mobility calcs. 4−60792

cadmium compounds continued
$Hg_{1-x}Cd_xTe$, press. induced gapless state obs. *(Russian)* 4−67168
$Hg_{1-x}Cd_xTe$, single-cryst., Cd distrib. meas. by neutron radiography 4−62573
$(InAs)_x$-$(CdTe)_{1-x}$, solid soln., extremal conditions for interband interaction 4−67166
InP-CdTe, phase equilibrium in the quasibinary system 4−69890
$(InSB)_x(CdTe)_{1-x}$, solid solution, bound parameters 4−72702
$(InSb)_x$-$(CdTe)_{1-x}$, solid soln., extremal conditions for interband interaction 4−67166
LiCl-$CdCl_2$, molten, thermodynamic props., transference numbers and ionic mobilities, e.m.f. meas. 4−70606
$NaCd(PO_4)$, cryst. struct. 4−82152
$NaHCd_2(Si_3O_9)$, cryst. struct., synthetic P-phase 4−52733
$NaNbO_3$-$CdTiO_3$, dielec. const. and pyroelec. potential, comp. and temp. depend. 4−57452
Ni-CdP_2 Schottky barriers, optical modulation spectra, optical transition energies determ. 4−70049
PbS-CdS films, prep. by pulverization 4−67731
(Zn, Cd)S-Cu, Cl phosphors, luminescent and structural properties 4−53490
Zn-Cd-S system, phase diagrams, lattice parameters of mixed sulphide phases *(French)* 4−48730
ZnCdS:Ag, l.v. cathodoluminesc., factors affecting efficiency *(Russian)* 4−82755
$Zn_xCd_{1-x}Sb$ thermoelectric power anisotropy, 80-400K 4−72806
$Zn_xCd_{1-x}Te$, $0 \leqslant x \leqslant 1$, refl., 2.9-9,5 eV, energy gap determ. 4−82715
ZnS-CdS:Cl phosphor, chemisorption of H_2O, effect on luminesc. *(Russian)* 4−72633

caesium
absorption cells, radiooptical resonance lines *(Russian)* 4−53403
adsorption on Si(100), with O_2 adsorption, struct. obs. 4−56982
adsorption on W(100) single crysts., coadsorption with O *(French)* 4−45392
adsorption on Y and Sc films, influence on film resistance and work function *(Russian)* 4−52999
atom, $7^2P_{1/2}$-$7^2P_{3/2}$ mixing, induced by noble gas atom collisions, sensitized fluorescence 4−59924
atom, excitation transfer between $7^2P_{1/2}$ and $7^2P_{3/2}$ states, collision-induced 4−78357
atom, hyperfine struct. of 10 $^2S_{1/2}$ and 11 $^2S_{1/2}$ states by r.f. spectroscopy 4−59892
atom, multiphoton excitation and ionisation with tuneable dye laser 4−56023
atom, multiphoton ionisation, high intensity quantum electrodynamic treatment 4−59936
atom, spin relax. with $6^2P_{1/2}$ and $6^2S_{1/2}$ states, white-light pumping obs. 4−74875
atom, Stark effect investigation of highly excited $^2D_{3/2}$ states using c.w. tunable dye laser 4−59914
atom, three photon ionisation, two-photon excitation by laser light 4−51971
atom, Van der Waals forces between Cs and Au and glass surfaces 4−63977
atom two-photon resonant optical third-harmonic generation 4−71581
atomic beam frequency standards, second-order Doppler shift and cavity phase error corrections 4−65350
atomic second measurement to 13 significant figures 4−42697
atomic spectra, 8521 Å resonance line perturbed by Ar, semiclassical formalism 4−56009
atomic spectral lines from autoionisation states 4−47837
caesiated d-band metals, photoelectron spectra, rel. to band struct. 4−45408
cell, optically pumped, frequency standard with magnetic filter 4−65360
coated GaAs (100) surface, LEED obs. *(Russian)* 4−48822
collisional broadening of level crossing signals in $6^2P_{3/2}$ and $7^2P_{3/2}$ states 4−47853
density of saturated vapour, meas. using resonance absorption of 8521 Å radiation 4−42761
determination in sea-water by automatic flame emission spectrometry 4−71274
dielectric constant determ. at −140°C, 2.07 to 6.2 eV 4−79696
electron mean free path, temp. depend. determ. by u.s. attenuation meas. 4−67206
excited states, selective population, static elec. field method, Stark mixing coeff. meas. 4−81710
f.c.c., lattice volume obs., continuous s-d transition, neutron diffr. obs. to 43 kbar, 298K 4−44826
fission product, attack on cladding of oxide fuel pins 4−69293
frequency standard, f.l.f. polar studies 4−46073
hexafluoroglutaric acid, electron attachment and Cs collision ionisation 4−56305
impurity in oxide of m.o.s. struct., profile determ. by photoinjection 4−76393
ion source for negative ion mass spectra, 10-350 eV atomic beam collisions 4−46895
ions penetration depth determination in refractory metals 4−44580
isotope separation, on-line, at JINR heavy-ion cyclotron 4−77280
Krasko-Gurskii model potential, possible existence of f.c.c. lattices 4−56645
liquid, viscosity meas. up to 1600°C 4−63938
magnetometer, absorption chamber temperature stabilizing system *(Russian)* 4−46768
magnetometer, self-oscillating, freq. shifts 4−58870
maleic anhydride + Cs, collisional ionisation, mass spectra 4−56316
NBS primary frequency standards, accuracy and stability 4−65347
nonlinear photoluminescence, D_2 line spectroscopy *(Russian)* 4−81358
optical constants and photoemission, 250-630 nm. 4−45324
photoemission from caesiated GaN 4−73235
plasma, adiabatic compression method PVT dependence 4−69614
plasma, ion and electron parameters, cooled plane electrostatic probe 4−66766
plasma, near-electrode pot., effects of thermionic cathode adsorbed layers 4−70392
plasma cloud, rocket obs. of upper atmosphere, winds derivation 4−83118

caesium continued
primary time and frequency standard CS1 at PTB 4−65346
pyrocarbon coated pellets, influence of coating, chemical composition and porosity Cs conc. profile *(German)* 4−81614
relativistic quantum defect method 4−72684
resonance line shape moment analysis using WKB wave functions 4−51976
spectra, asymmetric self-broadening, interaction pots., quasistatic approach 4−59913
succinic anhydride + Cs, collisional ionisation, mass spectra 4−56316
tetrafluorosuccinic acid, electron attachment and Cs collision ionisation 4−56305
vapour, condensation from flowing argon 4−43946
vapour, effect on degradation of Al_2O_3 insulators 4−49887
vapour cell, vacuum confinement 4−68660
vapours, optically excited, ionising transition processes for atom-atom collisions and stepwise photoionisation *(Russian)* 4−43746
Ar-Cs, plasma inhomogeneities between coaxial electrodes in mag. field 4−69627
Ar-Cs plasma, electron temp. determ., line reversal method 4−44391
$Ar^+ + Cs \rightarrow Ar + Cs^+$, 1.44-28.7 keV, charge-exchange cross-section behaviour 4−59971
Cs $6S_{1/2} \rightarrow 6^2P_{1/2}$ perturbed by Ar, effect of ternary collisions on pressure broadening 4−51975
Cs II, spectral line excitation functions in vacuum u.v., reson. transitions *(Russian)* 4−78353
Cs:Xe(Kr), optical absorption threshold meas. 4−45336
Cs-Ar discharge, low pressure, two- and three-electron group models 4−60345
Cs-Ba mixture, thermal electron scatt. under thermionic convertor conditions 4−60325
Cs-He mixtures, thermal diffusion, 400-730K, atomic absorpt. method *(Russian)* 4−52336
$Cs + BF_3(PF_3)$, C_s^+ and F^- formation, fragment product relax. 4−63356
$Cs + Cl_2$ reactive collisions, cross section obs. 4−76590
Cs + Cs thermal collision, electron excitation doubling 4−69430
Cs + deuterated methane collisions, isotope effect in $6^2P_{1/2} \leftrightharpoons 6^2P_{3/2}$ mixing in Cs 4−51977
$Cs + H_2(HD)(D_2)$ (ethane) (propane), $^2P_{1/2} \leftrightharpoons {}^2P_{3/2}$ mixing cross section, temp. depend. 4−51978
$Cs + H^+$ charge exchange collision, H metastable state formation 4−59968
Cs + trifluorobromomethane reaction, anion production, evidence for stripping 4−64704
Cs + trifluorochloromethane reaction, anion production, evidence for stripping 4−64704
Cs + trifluoroiodomethane reaction, anion production, evidence for stripping 4−64704
Cs + Xe collisions, width, shift, asymmetry and satellites of D-lines calc., unified theory 4−59915
Cs^+, nuclear quadrupole antishielding factor, electron correlation effects 4−55996
Cs^+ scattering from W single crystal, fine structure, group and sccessive pair collisions 4−53563
Cs_2, n.m.r. of ^{133}Cs, optical pumping method, nuclear spin polarisation 4−52223
$Cs_2 + Cl_2(Br_2)(I_2)(IBr)(ICl)(ClF)$, chemiluminescence spectra 4−61596
^{129}Cs, dosimetry, further comments 4−46483
^{133}Cs, $6^2P_{1/2}$ state, g_j-factor and magnetic h.f.s. interaction const. 4−78336
^{133}Cs, h.f.s. laboratory expt. 4−73950
^{133}Cs vapour, selective refl. obs. from semicond., laser, possible laser stabilization appl. 4−80937
^{137}Cs, fallout, airborne and deposited, over South Africa, and resultant biological uptake 4−58639
^{137}Cs contamination in human milk, Belgium 1966 to 1968 *(French)* 4−68547
^{137}Cs content rel. to physical activity and climatic stress, meas. 4−58550
GaP:Cs, negative electron affinity, secondary and photoemission meas. 4−76342
He-Cs, plasma inhomogeneities between coaxial electrodes in mag. fields 4−69627
Ne-Cs torch discharge diagnostics 4−60363
$Ne^+ + Cs \rightarrow Ne + Cs^+$, 1.72-40.2 keV, charge-exchange cross-section behaviour 4−59971
$^{121}Sb + {}^{133}Cs$, spin exchange polarisation collision *(German)* 4−56033
Si:Cs,O(100) surface, thermionic emission 4−57662

caesium alloys
work functions rel. to phase diagrams and adsorpt. process 4−63978
$(Cs,Rb)_3Sb$, photoelectron escape depth, spectral depend. *(Bulgarian)* 4−82784
Ga-Cs system, phase diagram *(Russian)* 4−45538
Sb-Cs-Bi, intermetallic compounds, photoemissive props., variable comp. *(Bulgarian)* 4−82785

caesium clocks *see atomic clocks*

caesium compounds
see also caesium alloys
biphthalate, influence of anisotropy on thermal expansion 4−67055
biphthalate crystals, modulus of elasticity at room temp. 4−66955
halides, local elastic const. at impurity ions 4−63836
halides, u.s. attenuation, phonon viscosity, drag coeff. 4−66994
hydrogen dichloroacetate, mol. motion obs. by ^{35}Cl n.q.r. and dielectric meas. 4−61062
CSI, entropy of formation of Schottky defects 4−66905
Cs, $NaLnCl_6$, Ln = trivalent lanthanide ion, mag. susceptibilities meas., crystal field levels investig. 4−49152
CsAl alum:Ti^{3+}, Jahn-Teller coupling, quasi Γ_8 ground state 4−79299
CsBr, entropy of formation of Schottky defects 4−66905
CsBr, free surface energy, u.s. meas. *(German)* 4−51179
CsBr, homologous activators, luminesc. thermal stability *(Russian)* 4−82758
CsBr, interionic pots. from cryst. data at different temps. 4−69747

caesium compounds continued
CsBr, microwave rot. spectrum, Dunham energy coeffs. *(German)* 4 −48056
CsBr, V_k-centres, autolocalized holes in luminescing cryst. *(Russian)* 4−73204
CsBr/Xe, degassing in neutron irrad. cryst., gas reaction with defects *(German)* 4−79195
$CsCdCl_3:Mn^{2+}$, single cryst., e.p.r. isolated ions and pairs 4−70207
$CsCdF_3$, e.p.r. of Fe^{3+} and Cr^{3+}, distortion due to Cd^{2+} vacancy *(French)* 4−79582
CsCl, adsorption on Y and Sc films, influence on film resistance and work function *(Russian)* 4−52999
CsCl, effective escape depth of photoemission from colour centres 4−49529
CsCl, entropy of formation of Schottky defects 4−66905
CsCl, inelastic rotational collision cross-section, sudden approx. theory 4−60124
CsCl, interionic pots. from cryst. data at different temps. 4−69747
CsCl, microwave rot. spectrum, Dunham energy coeffs. *(German)* 4−48056
CsCl, mol. beam, interaction potential with conducting surface 4−61268
CsCl, optically stimulated exoelectron emission 4−53582
CsCl, rot. excitation of polar mols. by electron impact, theory 4−66511
CsCl, semi-infinite slab, free surfaces normal to [110] direction, surface modes of vibr. 4−72624
CsCl, surface waves, dynamic surface problem 4−79230
CsCl, Van der Waals forces between CsCl and Au and glass surfaces 4−63977
CsCl, X-ray photoelectron spectrum, satellite struct. 4−63350
CsCl+e, scatt. cross sections investig., mol. beam recoil method 4−81803
Cs_3CoBr_5, $^4A_2$ ground state obs. by Zeeman effect of optical absorption lines 4−76268
Cs_3CoBr_5, absorpt. spectra and mag. circular dichroism of spin-forbidden ligand field transitions 4−61180
$CsCoCl_3$, mag. struct. obs. at 4.2K by neutron diffraction 4−57289
Cs_3CoCl_5, $^4A_2$ ground states obs. by Zeeman effect of optical absorption lines 4−76268
$CsCoCl_3.2D_2O$, magnetic phase diagram, tricritical point 4−79517
$CsCoCl_3.2H_2O$, spin cluster resonance, temp. depend. and impurity effects, exchange interaction calc. 4−61037
Cs_2CrCl_4, neutron diffraction obs. of cryst. and mag. struct. 4−67379
$CsCuCl_3$, antiferromag. piezoelectric, electromagnetooptical effect 4−57503
$Cs_2Cu(H_2O)_6(SO_4)_2$, copper Tutton's salt, anisotropic mag. susceptibilities, meas. using Faraday method 4−64192
CsD_2AsO_4, complex structure in ferroelectric phase 4−67535
CsD_2AsO_4, efficient second harmonic generation at 5321Å 4−62857
CsF, interionic pot. using rigid-ion models 4−72441
CsF, microwave rot. spectrum, Dunham energy coeffs. *(German)* 4−48056
CsF, mol. beam, interaction potential with conducting surface 4−61268
CsF, rot. excitation of polar mols. by electron impact, theory 4−66511
CsF impregnated activated carbon, for Kr and Xe radioisotopes retention *(Czech)* 4−55902
CsF+e scattering, 0.69-6.81 eV electrons, scatt. cross sections determ., mol. beam recoil technique 4−75034
$CsFeBr_3$, structure and magnetic properties 4−72956
$CsFeCl_3$, Mossbauer spectra obs., 4.2 to 300K 4−64309
$CsFeF_4$, layer antiferromagnet, sublattice magnetisation, Mossbauer obs. 4−64241
$CsFe(WO_4)_2$, single crysts., synthesis growth and phys. props. 4−45416
CsH_2AsO_4, efficient second harmonic generation at 5321Å 4−62857
CsH_2AsO_4, Raman spectrum, ferroelec. mode, mol. struct. 4−79728
Cs_2HAsO_4, cryst., ferroelec., n.m.r. study of high temp. struct. phase transitions 4−53379
$CsH_3(SeO_3)2$, p.m.r., H bonding, phase transition 4−70222
Cs_2HfCl_6, Ru^{3+} and Ir^{3+} e.p.r. of low-spin ground state crysts. 4−53305
CsI, Debye temp. using X-ray diffr. *(French)* 4−44635
CsI, HS^- impurity ion vibr. absorpt. bands, phonon wings obs. 4−79765
CsI, interionic pots. from cryst. data at different temps. 4−69747
CsI, microwave rot. spectrum, Dunham energy coeffs. *(German)* 4−48056
CsI, obs. of isotopic self diffusion of ^{131}Cs and ^{137}Cs, 470-600°C 4−48801
CsI, X-irrad., exoelectron emission 4−49540
$CsI:IO_3^-$, i.r. spectrum, local symm. *(Russian)* 4−67627
CsI:Na, film detector, scintillation characts., prep. conditions depend. *(Russian)* 4−80990
CsI:Na, nature of luminesc. centres *(Russian)* 4−82730
CsI:Tl, heavy ion scintillation efficiency, track effect theory 4−49412
CsI:Tl, scintillator luminesc. kinetics, single photon method *(Russian)* 4−73160
CsI/Xe, degassing in neutron irrad. cryst., gas reaction with defects *(German)* 4−79195
CsI_3, cryst., vibr. spectra, I_3^- ion config. investig. 4−73116
Cs_2I_8, ^{127}I n.q.r., electronic state of ions 4−53337
$CsIBr_2$, single cryst., Raman spectra, polarisation measurements, band assignment *(French)* 4−70308
CsI(Na), anionic impurities effect on optical and scintillation characts. *(Russian)* 4−61230
CsI(Na) phoswich scintillation detectors, dual energy anal. for low-level in-vivo counting 4−51166
CsI(Na) scintillation detector, pulse height temp. dependence and eff. on resolving power *(Czcech)* 4−42894
CsI(Tl), luminescence spectra and light yield meas., effects of gamma irradiation 4−79774
CsI(Tl) scintillation crystal, isolation of Cherenkov flash 4−42889
$CsI.RI_3$ complex formation obs., R=Nd,Ce 4−56188

caesium compounds continued
$Cs_3In(SO_4)_3$, prep. and cryst. struct. *(French)* 4−63807
$CsLa(WO_4)_2$, crystn. from Cs_2WO_4-$La_2(WO_4)_3$ mixtures, phase diag. 4−48732
$Cs(M_{0.5}Al_{1.5})F_6$, pyrochlore, M=Li, Na, K, Rb, 1/3 cation ordering *(French)* 4−48580
$CsMgBr(I)_3:V^{2+}(Mn^{2+})(Ni^{22+})$ e.s.r. determ. 4−53299
$CsMg_{0.92}Mn_{0.08}Br_3$, cryst., electronic spectra, powder, mag. suscept. investig. rel. to temp. 4−53461
$Cs_2Mg(MoO_4)_2.4H_2O$, crystal structure *(French)* 4−69772
$CsMnBr_3$, cryst., electronic spectra, powder, mag. suscept. investig. rel. to temp. 4−53461
$CsMnCl_3$, drop calorimetry determ. of enthalpy, enthalpy of fusion and sp. ht. 4−56888
Cs_2MnCl_4, drop calorimetry determ. of enthalpy, enthalpy of fusion and sp. ht. 4−56888
$Cs_3MnCl_5:MnCl_4^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72541
$CsMnCl_3.2H_2O$, Heisenberg paramag., high-temp. spin dynamics from proton spin lattice relax. 4−53209
$CsMnCl_3.2(H_2O)$, proton relaxation time and interchain couplings 4−82630
$CsMnF_3$, antiferromag., dynamic susceptibility meas. *(Russian)* 4−82620
$CsMnF_3$, electron and nucl. spin wave propag. *(Russian)* 4−72982
$CsMnF_3$, growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4−70402
$CsMnF_3$, mag. birefringence *(Russian)* 4−79706
$CsMnF_3$, two photon absorption by Mn^{2+}, cross section meas. *(Russian)* 4−67614
Cs_2MoO_4, cryst., heat capacity, thermodynamic props., standard Gibbs energy of form. determ. 4−52904
Cs_2MoO_4-$Eu_2(MoO_4)_3$, phase diagram and cpd. formation 4−44650
$Cs_2Mo_3O_{16}$, $Cs_2Mo_7O_{22}$, cryst. struct. determ. 4−60448
Cs_2MoOS_3, X-ray photoelectron spectra in valence region, level assignment 4−72233
$Cs_{0.3}MoS_2$ intercalated layer cpds., H_{c2} depend. on temp., positive curvature, Josephson interaction *(Russian)* 4−79449
$CsNO_3$, spectroscopic manifestation of thermally activated disordering of NO_3^- ion 4−79731
Cs_2NaMCl_6, M=trivalent actinide in octahedral environment, mag. props. 4−49153
$CsNiF_3$, mag. phase diagram determ. by neutron diffraction 4−45116
$CsNiF_3$:Fe, Mossbauer spectrum, hyperfine fields, 1.4-300K 4−64290
CsO, matrix isolated in N_2, Kr, Ar, e.s.r., $^2\Sigma$ ground state, inner shell bonding 4−52213
CsO_2, obs. of phase transitions by means of mag. and caloric props. *(German)* 4−49178
CsO_2, phase transforms., X-ray obs. 4−48756
CsO_2, single crystal, refractive index and double refraction measurements *(German)* 4−79693
Cs_2O, heat capacity determ., Gibbs energy of form., thermodynamic functions derived 4−52903
Cs_2O-$(Nb,Ta)_2O_5$-Al_2O_3, glass form., struct. 4−63764
Cs_2O-B_2O_3 glass, Cu, Cl effects on colour, absorpt. spectra obs. 4−70335
Cs_2O-SiO_2 glass, e.p.r. spectroscopic investigation of struct. at high press. 4−48510
Cs_2O_3PF, thermodynamic props. calc. from optical constants, densities and mag. susceptibilities determ. 4−45261
$Cs_2O.P_2O_5$, in mixed alkali glass, internal friction 4−60553
$Cs_2O.3B_2O_3$, cryst. struct. refinement 4−48547
$CsPbCl_3$, phase transitions investig., neutron diffr. techniques 4−69907
$Cs_2Pt(NO_2)_4$, ^{14}N and ^{15}N substituted, i.r. and Raman spectra, vibrational assignment 4−78462
Cs_3Sb film, polarization at low temp., possible appl. to resist meas. 4−70395
Cs_2SbBr_6, heat capacity determ. rel. to temp., entropy estimated 4−52902
Cs_2SbCl_6, delocalised electron pairs, inter and intra site interactions, temperature dependence 4−64003
$Cs_3(Sb_3F_{12}O_3)$, cryst. and mol. struct. *(German)* 4−78982
$Cs_2Sb_xSn_{1-x}Cl_6$, electron and Mossbauer spectra, packing and nearest neighbour model 4−49273
Cs_2SnCl_6, cryst. struct., rel. to cryst. field effect in n.q.r. and vibr. spectra 4−52730
Cs_2SnF_6, Mossbauer ^{119}Sn chem. shifts 4−79646
$CsSrCl_3$, twinning and phase transitions obs. 4−72479
$Cs_2(TCNQ)_3$, trimer approx. to electronic struct. 4−67342
$Cs_3Tl(SO_4)_3$, prep. and cryst. struct. *(French)* 4−63807
$Cs_2UO_2F_4.H_2O$, cryst. struct. 4−69765
$Cs_2(UO_2)_2(SO_4)_3$, luminescence, phononless lines, temp. broadening, line shift 4−53516
Cs_2WO_4-$La_2(WO_4)_3$, sintered mixtures, phase diag. 4−48732
Cs_2WOS_3, X-ray photoelectron spectra in valence region, level assignment 4−72233
$CsYF_6:Yb^{3+}:Er^{3+}(HO^{3+})$ phosphor, conversion of i.r. to visible emission 4−49425
$Cs_2Zn[Fe(CN)_6]$, cryst. struct. 4−69773
Cs_2ZrCl_6, drop calorimetry determ. of enthalpy, enthalpy of fusion and sp. ht. 4−56888
Cs_2ZrCl_6, Ru^{3+} and Ir^{3+} e.p.r. of low-spin ground state crysts. 4−53305
$Cs_2ZrCl_6:IrCl_6^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72542
$Cs_2ZrCl_6:Mo^{4+}$, mag. circular dichroism, u.v. absorpt. spectra, temp. depend. and assignments 4−49402
$Cs_2ZrCl_6:U^{4+}$, cubic cryst., relative intensities in vibronic Zeeman effect 4−73114
Cs_2ZrF_6, i.r. and Raman spectra, vibr. assignment, normal coord. anal. 4−48036
$Cs_2[Re_2Cl_8].2H_2O$, complete cryst. structure determ. 4−66882
$K_xCs_{1-x}C_8$ ternary cpds., paramag. susceptibility anomaly w.r.t. comp. *(French)* 4−60939
(Na,Cs)(F,Cl) reciprocal molten salt, liquidus topology, liq.-liq. miscibility gap 4−56854
caesium generators *see plasma diodes*

caesium plasma diodes *see plasma diodes*
calcium
absorption in acetylene-air flame, inorg. acids effect *(Russian)* 4−42966
atom, excitation of spectral lines in discharge tube with hollow cathode 4−63418
atom, resonance line excitation, Born, cross sections 4−51953
atom, spectral line broadening by inert gas collisions 4−66352
atomic spectrum, np^2 terms effect on singlets, quantum defect anal. 4−63325
chromospheric Ca II K-line spectrograms, intensity perturbations 4−50454
de Haas-van Alphen effect, anal. of second band-hole surface 4−44833
elastic constants, third order, calc. 4−73314
fractional intestinal absorption rapid method for measurement 4−80734
K X-ray absorption spectrum calc. using self consistent energy band calc. 4−57644
laser, Ca vapour in He buffer gas, stimulated emission at 0.3737 μ 4−51566
liquid, v.p. curve *(German)* 4−82262
metastable states prod. by discharge in heat pipe, absorpt. spectra 4−59911
myoplasmic conc. in crayfish muscle fibre, regulation of 4−83297
plant material, determination by atomic absorption spectrophotometry 4−65583
South Pacific, Ca profile correlation with carbonate alkalinity 4−73509
total-body quantification, by ^{37}Ar excretion meas. following neutron activation 4−83331
vapour pressure determ. rel. to temp., heat of sublimation calc. 4−52884
X-radiometric analysis of soil *(Russian)* 4−50392
Ca II H and K lines of solar prominences 4−70912
Ca II H-line obs. in eruptive prominence (June 1973) 4−70914
Ca II/Na I ratio in interstellar clouds rel. to Ca I absorption prediction 4−46287
Ca XV forbidden lines from loop prominence (Aug. 1972) 4−70913
Ca-^{45}Ca isotope exchange, between calcite crysts. and $CaCO_3$ soln., influence of Mg^{2+} ions 4−50207
Ca + H(He)(C)(N)(O)(Ne), K-shell ionisation, projectile depend. 4−74873
Ca + O^{5+}(O^{7+}), 24-48 MeV, Ca double K-shell ionisation 4−63372
Ca + Si, noncharacteristic Si X-ray end-point variations, projectile Z depend. 4−57641
Ca^+, resonance charge transfer cross sections, energy depend., 6-1000 eV *(Russian)* 4−72099
CaII H and K line profiles in spectrophotometric anal. of 1971 Sept 30, solar prominence *(Russian)* 4−54404
KCl:Ca, etching, role of distributed impurities 4−48862
Mo-C, cast and recrystallised, effect of alloying with Fe, Ca, Ni, Ir, mechanical props. 4−82948
NaCl, Ca impurity addition during growth rel. to optical props. *(German)* 4−73253
NaCl:Ca, critical value of slip strain of {001} planes up to 300K 4−44588
NaCl:Ca slowly cooled at room temp. flow stress, nature of Ca obstacles 4−72521
NaCl:Ca^{2+}, cryst., jump freq. of cations, ionic radius effect 4−69933
NaCl:Ca^{2+}, single crystal, quadrupole distortions meas. by pulsed nuclear magnetic double resonance 4−82636
YIG:Ca, d.c. cond. and Seebeck coeff. meas. under varying O press., 1200-1700K 4−67214
ZrO_2, Ca-stabilized, solid electrolytes, partial conductivity at 900° to 1200°C, obs. 4−52932
calcium compounds
aragonite:Mn^{2+}, anisotropy effects, exptl. obs. 4−51117
calcite:HCO_3^{2-}, irradiated single crystal e.p.r. absorption spectrum 4−67442
calcite:Mn^{2+}, forbidden lines in e.s.r. spectrum 4−67441
calcium formate, single crystal, Raman spectrum 4−57527
copper acetate hexahydrate, X-band single cryst. e.p.r. investigation 4−76142
dicalcium lead propionate, II-III transitions, critical points, dielectric constant meas. 4−82674
dicalcium strontium propionate, II-III transitions, critical points 4−82674
dicalcium strontium propionate, paraelec. electrostriction 4−73077
epidote, $Ca_2Al_2(Fe, Al)Si_3O_{12}(OH)$, ^{27}Al n.m.r. obs. 4−79606
Iceland spar, atomic struct. of cryst. faces, clarification *(German)* 4−72405
metasilicate glass, i.r. spectra and crystallisation *(Russian)* 4−66835
pseudowollastonite, γ-irrad., e.p.r. spectra, paramag. centres 4−53295
soda-lime-silica glass, u.s. intensity rel. to stress release *(German)* 4−49974
spodiosite analogues, vibr. spectra assignments and cryst. struct. effects 4−64378
titanate, synthesis of capacitor materials with aqueous solutions of acid 4−70540
zirconates, synthesis of capacitor materials with aqueous solutions of acid 4−70540
$CAWO_4$ X-ray screens, comparison with rare earth oxysulphide screens, quantum utilisation 4−54684
(Ca, Cd)S phosphors, structural and luminescence properties 4−49427
Ca-$CaCl_2$, thermodynamic props. from electrochem. meas. 4−50173
Ca-Ni, growth and struct. of four intermetallic compounds 4−76419
Ca-Si system, melting equil. *(German)* 4−79896
$Ca_2Al_2SiO_7$-$Sr_2Al_2SiO_7$, ordering obs. 4−44517
Ca_2As, struct. *(German)* 4−72445
Ca_3BO_3Cl, cryst. struct., unit-cell consts. determ. 4−56676
$CaB_3O_4(OH)_3.H_2O$, critical behaviour, ^{11}B spin-lattice relax. obs. 4−79684
Ca_5Bi_3, cryst. struct., X-ray diffr. 4−66870
$Ca_{2.7}Bi_{0.3}Fe_{3.65-x}V_{1.35}O_{12}$, ferrimag. resonance, mag. props. rel. to crystal field symmetry 4−64267
calcium compounds continued
$CaBr_2$, film, Au electrodes, forming, negative resist. and dead time effects 4−57184
$CaC_6H_6O_7.3H_2O$, cryst. struct. 4−66899
$CaCO_3$, bound and dissociating two phonon states under Fermi reson. conditions 4−79732
$CaCO_3$, calcite, sliding friction behaviour, chemomech. control 4−61489
$CaCO_3$, calcite crystals, temp. dependence of growth of twinning layer 4−52778
$CaCO_3$, calcite single crysts. and sat. soln., influence of Mg^{2+} ions on Ca-^{45}Ca isotope exchange 4−50207
$CaCO_3$, calcite single crystals, dislocations, TEM obs 4−52759
$CaCO_3$, dissolution kinetics in sea water, inhibitors 4−64838
$CaCO_3$, e.p.r. of Fe^{2+}, absorpt. line parameters *(Russian)* 4−70213
$CaCO_3$, growth of single crystals, top-seeded soln. technique 4−76386
$CaCO_3$, stimulated Raman scatt., ang. distrib. deviation from phase matching condition 4−69085
$CaCO_3$, thermal dissociation, kinetic theory formulation *(German)* 4−50144
$CaCO_3$ saturation in northeastern Pacific 4−57981
$CaCO_3$:Co_2^-:CO_3^{3-}, e.s.r., superhyperfine struct. 4−57367
$CaCO_3$:Mn^{2+}, uniaxial stress e.p.r. expts., temp. depend. of axial parameter 4−67445
$CaCO_3$(II), (III), high pressure phases, X-ray diffr. obs. 4−46614
CaCl, intercombination system in emission spectrum due to $E^2\Sigma$-$B^2\Sigma$ transition 4−47986
$CaCl_2$, Kβ-emission and K-absorpt. X-ray spectra obs. rel. to band struct. 4−61248
$CaCl_2$-D_2O, diamag. electrolyte soln., struct. breaking investig. 4−61015
$CaCo_3$, calcite uniaxial crystal, generalized ellipsometry meas. 4−42808
$Ca_3(CrO_4)_2$, single cryst., unit cell dimensions and mol. struct. 4−66872
CaF, anal. of $B^2\Sigma$-$X^2\Sigma$ band system in 20336-17959 cm^{-1} region 4−47984
CaF_2, ^{19}F nuclear antiferromagnetic state, susceptibility meas. 4−72958
CaF_2, AR-coated window, laser pulse damage meas. 4−55501
CaF_2, adiabatic rapid passage n.m.r. signal amplitude and local field meas. 4−49242
CaF_2, coloration, and luminesc. in oxygenated samples and u.v. absorpt. 4−53520
CaF_2, comparative density measurements with W 4−74186
CaF_2, conduction bands calc. using orthogonalised plane-wave method 4−75784
CaF_2, e.s.r., hole centre struct. and characts. 4−76162
CaF_2, elec. cond., electrochem. obs. 4−48975
CaF_2, ferroelectric behaviour, hysteresis, birefringence 4−53380
CaF_2, fluorite crystal with paramag. centres, nuclear spin system dynamics 4−79611
CaF_2, grain structures, X-ray topography (Berg-Barrett technique) *(German)* 4−75680
CaF_2, ground spherical single cryst., etching effect on X-ray diffr. 4−44786
CaF_2, γ-irrad., colouring curves, obs. of absorpt. bands 4−53482
CaF_2, h.f. interaction of U^{3+} by r.f. discrete saturation technique *(Russian)* 4−67447
CaF_2, microinclusion light scattering centre formation in crystallization from melt *(Russian)* 4−73247
CaF_2, mirror image cleaved surface pairs, elec. struct. 4−57157
CaF_2, n.m.r., moments determ., free induction decay 4−79610
CaF_2, n.m.r. line shape calc., modified moment expansions 4−49244
CaF_2, Nd doping effect on dislocation velocity 4−66919
CaF_2, neutral interstitial H, contact hyperfine interactions calc. 4−79313
CaF_2, optical fluorite, radiation strength, effect of raw material 4−69074
CaF_2, ordered lattice defects, transmission electron microscopy obs. 4−66914
CaF_2, planar channelling of 0.9 MeV protons 4−79077
CaF_2, polarisation method for n.m.r. obs. of ^{43}Ca 4−53319
CaF_2, Raman spectra meas. rel. to press., phase transform. Gruneisen coeff. investig. 4−76246
CaF_2, relaxation of ^{17}F into single nuclear-spin temperature 4−49215
CaF_2, single cryst., selective etching parameters 4−56997
CaF_2, single crystals, pure and YF_3 doped, Ca diffusion meas. 4−44708
CaF_2, X-ray emission and absorpt. spectra, energy zone struct. *(Russian)* 4−49483
CaF_2, X-ray induced thermally activated polarization transfers 4−67517
CaF_2, X-ray refr. index meas. *(Russian)* 4−78866
CaF_2 crystal, calcs. of hole bands 4−79294
CaF_2 films, single crystal, epitaxial growth on NaCl substrate 4−44797
CaF_2 powder compacts, radial and axial shrinkage behaviour obs. 4−81631
CaF_2 powders, water effect on sintering and ionic cond. 4−49918
CaF_2 solid electrolyte, ionic cond. 4−53102
CaF_2: rare earth, relax. of type-I dipolar complexes investigation using ionic thermocurrent techniques 4−75813
CaF_2: rare earth ions, fluorite crystal, photostimulated thermolum. obs. 4−49474
CaF_2:Ce^{3+}, dielectric relax. and absorption spectrum, dipole orientation and aggregation investigation 4−61101
CaF_2:CeO_2, spectroscopic investigation of coloration behaviour 4−45342
CaF_2:Co^{2+}, optical absorption spectra pbs. 4−70332
CaF_2:Dy^{3+}, spin-lattice relax. times, orientational depend. 4−79591
CaF_2:Dy^{3+}, spin-lattice relax., mag. circular dichroism obs. 4−79768
CaF_2:Er^{3+}, cubic sites, ion-defect clustering 4−79058
CaF_2:Er^{3+}, cubic sites, ion-defect clustering 4−79059
CaF_2:Er^{3+}, far-i.r. absorpt. spectra, Stark level transitions, temp. depend. 4−73140
CaF_2:Er^{3+}, low temp. luminesc., vibronic sideband 4−64418

calcium compounds continued
- $CaF_2:Er^{3+}$, phosphorescence decay obs., probability of recomb. of V_k-hole centres with impurity electrons 4−57628
- $CaF_2:Er^{3+}$, thermoluminesc., fluoresc., symmetry 4−82763
- $CaF_2:Er^{3+}:TR^{3+}$, (TR=La-Lu), optical spectra, optical centre equilib. 4−53481
- $CaF_2:Eu^{2+}$, luminesc., short term X-ray excitation, exciton role *(Russian)* 4−73159
- $CaF_2:Eu^{2+}$, optical absorption spectrum, crystal field theory calcs. 4−49378
- $CaF_2:Eu^{2+}$, vibronic fluorescence calc. at 4130 Å, Jahn-Teller problem 4−57621
- $CaF_2:Eu^{3+}:TR^{3+}$, (TR=La-Lu), optical spectra, optical centre equilib. 4−53481
- $CaF_2:Gd^{3+}$, e.s.r. superhyperfine struct. for cubic centre 4−53301
- $CaF_2:Gd^{3+}$, electrostatically correlated crystal field interaction, B_0^0 term 4−48917
- $CaF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4−44880
- $CaF_2:Gd^{3+}$, strain effect on e.s.r. parameters using u.s. modulation 4−53304
- $CaF_2:Ho^{2+}$, ENDOR spectrum anal. 4−73050
- $CaF_2:Ho^{3+}$, 4f to 5d transitions, absorpt. spectra obs., 1280 to 1600Å 4−64412
- $CaF_2:La$, additively coloured, for ruby laser Q-switching 4−59425
- $CaF_2:La,Er$, absorption spectrum laser induced changes 4−61184
- $CaF_2:Mn$, cubic Mn centre, kinetics, e.p.r. study 4−73026
- $CaF_2:Mn^{2+}$, hyperfine coupling const., temp. var. 4−44865
- $CaF_2:Na(Mn)$, dielectric props., freq. and temp. depend. 4−64327
- $CaF_2:O_2$-, e.p.r., motional effects 4−73028
- $CaF_2:Pu^{3+}$, crystal field model of hyperfine interaction 4−48919
- CaF_2:rare earth, fluorite, radiation-induced defects unstable at 77K, photostimulated thermolum. obs. 4−49475
- $CaF_2:Sc^{2+}$, e.p.r., dynamic Jahn-Teller effect 4−79589
- $CaF_2:Tm^{2+}(Ho^{2+})$, spin-lattice relax. with spherical lattice waves and cubic cryst. field 4−64259
- $CaF_2:Tm^{2+}(Yb^{3+})$, e.p.r. shift due to uniaxial stress, spin-lattice relax. 4−57365
- $CaF_2:V^{3+}$, ENDOR, transient processes, time consts. 4−79644
- $CaF_2:Yb^{3+}(Dy^{3+})$ e.p.r. meas. of stress-induced g-shifts of Γ_7 levels 4−76156
- $Ca_5F(PO_4)_3:Cd,Sb$ colour centre growth dynamics and models 4−57580
- $CaF_2.r_cRF_3$, R=Y or lanthanon, r_c=stoichiometry number, congruently melting, composition determination 4−63925
- $Ca_2Fe_2O_5$, cylindrical domain struct., magneto-optical props., absorpt. spectra obs. 4−57576
- $Ca_2Fe_2O_5$, Fe replacement by group III B elements *(French)* 4−69762
- $Ca_3Fe_{3.5}V_{1.5}O_{12}$, single crysts., ferromag. reson. 4−53314
- $CaGe_2(Si_2)$, elec. resist., 20-800°C 4−60795
- CaH, u.v. absorpt. spectrum rot. anal. of 3060 Å band system 4−60055
- CaH, u.v. absorpt. spectrum, struct. of d-complex around 2850 Å 4−60056
- $Ca_5(HAsO_4)_2(AsO_4)_2.9H_2O$ guerinite, cryst. struct. 4−60439
- $CaHPO_4.2H_2O$, growth from soln., additives effect 4−82123
- CaI, band spectrum, 6610-6175 Å, A and B systems, vibr. analysis 4−56187
- CaI_2, adsorption of methane and krypton, interaction energies determ. *(French)* 4−44778
- CaLaSOAP:Nd, (silicate oxyapatite), pulsed mode-locked oscillator at 1.06 μ, characts. 4−62843
- CaLaSOAP:Nd, high power, flash pumped, Q-switched laser 4−77676
- $Ca_8La_2(VO_4)_6O_2$, apatite structure, lattice parameters *(French)* 4−44514
- $Ca_4Ln_6[SiO_4]_6F_2$, Ln=Nd, Y, Yb, synthesis and comp. 4−53797
- $Ca_{18}Mg_2H_2(PO_4)_{14}$, synthetic Mg-whitlockite, cryst. struct. 4−63803
- $CaMn_7O_{12}$, high press. synthesis, crystal struct., perovskite like cpds. 4−75495
- $Ca_2MnO_4:Pb$, superstructure deform. due to Pb substitution, X-ray diffr. obs. 4−56683
- $CaMoO_4$, diffusion mass transfer in solid-state synthesis 4−45898
- $CaMoO_4$, external lattice vibr. modes, calc. 4−44613
- $CaMoO_4$, single cryst., elastic const., optimum values 4−75557
- $CaMoO_4:Gd^{3+}$, e.p.r. meas., external elec. field influence 4−79595
- $Ca(NO_3)_2+KNO_3$, molten, diffusion coeffs. of Ag^+, Cl^-, Br^- ions meas., transport props. investig. 4−52920
- $Ca(NO_3)2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4−69729
- $Ca(NO_3)_2.4CH_3OH$, cryst., mol. struct. determ. *(French)* 4−78968
- $Ca(NO_3)_2.4H_2O$, effect of water of crystallisation on Raman spectra *(Russian)* 4−70315
- $CaNaHSiO_4$, cryst. struct. calcs. using rhomb method 4−75501
- $Ca(NbO_3)_2$, crystal, space-charge-limited currents 4−79366
- $Ca_2Nb_2O_7$ single crysts., ferroelec. props. 4−64351
- CaO, F-centre, Jahn Teller effect, Lie groups 4−60745
- CaO, lowest $^3\pi$ and $^1\pi$ state assignment 4−56125
- CaO, phosphoresc. microwave double reson., coherent Jahn-Teller states 4−73049
- CaO, proton irradiated, isolated V^--centres obs., e.s.r. spectrum 4−67450
- CaO film, r.f. sputtered, struct., X-ray obs. 4−67135
- CaO glass content, 15 wt. % Na_2O, also Al_2O and MgO, Tb^{3+} activated luminesc. 4−70344
- CaO partially stabilized zirconia, thermal shock structures 4−49896
- CaO partially stabilized zirconia, fracture toughness 4−53802
- CaO partially stabilized ZrO_2, work-of-fracture correl. with fracture toughness 4−64608
- CaO partially stabilized ZrO_2, microstruct. development and fracture toughness 4−73348
- $CaO:Dy^{3+}(Yb^{3+})$, e.p.r. 4−57362
- $CaO\text{-}Al_2O_3\text{-}CaF_2$ system, glass form., electron microscopic, i.r. spectra obs., liq. zone 4−69730
- $CaO\text{-}Al_2O_3\text{-}SiO_2\text{-}Na_2O\text{-}MgO\text{-}Fe_2O_3$, aluminocalcium sinters, phase comp. 4−53800
- $CaO\text{-}CuO\text{-}P_2O_5$ glass, i.r. absorp. spectra 4−61144
- $CaO\text{-}HfO_2$ system, fluorite related phases 4−48740

calcium compounds continued
- $CaO\text{-}MgO\text{-}Cr_2O_3\text{-}SiO_2$ system, compatibility relations of periclase 4−64614
- $CaO\text{-}MgO\text{-}Fe_2O_3\text{-}SiO_2$ system, compatibility relationships of magnesiowustite phase in air 4−64615
- $CaO\text{-}MgO\text{-}ZrO_2\text{-}SiO_2$ system, compatibility relationships of periclase 4−76524
- $CaO\text{-}Na_2O\text{-}P_2O_5$ system, phase coexistence 4−79140
- $CaO\text{-}Na_2O\text{-}SiO_2$, etched glass, tensile strength meas., thickness depend. 4−57777
- $CaO\text{-}Na_2O\text{-}SnO_2(SnO)\text{-}SiO_2$ system synthesis conditions 4−69727
- $CaO\text{-}SiO_2$ system glasses, radiation paramag. centres in liquation phases 4−61034
- CaO-stabilised ZrO_2, solid electrolyte, oxygen transfer with $Ga\text{-}Ga_2O_3$ electrode, kinetics 4−45913
- $CaO\text{-}V_2O_5\text{-}P_2O_5:Cu_2O$ glass, elec. cond. reln. to exchange interaction between V^{4+} and Cu^{2+} ions 4−75862
- $CaO\text{-}ZrO_2$ solid-state galvanic cells, coulometric titration, applic. to wustite 4−58991
- CaO_x, ozone matrix reaction, i.r. spectra, isotope shifts 4−48025
- $Ca(OH)_2$, $Ca(OD)_2:Mn^{2+}$, isotope effects in e.p.r. 4−64258
- $CaO.Al_2O_3.MgO.SiO_2$, melilite, polycryst. and corresponding glass, viscosity curve during heating 4−44693
- $3CaO.CaF_2.2SiO_2$, cuspidine, polycryst. and corresponding glass, viscosity curve during heating 4−44693
- $CaO.P_2O_5$ glass, ortho-para positronium quenching by transition metal ions 4−60518
- $CaO.SiO_2$, polycryst. and corresponding glass, viscosity curve during heating 4−44693
- $CaO.ZrO_2\text{-}ZrO_2$ eutectic, directionally solidified, fracture behaviour and microstruct. effects 4−73370
- $\beta\text{-}Ca_3(PO_4)_2:Mg$, crystal structure 4−63813
- $Ca_3(PO_4)_2CaF_2$, secondary ion-microanalysis of F conc. 4−55160
- $Ca_3(PO_4)_2CaX_2$, formation reaction of chlor- and fluorchlorapatites *(Russian)* 4−73415
- $Ca_3(PO_4)_2CaX_2$ (X=halogen) based commercial luminophors, struct. characts. and optical props. *(Russian)* 4−73150
- $Ca_3(PO_4)_2CaX_2$ (X=halogen) formation chemism *(Russian)* 4−73416
- $Ca_5(PO_4)_3Cl$, e.s.r. detection of O-associated hole-like centres 4−64261
- $Ca_{10}(PO_4)_6F_2$, interatomic interaction determ. from struct., lattice-dynamical data 4−60570
- $Ca_5(PO_4)_3F:Eu^{3+}(Nd^{3+})$, fluorapatite crystal, linear Stark splitting in absorpt. spectrum 4−79763
- $Ca_3(PO_4)_2.CaF_2$ based luminophor activated by Sb and Mn *(Russian)* 4−73193
- $Ca_2Pb(C_2H_5CO_2)_6$, Brillouin scatt. exam. of phase transition 4−79720
- CaPd, struct., comparison with EuPd 4−76417
- CaS, and isoelectronic series, ionic radii and electronic polarizabilities 4−78945
- CaS:As phosphor, cathodoluminesc., decay studies 4−82756
- CaS:Bi, Tm phosphor, thermoluminesc., i.r. absorption, electron traps 4−70370
- CaS:Bi:Tm phosphor, phosphorescence decay at 96 and 300K 4−57599
- $CaSO_4$, exoemission, storage effect, role of activation 4−73234
- $CaSO_4$, luminescence of V and rare earth ions 4−76297
- $CaSO_4$, optically stimulated exoelectron emission 4−53582
- $CaSO_4:Eu, Mn$, sensitised photoluminesc. obs. *(Russian)* 4−61205
- $CaSO_4:Mn$, phosphor, i.r. stimulation, differential thermal quenching *(Russian)* 4−57596
- $CaSO_4(Dy)$ phosphor, thermoluminescent response to neutrons 4−46839
- $Ca(SO_3F)_2$, i.r. spectra 4−49334
- $CaSO_3.0.5H_2O$, cryst. data 4−63805
- $CaSO_4.2/3H_2O$, cryst. struct. *(Japanese)* 4−52744
- $CaSO_4.2H_2O$, deuteron quadrupole coupling tensor 4−53338
- $Ca_3Sc_2Ge_3O_{12}$, $Ca_3Sc_2Si_3O_{12}$, e.p.r. of V^{4+} 4−67444
- $CaSiO_3\text{-}CaGeO_3$ solid solns., i.r. spectra 4−45281
- $CaSiO_3\text{-}Gd_2SiO_5(Ho_2SiO_5)$ system, phase relations, i.r. spectra obs. *(Russian)* 4−61168
- $CaSnO_3$, stability, 973-1423K, electrochem. determ. 4−44656
- Ca_2SnO_4, stability, 973-1423K, electrochem. determ. 4−44656
- $Ca_xSr_{1-x}F_2:Er^{3+}$, anti-Stokes luminescence, matrix disorder effect 4−53515
- $Ca_xSr_{1-x}RuO_3$ solid soln. series, mag. superexchange interaction, ^{99}Ru Mossbauer obs. 4−70149
- $CaTiO_3$, soft mode in i.r. vibr. spectra meas., potential ferroelec. material 4−57555
- $CaTiO_3\text{-}SrNb_2O_6$, dielec. const. rel. to comp. 4−53360
- $CaV_{12}O_{30}$ n.m.r. meas. of ^{51}V, 8-16 MHz 4−79613
- $Ca(VO_3)_2.4H_2O$ crystals, optical consts. and differential thermal anal. 4−53389
- $CaWO_4$, dislocation etching on cleaved {001} and {100} planes 4−63993
- $CaWO_4$, external lattice vibr. modes, calc. 4−44613
- $CaWO_4$, luminesc. excitation in fund. absorpt. region using synchrotron emission *(Russian)* 4−61227
- $CaWO_4:Gd^{7/2}$, e.p.r., dipolar line broadening 4−79586
- $CaWO_4:Gd^{7/2}$, spin lattice times 4−61027
- $CaWO_4:Nd^{3+}$, mag. susceptibility and Schottky sp. ht., cryst. field calc., 10-400K 4−76032
- $CaWO_4:Nd^{3+}$, nonradiative multiphonon transition calcs. 4−53492
- $CaWO_4:Nd^{3+},Na^+$, growth from melt by Czochralski technique 4−67714
- $CaWO_4:Tb^{3+}$, cryst. field due to ion from optical spectra anal. 4−75792
- $CaWO_4:Tb^{3+}$, magnetically induced polarisation of fluorescence lines, cross relaxation *(French)* 4−64433
- $CaWO_4:V$, effect of V additions on optical props. *(Russian)* 4−73209
- $CaWO_4(:Pb)$, photoluminescence, radiothermoluminescence and conductivity after X-ray irradiation *(German)* 4−64436
- $Ce_{1-x}Ca_yO_{2-y-x}$, nonstoichiometric, ionic transference number meas. 4−52933
- $Eu_xCa_{1-x}(NH_3)_6$, Mossbauer effect, conduction electron interactions at Eu^{2+} site 4−53351

calcium compounds continued
KNO_3-$Ca(NO_3)_2$, melt, glass-forming, elec. relax. investig. in liq. and vitreous states 4–76214
$MgCO_3^\circ$ ion pair, thermodynamic props., 10 to 50C 4–64724
$(Na, Ca)_nNb_nO_{3n+2}$, electron microscopy *(French)* 4–48763
Na_2O-CaO glass, polymeric coatings effect on strength 4–73359
Na_2O-K_2O-CaO-MgO-Al_2O_3-SiO_2 system, subsolidus struct. 4–67021
Na_2SiO_3-$CaSiO_3$ system, phase equilibria 4–60598
$Sr_{1-x}Ca_xCl_2$, colour centres, e.p.r. spectrum, annealing effect 4–57378
$Y_{3-2x}Ca_{2x}Fe_{5-x}V_xO_{12}$, high Neel temp. system, n.m.r. of ^{51}V and ^{57}Fe 4–70221
$Y_{3-x}Ca_x(Ge,Si)_xFe_{5-x}O_{12}$ based epitaxial films, for bubble device appl., characts. 4–57328
$Zr_{0.85}Ca_{0.15}O_{1.85}$ space-charge polarisation at 400° to 950°C, obs. 4–53374
ZrO_2-CaO, ionic transport, theory based on vacancy mechanism 4–52935
ZrO_2-CaO system, Bi-activated luminesc. *(German)* 4–49459
ZrO_2-CaO system, partially stabilized, microstruct. development 4–67909

calculating *see calculation*

calculating apparatus
No entries

calculating machines *see calculating apparatus*

calculation
see also graphs; nomograms
Adams-Nickerson colour difference formula, computerless calc. tables 4–54893

calculators *see calculating apparatus*

calculus
see also differentiation; integration; variational techniques
external, application to classical electrodynamism 4–47141
operational calculus for general linear differential operator of first order 4–47007
relative tensor calculus and tensor time derivative 4–55192
symbolic, PROLOG language 4–65654

calibration
see also measurement standards; standardisation
accurate measuring instruments *(German)* 4–46575
acoustic noise standards, report 4–50950
aerial photogrammetry, system calibration, Method of Mixed Ranges 4–58852
aerial photography, calibration of multi-spectral systems 4–61909
airborne remote sensing survey calibration and correlation data 4–61946
Allen-Bradley carbon resistor thermometer, R-T relation 4–46606
anemometer, conical hot film, flow direction depend. of results 4–55171
anemometers, hot wire, const. temp., static calibration 4–81098
asteroid, size determ., recalibration of photometric/radiometric method 4–76920
auroral photometer, for ground based meas., 3200-7500 Å 4–54330
bolometers, direct system, using signal generator and transformer 4–42749
camera calibration, interior orientations and correlations 4–58858
camera calibration for photogrammetric surveys by stellar method 4–58860
capillary viscosimeter, hydrostatic level determ. 4–62653
cascade impactor for radon monitoring, calib. using methylene blue dye aerosol 4–62345
centre hole technique for residual stress meas. 4–42730
circular scales, dividing error, accurate measurement method *(Japanese)* 4–46545
condensation nuclei counter, submicron aerosol standard 4–53915
double tilting goniometer stage, Siemens Elmiskop 1b 4–78871
DTA, quantitative, heat transfer errors 4–51225
dual waveguide flow calorimeter system for 1-20 W power meter calibration 4–65492
electron bombardment detector for neutral particles 4–75313
electron spectrometer, time-resolved, kinetic energy of intense, relativistic beams 4–46889
electrostatic energy analyser for quantitative utilisation 4–69650
electrostatic energy analyser for quantitative utilization 4–62507
far u.v. spectral radiance 4–51041
flowmeter calibration and testing by combined pneumohydraulic multipurpose device 4–55167
gamma camera, field nonuniformities, computer correction 4–50880
gamma ray detectors, astronomical, calibration using tagged gamma ray beam 4–46832
graphite, high temp. thermophys. props., calibration material 4–77046
graphite blackbody radiation source for spectrometer and radiometer calibration 4–80893
hadron sampling total absorption detector, calibration at 200 GeV 4–46831
Hall probe calibration for induction range $\leqslant$3T *(German)* 4–46763
heat flux probe as flowfield diagnostic method 4–46972
high pressure tools, using coaxial Ce-Bi-Tl wire as resistivity pressure gauge 4–54861
hot film sensors for turbulence meas. in water 4–77319
hot-wire anemometer, effect of fluid property variations on response 4–51241
impulse generators using Dicke type radiometers 4–68628
instruments and accuracy, hints on 4–80828
interfacility standard cell calibration by current transfer 4–65337
intermittency measuring circuit, calibration with pseudo-turbulent signal 4–65602
internal instruments for load and deform. meas. under high press. 4–73986
isocentric radiation therapy equipment, gantry angle repositioning and calibration by laser beam 4–54699
Kodak fine grain positive and no-screen film, calibration in 4-52 keV X-ray range 4–80939
lamps, spectral radiance and irradiance standards, 0.25 to 2.5 μm *(Japanese)* 4–80889

calibration continued
l.e.d. radiant flux and brightness meas. instrument *(Czech)* 4–51026
loudness, non-metric scaling, 1000 Hz tones, 10 dB rule testing 4–80813
loudness discomfort level, earphones and loudspeakers, calibration method effects 4–80807
low-power laser energy meas. calorimeters 4–65466
lysimetric calibration of Bowen Ratio-Energy Balance method, for evapotranspiration estimation 4–64911
magnetometer, vibrating dipole approximation sample 4–68744
microwave power, transfer standard thermistor mount calibration calorimeter 4–65354
neutron moisture gauges, fast neutron absorpt. problem 4–58121
nondestructive fissile material assay with lead slowing down time spectrometer 4–62508
nuclear reactor, on-line calibration of control rods by process computer *(German)* 4–81542
oil displacement flowmeter for low flows at subambient pressures 4–81106
optoacoustic air pollution detectors, laser calibration system 4–71138
paramagnetic thermometer calibration using supercond. fixed pts. 4–65400
particle size calibration material, prep. method 4–42921
permeation wafer and diffusion devices, calibration by press. differential method, for condensible and noncondensible gases 4–46499
petrochemical liquid turbine flowmeter test methods 4–77326
photoelectric devices, photomultiplier use as standard light receiver *(Russian)* 4–65435
photometry and polarimetry of faint stars in R-IR region, photographic calibration 4–46349
piezoelectric sensor for press. meas. behind shock front 4–42972
plastic phantoms for X-ray and γ-ray calibration, analytical model 4–50896
Preston Tube calibration in supersonic flow 4–46971
pulsed n.m.r. thermometer for use below 100 mK 4–46605
radar, instrument for determ. true duration of meteor echoes 4–68389
radiation therapy, depth dose representation, for all field sizes, using computer generated calibration charts 4–50862
radiometers, detector type, for (sub)millimetric quasithermal emission meas. 4–65393
radiosource absolute flux density calibration and extension to 22.285 GHz 4–71066
Rayleigh spectrometer, high precision spectral anal. 4–46659
refractories, high temp. thermal props. 4–77046
retarding field analysers, low current limit 4–46878
rotating analyzer ellipsometer, component activity effect 4–74057
seismometer, Canadian Standard Seismograph Network 4–64977
semi-automatic measuring machine, NAL, programming for bubble chamber track anal. 4–77218
spectral analysis, atom transfer calculation by modelling calibration graphs *(Russian)* 4–68847
spectrochemical multicomponent analysis, math. treatment of analytical functions *(German)* 4–62604
spectrographic absolute magnitude system, independent calibration on 562 G and K stars 4–54591
spectrometer, lasers application, using Fabry-Perot etalon 4–51036
stellar uvby luminosity calibration on Hyades cluster anomaly 4–58413
sunspot mag. field records, calibration of photoelec. meas. *(Russian)* 4–68335
surface meas. instruments, PTB standards for *(German)* 4–58736
tensoresistor, wide deformation range 4–50058
thermally stimulated exoelectron emission trap spectroscopy, calibration and resoln. 4–53579
thermocouples 4–80840
thermometer, GaAs diode, V–T charact. in 4-300K range, accurate eqn. 4–77040
thermometers, in ^{3}He bath by vapour pressure measurement *(German)* 4–54843
time delay of piezoelectric probe calibration 4–75301
tubular contactless gas thermometer calibration characteristics *(Russian)* 4–68638
uby photometry, calibration using model stellar atmospheres 4–58468
ultrashort wave refraction meas. in atmosphere 4–70747
u.s., calibration in water, press. and self reciprocity method *(German)* 4–46581
u.s. field, abs. calibration methods comparison 4–46584
uvby photometric system, calibrations and applications 4–80562
vacuum gauge, dynamic flow technique, duct flow conductance calcs. 4–62447
vibration meas., automated, data acquisition system 4–50959
waveguide power standards, automated calibration system 4–65355
X-ray beams, low energy calibration method 4–58579
X-ray spectrometer, computer-controlled, calibration and analytical results *(German)* 4–62620
yaw sphere-thermometer system, sensible heat flux meas. 4–61926
β-ray applicators, extrapolation chamber construction and use 4–77159
Al_2O_3, high temp. thermophys. props., calibration materials 4–77046
Am-Be neutron source, calibration by manganese sulphate bath method 4–51139
^{14}C dating, calibration between Washington and Miami Geosecs labs. 4–73571
^{60}Co, γ and X-ray calibrations laboratory 4–46436
Ge(Li) detectors use of ^{160}Tb, ^{182}Ta and ^{192}Ir as efficiency calibration standards 4–46791
γ and γ-n logging instruments, automatic *(Russian)* 4–55070
^{166}Ho decay, gamma-ray intensity meas. for calibration use 4–63104
^{239}Pu lung burden assessment, comparison of calibration techniques 4–58551
Si:Li p-i-n direct-reading dosimeter, calibration and applic. to radiation therapy 4–58591
Si(Li) detectors, effect of electron-momentum distrib. on shape of Compton edge, calibration use 4–55059

calibration continued
Si(Li) electron detectors, fast calibration, using ^{66}Ga double-escape peaks and Compton edges 4−77239
Si(Li) X-ray detector efficiency calibration using ^{241}Am spectra 4−55048
ThO_2, high temp. thermophys. props., calibration material 4−77046
W, high temp. thermophys. props., calibration material 4−77046

californium
crystal structure and melting point 4−82133
^{252}Cf, neutron activation analysis system, interference-free sensitivities 4−77288
^{252}Cf neutron activation facility, rapid multielement analysis 4−81085
^{252}Cf source for neutron activation analysis, interference-free detection limit calc. 4−81084

californium compounds
$^{252}Cf_2O_3$-Pb cermet, double-encapsulated neutron source 4−80982

calorimeters
see also calorimetry
adiabatic, automatic, meas. on noble metals and alloys 4−42752
adiabatic calorimeter designed to measure heats of wetting in organic liquids without admitting H_2O 4−54846
calorific emission distribution meas. *(French)* 4−68641
Cherenkov energy calorimeter for cosmic ray gamma detector 4−46854
differential emissivity calorimeter for physiological heat meas. 4−58972
differential microcalorimeter, for interactions in disperse systems 4−65396
dual waveguide flow calorimeter system for 1-20 W power meter calibration 4−65492
hadron sampling total absorption detector, calibration at 200 GeV 4−46831
heat-flow, generalised, spherical, cylindrical models, boundary value problems solved 4−50975
low-power laser energy meas. 4−65466
metal block-drop calorimeter design, thermodynamic props. of Sn II Chalcogenides *(German)* 4−69923
microcalorimeter for meas. heat of straining materials 4−54845
microwave power, transfer standard thermistor mount calibration calorimeter 4−65354
multilayer magnet muon interaction calorimeter 4−81008
plant material, Mo, P, Se, determination 4−65583
specific heat meas., high resolution vacuum calorimeter 4−62436
styrofoam, for high energy CO_2 lasers 4−51084
Teflon-diaphragm, for excess enthalpy meas. of liquid mixtures 4−62434
total-absorption, for 300 GeV neutrons and protons 4−62525
total-absorption for particle meas. at 5 to 300 GeV 4−65517
volume absorbing, for high-power laser pulses 4−71214
C portable, meas. of stopping power in C of 19.5 GeV electrons 4−65521
SF_6 gas calorimeter, use in 10.6 μm CO_2 laser system 4−65465

calorimetry
see also calorimeters; specific heat
automatic, computer control and data anal. meas. on noble metals and alloys 4−42752
5α-cholestan-3β-yl ω-phenylalkanoates, mesophase identification, transition temp. and latent heat measurement 4−69720
DTA, high pressure attachment *(German)* 4−62431
glass, stressed, dicing, calorimetric technique for strain energy release meas. 4−61479
insulating solids, instrument for calorimetric determ. of thermal cond. under continuous duty conditions *(French)* 4−68643
laser flash method for heat capacity meas. of nucl. materials 4−50976
laser technique, small optical absorption coeff. meas. 4−68661
liquid mixtures, excess enthalpy meas. using Teflon-diaphragm calorimeter 4−62434
low-temperature techniques, for the use of *(French)* 4−46611
metal, enthalpy meas. by e.m. crucible method 4−50977
optical absorption spectra continuous meas., appl. to glass 4−64365
polymer, crystallinity determ. by differential scanning calorimetry *(Japanese)* 4−52698
powder, specific surface area, microcalorimetric method 4−65369
quinine bisulphate, absolute quantum yield meas. 4−69512
rock, thermophys. props. determ. by quasistationary heating of two-layer plate *(Russian)* 4−54848
scanning adiabatic with controlled heating rate 4−46597
solids, Derivatograph, combined thermal methods 4−65394
specific heat meas. below 1K, thermal relaxation method 4−54855
thermophysical measurements under monotonic conditions, review 4−58761
thin-foil, high speed, specific heat meas. 4−46598
transient method thermal props. meas. 4−50982
vacancy parameters determination, appl. to quenched Au 4−57740
Al absolute electron energy deposition profile meas., calorimetric method 4−42873
α-Al_2O_3, corundum, enthalpy, heat of fusion and m.p. rel. to calorimetric standards 4−63902
As-Te amorphous alloys, structural and thermal properties, compositional dependence 4−66829
He boil off technique, measurement of a.c. losses in superconductors 4−68728
Hg_5Tl_2, determination of enthalpy of formation *(German)* 4−69924
Mg_2GeO_4, olivine-spinel transition, enthalpy, olivine-spinel-phenacite stability relations, thermodynamics 4−67043
Ta absolute electron energy deposition profile meas., calorimetric method 4−42873

caloristers *see calorimeters*

camera lenses *see photographic lenses*

camera tubes, television *see television camera tubes*

cameras
see also coronagraphs; television cameras
amateur film, with automatic starting device *(German)* 4−77114
Anger, influence of true counting rate and photopeak fraction on deadtime 4−62318
Anger, unmodified, tomography 4−62320
Anger camera deadtime 4−62326

cameras continued
Autocolour enlarging camera 4−51085
automatic, amateur, probability method of program determ. 4−54970
automatic focusing system, sensitivity and stability, objective chromatic aberration effect 4−68718
bore hole, with compact holographic system 4−62479
calibration, interior orientations and correlations 4−58858
calibration for photogrammetric surveys by stellar method 4−58860
counting camera for detection of thermal neutrons 4−55042
crit. survey of small hand-held professional cameras *(German)* 4−54963
discharge-diffusion camera with high-sensitivity region, charged particle track recording *(Russian)* 4−55071
droplet size spectra meas. *(German)* 4−80938
electric shutter release, automatic recording of sporadic phenomena on storage oscillograph 4−62484
electronic flash retarder, cct. using triac, construction *(Spanish)* 4−62480
film transport speed meas., error in pulsed-light method 4−58853
gamma, focusing collimator, coincidence system, lesion detection characteristics 4−54682
gamma system based on high purity Ge charge splitting detector 4−54681
gamma-ray camera for biomedical applications 4−76973
gamma-ray for nuclear medical imaging using high purity Ge, delay line readouts 4−54680
holographic real-time motion picture camera, front surface detail recording from moving object 4−68701
hot, equipment for studying polymers under uniaxial rapid tension 4−74002
image convertor streak, for picosecond framing photography of mode-locked laser pulses 4−42831
image intensifier for streamer chamber photography 4−65526
image tube streak camera improvements for subpicosecond time meas. 4−65371
Jos. Schneider company developments review *(German)* 4−51019
lens depth of field, photography of close objects 4−58855
lens holographic technique for analysing symmetrical aberrations of camera system 4−68708
Levelut-Guinier, small-angle scatt. curve distortion, primary beam convergent on counter 4−78864
low-density gas flow meas. with electron diffraction camera *(Russian)* 4−81105
measuring instrument dynamic parameter determ. by high-speed cine camera 4−77112
photomicrography with 24 mm × 36 mm mf.matic camera attachment 4−74089
picosecond optical shutter, spatial transmission 4−65475
pinhole, multiplex, for solar X-ray photography 4−58472
Polaroid SX-70 *(Czech)* 4−80940
radiographic, Anger type, window optimisation 4−46454
rotation collimator, appl. nuclear medicine 4−83327
Schmidt, for astronomical experiments 4−58459
Schmidt, prismatic correction plate 4−54605
scintillation, biomedical use, positioning technique allowing better information usage 4−54686
scintillation, with on-line computer system, for diagnostic appl. in nuclear medicine 4−80746
scintillation camera and movable filter plate system, line spread response 4−58576
Seeman-Bohlin X-ray camera, modifications 4−44438
shutter, 50% efficiency, between-the-lens, effect on balanced aberrations 4−62478
shutter-diaphragm combined systems 4−80942
Skylab's data acquisition camera system 4−42828
streak camera and image convertor used to record transient spectra 4−54937
streak tube, circular, 1 psec resolution 4−68716
testing by use of speckle patterns 4−74087
X-ray, for topographic detection of total dislocation density in perfect monocrysts. 4−60378
X-ray or γ-ray, multiple-pinhole, multiplex imaging 4−58961
γ, collimator, for imaging ^{123}I 4−68520

candoluminescence *see luminescence*

capacitance
detector, broadband polymeric foil transducer 4−65387
electrodes, capacity change with pot. investig. rel. to passivation kinetics 4−54038
m.i.s. structure, C-V characteristics, temp. and voltage sweep rate effects 4−82488
m.o.s., variation with applied voltage under continuous illumination *(French)* 4−45000
m.o.s. capacitance at high frequency, improved formula 4−60863
m.o.s. structure, capacitance and interface charge buildup model 4−49078
m.o.s. structure, CV characs., theory for computer evaluation 4−49085
m.o.s. structure, h.f., error analysis 4−45008
m.o.s. structure, h.f. capacitance, inversion charge redistrib. model 4−57180
m.o.s. structure, O^+ implantation effects on Si-SiO_2 interface 4−49082
m.o.s. structure, transient response to step function voltage, expt. *(Japanese)* 4−44999
m.o.s. structure, work function difference for Al and polycryst. Si field plates 4−60870
m.o.s. structures interface state density 4−44998
m.o.s.t., n-channel, CV characs., radiation effect, interface states growth obs. 4−57179
m.o.s.t., surface quantisation, admittance, surface capacitance studies 4−64141
p-n junction, differential jump at start of avalanche ionisation range *(Polish)* 4−57160
p-n junction, general theory of capacitance 4−79408
p-n junction, self-bias consideration in presence of harmonics 4−70064
p-n junction, single-diffused, depletion layer characterisation, from CV relation 4−57165

capacitance continued
- p-n junction, space charge layer, built in voltage, generalised equations 4—44991
- probes, capacitative for Gunn device domains, evaporation deposition technique of production 4—54986
- protein membranes, elec. props., protein charge effect 4—58496
- semiconductor, free carrier distribution meas. by junction capacitance, influence of deep traps 4—60851
- Al-Si_3N_4-Si structures, surface elec. props., h.f. CV characs. obs. 4—53149
- Au-SiO_x-Au, a.c., freq. and temp. depends. *(French)* 4—75970
- Cu/CdS/Cu multilayer, anomalous behaviour of junctions 4—72867
- GaAs, minority carrier lifetime measurement 4—57105
- Ge, amorphous, obs. of dielec. props. in untreated, heat treated and n irradiated samples 4—57183
- HgL concentrated salt solution interface, electrochem. system, effect of metal, soln., on elec. double layer 4—45920
- KNO_2, press. depend., room temp. phase 4—45236
- NaCl:Sr, time depend. of a.c. capacitance under d.c. potential 4—67530
- Pb/concentrated salt solution interface, electrochem. system, effect of metal, soln., on elec. double layer 4—45920
- Si, Schottky barrier, deep trap levels determ. 4—72720
- Si:B epitaxial film, CV profile, diffusion profile obs. 4—64521
- SiO_2, pyrolytic, in m.o.s. struct., C-V and I-V characts. 4—72870
- SiO_2-Si, m.o.s. structure, ionic clustering effects on C-V characts. 4—72871
- V_2O_5, stoichiometry depend., energy gap struct. 4—79756

capacitance measurement
- absolute farad and ohm meas. by cross capacitor 4—65344
- capacitor exposed to single pulse 4—80954
- convertor application, static *(Polish)* 4—46749
- digital LCR meter, 1 MHz automatic 4—42832
- double layer capacitance meas. at solid metal electrode during metal deposition *(Japanese)* 4—45921
- plethysmograph, capacitance type, for measuring small volume changes 4—58969
- thin film internal stress meas. using capacitance bridge 4—42728
- transient thermal scanning for deep level spectroscopy 4—75805

capacitance meters *see capacitance measurement*

capacitor storage
- 1.6 MJ axisymmetric toroidal plasma expt. TENQ 4—60313
- bank, 10 kV, low-cost, for theta-pinch PTR compression coil 4—56534
- containment magnet flat-topping power supply 4—59878
- current pulse prolongation using magnetically stored energy 4—56504
- discharge unit for production of pulsed mag. fields up to 440 kOe 4—51504
- electrolytic capacitor power source, for quasi-steady magnetoplasmadynamic arc 4—82043
- imploding liner expt. SUZY II 4—60312
- mirror containment magnet and associated equipment, electrical aspects 4—59879

capacitor stores *see capacitor storage*

capacitors
- *see also electrolytic capacitors; thin film capacitors; varactors*
- absolute farad and ohm meas. by cross capacitor 4—65344
- alkaline earth zirconates, synthesis of capacitor materials 4—70540
- dielectric semiconductor, nonlinear dielec. props., electrode insulation effect 4—70080
- e.m. fields, high-freq. sinusoidal voltage *(Russian)* 4—47260
- moisture meter, algorithm for static capacity evaluation *(Russian)* 4—46950
- radiation pulse effects, capacitance and insulation resistance meas. 4—80954
- student experiment demonstrating the behaviour of real capacitors 4—50941
- volta capacitor of two metals, appl. limits of principle of detailed equilib. *(German)* 4—82471

capillarity
- *see also bubbles; contact angle; drops; foams; liquid films; surface tension*
- capillary-gravity wave, transient linear, varitational principle from angle of contact boundary condition 4—52467
- contact angle, temp. depend., thermodynamic status, meas. and interpretation 4—79232
- dendritic growth, capillarity-limited steady-state, numerical results 4—79251
- dendritic growth, capillarity-limited steady-state, theory 4—79250
- electrodes, partially immersed wire, influence of diameter on relationship between meniscus height and pot. 4—54029
- gas penetration in porous media determ. of real coeff. by analytical method *(Russian)* 4—48379
- glass fibre impregnation with polymer dispersions, advancing contact angle determ. 4—82993
- laminar flow in triangular grooves 4—78573
- liquid circular column, surface, weakly nonlinear capillary waves, derivative expansion method 4—66639
- normal stress difference determ. by capillary tube method *(Japanese)* 4—77324
- nuclear reaction products, transmission through capillary tubes 4—77134
- polymer, electrokinetic charging during capillary extrusion 4—66679
- porosity of capillar system, electrolyte diffusion method 4—50205
- porous material, capillary dimensions determ. by diffusion 4—54080
- porous medium, entropy prod., phenomenological eqns. 4—50048
- pressure, flow of 2 immiscible fluids through porous medium, similarity solution 4—66673
- quartz, surface props. of polywater film 4—82313
- rise of liquid Zr in model of porous graphite body 4—67961
- stability of static configurations 4—52670
- vapour diffusion in fine capillaries polymol. adsorption and capillary condensation effects 4—64721
- vapour transfer through capillary porous body, theory 4—75188
- viscous liquids, surface thinning of free films *(Russian)* 4—75687
- Cu-Zn, brass, alpha/beta interface, capillarity effect 4—82836
- GaAs films, growth from soln. by pulling between two parallel substrates 4—45446

capillarity continued
- He-Ne-Ar mixture, diffusion in capillaries, Knudsen to molecular diffusion transition 4—56347
- N_2, hysteresis in sorption isotherms 4—44765

capillary phenomena *see capillarity*

capture cross-sections, nuclear *see nuclear reactions and scattering*

Caratheodory's principle *see thermodynamics*

carbon
- *see also carbon fibres; charcoal; diamond; graphite*
- absorption, air pollution control applic. 4—62343
- activated, benzene adsorption rate 4—75691
- amorphous, electron energy loss spectra 4—52795
- amorphous, nonmetal-to-metal transition obs. 4—57150
- amorphous film, adsorbed-atom capture zones of Cu 4—79235
- amorphous film, memory switching 4—75983
- arc, d.c., high helium press., discharge characts. *(German)* 4—63730
- arc, discharge gas effects on phys. and spectrochem. processes 4—62612
- arc heated electrode, high speed temp. meas. following current interruption 4—48458
- arc plasma high current, scattered laser light spectra 4—52613
- artificial carbons and graphites, mech. behaviour, fracture phenomena, structure depend. *(French)* 4—76540
- atom, approx. natural orbital description of 1_s, 1_d and ^3P states 4—51936
- atom, configuration interaction method, correlation energies, wave functions 4—47827
- atom, configuration interaction method, electron affinity 4—47828
- atom, evaluation of hybridized valence state energies for s-p hybrid orbitals 4—59900
- atom, ionisation potential lowering in h.p. plasma *(German)* 4—51974
- atom, photoelectric cross section of valence level 4—72058
- atom, relativistic electron beam discharge, near u.v. emission spectra 4—63689
- atomic calculations by expansion method using Gaussian basic functions 4—59899
- atomic displacement cross sections from ENDF/B-III data 4—59843
- atomics, KLL Auger energies calc. 4—72057
- beads, densification by heat treatment under 5 kbar press., texture changes 4—49874
- black, specific surface meas., thermal desorption 4—46563
- carbon-graphitic materials, high-porosity, elec. cond., 300-1700K 4—45870
- determination in atmospheric particulate matter, particle size separation technique 4—77267
- diffusion in b.c.c. transition metals *(Russian)* 4—60643
- diffusion profile in steel meas. using nuclear microprobe 4—57800
- electrical resistance of carbon materials, porosity depend., irrad. effects 4—69291
- electrode, electrodeposition of Hg, reflectance change meas. 4—54034
- electron attenuation lengths in solids, low-energy electrons 4—63846
- electron microscopy of plasmons 4—79317
- electronic properties, graphitization history 4—67150
- electrotransport in Hf 4—44703
- fabric, var. of thermal and elec. cond. with temp. 4—67940
- film, amorphous-polycryst. transition, influence on elec. cond. and optical density 4—60709
- film, condensed struct., small angle electron scatt. 4—82341
- film, elec. resist. and work function *(French)* 4—45021
- film, elec. resistivity, heat treatment effects 4—67293
- film, ion bombardment, configuration control of deposited nucleic acid mols. 4—65568
- film, non-localisation of inelastic electron scatt., electron microscopy determ. 4—71264
- film, obtained from high-freq. discharges and ion beams, elec. props. investigation 4—49561
- film, transparent, electron edge diffraction 4—71591
- foam, thermal conductivity meas. technique, 1400-2000K *(German)* 4—50986
- foil, H_2^+ energy loss, mol. binding and correlated scatt. effects 4—60529
- foil, self supporting, prep. technique by atomic bombard. 4—76370
- foil, Xe ion stopping power meas. at 300 to 700 MeV 4—62511
- fracture behaviour, research methods *(French)* 4—76556
- fusion reactor blanket material, neutronics calc. 4—69334
- gamma-ray total absorpt. cross-section at 250 to 550 MeV 4—63127
- glassy, K-emission, bonding character 4—76325
- glassy, Raman spectra, ion bombard., struct. determ. 4—64372
- glassy, X-ray photoemission meas. of valence band 4—75779
- glassy polymers, C black filled, electrical charge transport mechanism 4—67218
- graphitization, continuous, technology, props. of electrographite powders *(German)* 4—53865
- graphitization, oriented heterogeneous, high pressure effects 4—53864
- graphitization of free C precipitating through reaction of UC or UC_2 with N_2 4—51882
- impurity on refractory transition metal surface, effect on surface self-diffusion and surface struct. 4—75688
- interstellar dusts of silica, Fe and C particles, nucleation props. 4—46333
- ion implantation in Si, SiC film production and characterization 4—45473
- isoelectronic sequence, Z expansion of $1s^22s^22p^2$-$1s^22s^22p^3$ transition 4—51931
- kaonic atomic, intensities and strong interaction attenuation of X-rays 4—47914
- magnetoresistance, Kohler's rule 4—75886
- molecule, potential energy curve, correlation energy correction, Hartree-Fock density 4—52075
- negative ion excited states and energy determ. by electron detachment in elec. field *(Russian)* 4—78354
- North Pacific stations Geosecs I (1969) and GOGO I (1971) T and ^{14}C profiles 4—73506
- Pacific, eastern equatorial, dissolved O_2-CO_2-^{13}C system 4—57980
- plasma, CO_2 laser produced light refl. coeff. 4—72358

carbon continued
plasma, laser heated, conversion efficiency to X-ray energy 4−56494
polyester resin-acetylene carbon black compounds, metallic cond. 4−72753
primordial solar nebula, behaviour of carbon rel. to interstellar and meteoritic organic molecules 4−46153
pyrocarbon containing phosphorus, heat treatment 4−67933
pyrocarbon film growth from methane, effect of substrates *(Russian)* 4−72648
pyrocarbon fuel cladding, burn up/dose limit, tensile stress, creep strain, particle life *(German)* 4−81634
pyrocarbons, negative magnetoresist. meas. 4−60815
pyrolytic, highly oriented, high-temp. neutron irrad. effects 4−74792
pyrolytic, pure and silicon-alloyed, thermal props., 22-1000°C 4−74793
pyrolytic, siliconated, lattice and bulk thermal expansions meas. 4−79166
pyrolytic, thermally induced struct. modifications rel. to deposition temp. 4−81620
reactor material, graphitisation degree effect on magnetoresist. changes during neutron irrad. 4−71998
replica containing dispersed Au particles, condensation of Cu *(Russian)* 4−71255
replica prep. from transmitted GaAs foils, rel. to transmission electron microscopy image 4−46903
resistance thermometry 4−68630
resistors, high accuracy temperature measurements 4−68631
solubility in Na, 490 to 832°C, effects of added O and N 4−81628
solubility in W at 1400 to 2000°C, obs. *(German)* 4−49738
soot aerosol form. at high temp., growth meas. by light scattering technique 4−73390
star, intermediate mass, burning with convective URCA neutrinos 4−58283
stars, carbon detonation, supernova and pulse formation 4−58291
submicroporosity in C materials, effect of heat treatment, irradiation and graphite struct. 4−57792
substrate, effect on intergranular forces of dynamic coalescence in very thin Ag film 4−53010
substrate for Ag, Au, Pd vapour deposition, growth mechanism 4−72659
substrates, Sb thin film, growth, struct., low and high vac. 4−72654
thermal conductivity, irradiation effects 4−67071
thermionic emission, Langmuir S-curve extrapolation 4−76359
thin film, subnanometre struct. in high-resolution dark-field electron microscopy 4−65547
valence band shape, influence of O_2, X-ray photoelectron spectra obs. 4−75776
vitreous, structure from wide- and low-angle X-ray diffr. 4−67932
vitreous, wetting by molten Al and alloys 4−79233
voltage dividers, h.v., fast rise time, carbon composition resistors 4−71222
wick electrode characteristics for spectrochem. analysis *(German)* 4−62588
X-ray spectra, bombardment by S ions, target-thickness depend. 4−82780
C I, plasma, thermal excitation function calc. *(Russian)* 4−60318
C I multiplets, transition probabilities, visible and u.v., arc-plasma emission 4−47841
C I sequence, dipole and quadrupole integrals for transition probabilities 4−56001
C III 977 and 1176 Å solar emission and chromosphere-corona transition region 4−76786
C V, Lamb shift contributions to ionisation potentials of ground states investig. 4−81708
C-graphite, discrete samples, for microstruct. anal., prep. 4−67939
$C+Ne^+$, K-shell X-ray production by ion impact 4−59961
C^-, doubly excited Feshbach states 4−74865
C^-, photodetachment, many-body perturbation theory 4−72062
C^-, prod. in negative ion source by Cs^+ sputtering hollow target cone 4−62504
C^+, X-ray scatt. by bound electrons, form factors 4−74878
$C^+ \rightarrow C^-$, change exchange in Mg and Zn vapour 4−52010
C_2, $C_2{}^+$, $C_2{}^-$, Hartree-Fock-Roothaan wavefunctions 4−74951
$C_2{}^-$, low-lying electronic states investig., valence shell CI approx. calcs. 4−47944
C^{2+}, correl. holes, pair distrib. functions calc. from Hartree-Fock and CI wavefunctions 4−51948
C^{2+}, reduced-density-matrix variational principle G-matrix strength 4−72022
C_3, large-amplitude bending, effects of curvilinear motion 4−52097
C_3, produced in allene and methylacetylene u.v. photolysis, vibr. and electronic spectra 4−47981
C^{5+}, population inversion in plasma from laser irradiated polyethylene 4−51965
C^{6+} + Ne Ne multiple L-shell ionisation, nuclear screening effect 4−66344
CI, absolute transition probability determ. 4−72040
^{12}C, ^{13}C, isotope content in primary cosmic rays *(Russian)* 4−80441
$^{12}C/^{13}C$ abundance ratio, interstellar matter, microwave spectra analysis 4−68456
^{13}C, spin-lattice relaxation multiplet spectra, cross correlation effects investig. 4−49253
^{13}C and ΣCO_2 in surface waters and atmospheric CO_2 4−64840
^{14}C, diffusion in Si:P, successive layer radiometric analysis 4−56915
^{14}C, variation in nature, Box model calc. 4−76673
$C_2(d^3\pi_g\text{-}a^3\pi_u)$ Swan band system spectral intensity meas. 4−56170
$C_2(d^3\pi_g\text{-}a^3\pi_u)$ Swan band system, spectral intensity meas. 4−56198
C_2radical, laser excited fluorescence in flames, radical conc. meas. 4−50169
Fe:C, interstitial content determination by mag. aftereffect meas. *(German)* 4−70178
GaAs:C, epitaxial layer, photoluminescence obs. 4−64423
$KMgF_3$:C, magnetic circular dichroism, visible-near u.v. region 4−49369
in Ni (111) surface, segregation, surface phase transition obs 4−56948
Ni:C, etch pitting of fresh dislocations 4−60500
Si:C, e.p.r. of Jahn Teller distorted interstitial 4−61035

carbon continued
Si:C and diffused ^{18}O, electron irrad., i.r. absorption meas. of local vibr. modes of defects 4−82203
Ti-C alloys, abrasive capacity meas. 4−80152
ZrC-C alloy, coating alumina microspheres 4−69297

carbon compounds
see also organic compounds
air-CO_2 mixture, breakdown, negative ion spectra 4−75361
carbides, mass spectrometer for exam. of vaporization and surface ionization 4−55158
carbonaceous materials, Gruneisen coeff. meas. by electron beam induced stress waves 4−53944
carbonyl complexes, i.r. spectra, CO bond length meas., props. 4−52039
chemisorption on W, ESCA investigation 4−75711
CO_2, vibr. relax. in weak shock waves 4−78628
condensation coefficient from molecular beam expt. 4−67028
exhaust analyser for internal combustion engines 4−71132
in hydrocarbon, cathode rod with an arc 4−78838
molecular vibration frequencies, isotopic shifts, approx. calc. with computer *(Russian)* 4−43864
Titan atmosphere, photochemistry of hydrocarbons 4−50492
Ar/CO_2 use in multiwire proportional counter for relativistic heavy nuclei detection 4−46806
C_2, molecule formation in solar atmosphere 4−70881
$C_4B_2H_6$, 2,3,4,5-tetracarbahexaborane (6), microwave spectra, mol. struct., dipole moment determ. 4−72205
CF_3I iodine photodissociation laser, late time gain 4−59393
CF_3I iodine photodissociation laser, gain versus time 4−62829
CH, $A^2\Delta - X^2\Pi$ system analysis 4−47954
CH, electronic struct., correlation energy correction, Hartree-Fock density 4−52074
CH, equivalent width of line in η Aquilae 4−70994
CH, high field Stark effects, dipole moment determ. 4−74972
CH and CH^+ from interstellar grain mantle evaporation 4−73841
CH and CH^+ in interstellar clouds 4−76910
CH Λ-type doubling in lowest rotational level of $X^2\Pi_{1/2}$ state 4−81783
$CH^+ + HD = CD^+ + H_2$, isotope exchange, corrections to Born-Oppenheimer approx., electronic effects 4−74957
C_3H radical, produced in allene and methylacetylene u.v. photolysis, vibr. and electronic spectra 4−47981
C_3H_2 radical, produced in allene and methylacetylene u.v. photolysis, vibr. and electronic spectra 4−47981
C_3H_3 radical, produced in allene and methylacetylene u.v. photolysis, vibr. and electronic spectra 4−47981
CN, ground and excited state MC SCF approach 4−74942
CN, vibr. and rot. excitation after vacuum u.v. photolysis of cyanogen halides 4−61633
CN formation and excitation in active nitrogen 4−53988
CN radicals, prod. by flash photolysis, laser induced fluoresc. investig. 4−50185
CN violet system of solar upper photosphere 4−70900
CN_2, groundstate triplet spin dipole-dipole interaction, ab initio calc. 4−47942
C_2N_2, react. with active N_2 in flame, chemiluminesc., CN* form., mechanism, rate, investig. 4−53958
C_2N_2, vac. u.v. absorpt. spectra, band assignment using CNDO/2-CI calcs. 4−74982
CNBr, pyrolysis and oxidation, 2000 to 3200K 4−73434
$C_2N_2-O_2-Ar$ mixtures, ignition of C_2N_2 following shock-wave, investig. rel. to press., temp. 4−61588
CO, addition to Ar discharge, enhancement of light emission investig. 4−60352
CO, adsorbed on Mo surface, light induced mol. polarisation 4−52993
CO, adsorbed on polycrystalline Ni films 4−75703
CO, adsorbed on Pt surface, mol. beam scatt. 4−67684
CO, adsorpt., chemisorpt. on ZnO, i.r. investig. *(German)* 4−56984
CO, adsorpt., desorpt., on Ru, work function meas. 4−80209
CO, adsorpt. on Ni surface, build-up of surface carbon layers investig. 4−75692
CO, adsorption by diamond (111) surface, extended Huckel theory 4−60686
CO, adsorption on Pd single crysts. 4−56978
CO, Ar-buffered, vibr. energy transfer from DF investig. rel. to temp. 4−48141
CO, CS, photoelectron spectra, forbidden bands due to photoionisation, CNDO/INDO CI calcs. 4−52247
CO, c.w. elec. discharge laser, kinetic modelling 4−62828
CO, chemisorpt. on Pt, valence band density of states investig., ESCA studies 4−69978
CO, chemisorption on Er, Ti films, elec. resist. and surface area meas. 4−44780
CO, chemisorption on W, ESCA study 4−48861
CO, config., force consts. and i.r. spectral shifts, elec. field effects, SCF calcs. 4−52039
CO, determ. in air, colorimetric method 4−80770
CO, dissoc. kinetics, shock tube study 4−76578
CO, ESCA, vibr. and lifetime line broadenings 4−78511
CO, electrodeless induction discharge, excitation props. *(Russian)* 4−60370
CO, electron impact dissoc. ionisation, obs. of high-Rydberg atomic metastable states 4−52274
CO, electron impact excitation cross sections for various states calc. 4−63481
CO, electron impact spectrum, $B^1\Sigma^+ \leftarrow X^1\Sigma^+$ transition, vibr. intensities investig. 4−75037
CO, equilib. props., perturbation theory calcs. 4−72415
CO, gas-dynamic laser, output power 4−81309
CO, generation of O^- and C^- on collision with H^+, H and H^- *(Russian)* 4−63494
CO, hyper-Rayleigh scatt., rotational struct. 4−63420
CO, INDO and ab initio wave functions, comparison, electronic struct. investig 4−78407
CO, i.r. Raman scatt. parameters 4−56249
CO, in solid Ar, mol. vibr. relaxation 4−60577
CO, in turbojet plume, chem. reaction in turbulent flow 4−60262
CO, interstellar, Copernicus satellite u.v. observations 4−73843

carbon compounds continued
- CO, isotopes, microwave spectra to 300 GHz, data summary 4−69503
- CO, laser, emissions obs. in u.v., prod. by travelling-wave transverse excit. laser *(French)* 4−43298
- CO, laser emission, obs. in flash photolysis of NO-$CHBr_3$ mixt., mechanism 4−45925
- CO, laser plasma, small signal gain, vibr. distrib. 4−71530
- CO, low energy electron collisions, rot. excitation, short range interaction effects 4−52275
- CO, n.m.r. spectroscopy, temp. depend., chem. shifts, isotope shifts 4−69519
- CO, oxidation in r.f. discharge, mass spectrum 4−73419
- CO, photoionisation cross sections, plane and orthogonalised wave calcs. and obs. 4−72236
- CO, pulsed stimulated emission due to vibr. transition, CO-Xe-He laser mixture 4−77660
- CO, quadrupole moment calcs. 4−56177
- CO, reaction with adsorbed O_2 on Pd obs. at room temp. 4−75721
- CO, solid, interpretation of specular reflection spectrum 4−53458
- CO, states of $v=2$-9, vibration to vibration energy transfer collisions 4−63491
- CO, stimulated emission, $(1\rightarrow0)$ band, pulse initiated (CS_2+O_2) chem. laser 4−77646
- CO, theory of chemisorption on Cu, Ni, Pd 4−48859
- CO, thermomag. force on small spheroidal particles 4−75066
- CO, use of radioactive kryptonates to detect environmental pollution 4−50903
- CO, vibr. distrib. in reaction $O+CS$ 4−50156
- CO, vibr. energy, rot. and centrifugal consts., second order semiclassical calcs. 4−56163
- CO, vibr. energy transfer investig., deactivation rate coeffs. meas. 4−60122
- CO, vibr. excited in O + chloroethylenes reaction, i.r. chemilum. 4−83012
- CO, vibr. relax. due to shock wave incidence, two-wavelength i.r. emission obs. 4−52280
- CO, vibrational excitation in O atom reactions with halomethanes, i.r. chemiluminescence 4−50134
- CO, vibrational relaxation by atomic oxygen 4−72250
- CO adsorbed on evaporated alkali halides, i.r. spectra interpret. 4−61152
- CO adsorbed on W(100), possible dissociation, electron field emission obs. 4−63986
- CO as toxic pollutant in atm., review 4−70750
- CO $\alpha^3\pi$ state, electron impact, elastic and vibr. excitation, dipole-dominated resonances 4−63479
- CO covered W(100), field emission 4−45412
- CO desorption from metal, electron and photon induced 4−79238
- CO discharge, h.f., photometric characts. *(French)* 4−72401
- CO distrib. function and relax. rate for vibratory energy *(Russian)* 4−75056
- CO electron scattering, modified pseudo-pot. anal. 4−48133
- CO geometrical conformation and reaction energies, even-tempered at. orbital calcs. 4−52034
- CO laser, determ. of absolute freq. of $^{12}C^{16}O$ and $^{13}C^{16}O$ lines 4−43285
- CO laser, generating power depend. on gas mixture parameters at room temp. *(Russian)* 4−77661
- CO laser, temp. field 4−81306
- CO near galactic centre, gas kinematics 4−65203
- CO on Pt(111), oxidation, mol. beam investig. 4−53996
- CO oxidation on Pt(111), mol. beam investigation 4−72643
- CO oxidation over $La_{0.65}Sr_{0.35}MnO_3$ powder, magnetocatalytic effects, expt. evidence 4−57883
- CO photoelectron spectra, vibr. transitions 4−56292
- CO shock heated, dissociation, 5600 to 12000K 4−72231
- CO-air flame, with temp. and comp. distribs., spectral intensities of i.r. radiation 4−61606
- CO-Ar(Kr)(Xe), solid mixtures, electron diffr. struct. investigation 4−69970
- $CO+{}^3He^{2+}$, mol. ionisation and dissoc., secondary ion form. 4−75054
- CO + Ar mixture, positron annihilation, diffusion eqn. soln. 4−72071
- $CO+CH_4$, hole theory for binary mixtures, excess functions calc. *(Spanish)* 4−48494
- $CO+CO_2(O_2)$, collision-broadened linewidths calc., role of higher-multipolar and repulsive forces 4−66454
- $CO+H_2$, weakly ionised system, bimolecular collision processes 4−80181
- CO + He, classical trajectory study of rot. excitation 4−78526
- CO + He*, Penning electron ang. distribs. 4−74880
- CO + He*, Penning ion ang. distribs., pot. barrier effects 4−63489
- CO + methyl fluoride, vibr.-vibr. transfer, laser induced fluoresc. 4−63485
- $CO+N_2$ collisions, vibr. to vibr. energy transfer rel. to temp. investig. 4−81808
- $CO+N_2^+$, charge transfer reactions exam. 4−83023
- $CO+NH_3$, proton transfer reaction rate consts. 4−64703
- CO + O collision, rot. and vibr. excitation cross sections, impulse approx. 4−60125
- $CO+O_2$, vibr.-vibr. energy exchange temp. depend. 4−66515
- $CO+OH\rightarrow H+CO_2$, kinetics investig., flash photolysis-reson. fluoresc. method 4−83016
- $CO+O(^1D)$, electronic to vibr. energy transfer efficiency investig. 4−48142
- $CO+O\rightarrow CO_2$, recombination rate determ. at temps. below ambient 4−80183
- CO^+, photoelectron spectra, photoionisation, vibr. intensity distribs. investig. 4−60112
- CO^+, radical on H−Y type zeolite, e.s.r., CNDO/SP calcs. 4−57361
- CO^++CO, charge transfer cross sections using multistate impact parameter 4−75052
- CO^++CO collisions, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4−72246
- $CO^++NO(O_2)$, charge transfer reactions exam. 4−83023
- CO_2, ^{13}N hot atom recoil reactions in gas phase 4−73444
- CO_2, 4.2 μm band, correlation time for freq. fluctuations 4−78473

carbon compounds continued
- CO_2, 9.4- and 10.4 μm bands, line widths and intensities 4−56234
- CO_2, 9.6 μ laser transition probability and optical broadening cross-section 4−43283
- CO_2, (00^01) level vibr. energy relax. *(Russian)* 4−69537
- CO_2, $(00^\circ1)$ vibr. level relax. rates meas. diffusion, wall de-excitation investig. 4−52285
- CO_2, absolute rot. Raman cross sections meas. 4−66435
- CO_2, absorbing capacity press. depend. *(Russian)* 4−60077
- CO_2, absorpt., chem. react. in turbulent liqs., mass transfer coeff. calc. 4−44166
- CO_2, adsorbed on ice, critical cluster size determ. 4−48843
- CO_2, anharmonic zero-point energy 4−66413
- CO_2, Ar press. broadened linewidths, 00^01-$(10^00,02^00)_I$ bands *(French)* 4−48058
- CO_2, atm. conc., i.r. emission, aircraft obs. 4−61738
- CO_2, atmospheric pollution, climate effects *(Norwegian)* 4−50305
- CO_2, CO Mercury atmosphere upper limit from i.r. spectra 4−46172
- CO_2, c.w. and TEA laser discharges, mass spectroscopy of plasma 4−59398
- CO_2, collision induced microwave absorption in CO_2-Ar and CO_2-methane mixtures 4−60080
- CO_2, contours of constant $(\partial\mu/\partial\rho)_t$ in extended crit. region 4−74446
- CO_2, crit. conc. for Joule-Thomson microrefrigerators, i.r. detector cooling 4−68653
- CO_2, cryst., two-phonon absorpt. spectrum 4−70311
- α-CO_2, crystal structure, space groups 4−75490
- CO_2, decomposition in r.f. discharge, mass spectrum 4−73419
- CO_2, dense, cold plasma, current continuity 4−60273
- CO_2, diffusion in tetralin, double holographic obs. 4−60633
- CO_2, dissociation in shock waves, rates from densitometry 4−78506
- CO_2, dissociative electron attachment, O_2^- and C^- production, mass spectra, Renner-Teller effect 4−52270
- CO_2, electric ionisation laser, gain of active medium 4−51565
- CO_2, electrically driven 200 joule laser 4−81305
- CO_2, electron impact excitation of vibrational modes, 3-5 eV 4−63482
- CO_2, furnace emissivities investig., band model calcs. of spectral intensities 4−69488
- CO_2, gas, thermal vib. relax. investigation *(French)* 4−63490
- CO_2, gas, transient cooling by absorption of Q-switched laser radiations 4−59446
- CO_2, gas absorptivity in complete spectrum 4−43916
- CO_2, high pressure pulsed elec. ionisation laser, threshold pumping energy 4−51571
- CO_2, hypersonic flow props. in expansion tube 4−81911
- CO_2, i.r. emission, 3000-8500K, investig. emissivities, absorpt. coeffs. determ. 4−72193
- CO_2, i.r. lasing emission investig., emissivity, radiancy calc. *(French)* 4−65900
- CO_2, i.r. vibr.-rot. band, line intensity and half-width, N_2 collisional broadening 4−52177
- CO_2, intermol. pots. determ. from second virial coeffs., polarisabilities, quadrupole moment 4−66526
- CO_2, K-shell energy loss spectra of 2.5 keV electrons 4−52276
- CO_2, laser, 10.6μ emission with optical pumping at 9.6 μ *(Russian)* 4−71543
- CO_2, laser, power characts. and stability of pumping discharge 4−51561
- CO_2, laser, pulsed operation, effects of foreign gases 4−74490
- CO_2, laser, rot, relax. effects on sequentially Q-switched transitions 4−65896
- CO_2, laser, stimulated Raman scatt. due to rot. transitions 4−77718
- CO_2, laser, TEA double discharge, anomalous gain coeffs. 4−77648
- CO_2, laser, vibr.-rot. line selection by diffr. grating in resonator 4−69049
- CO_2, laser electron beam spreading effect on sustainer current and field distrib. 4−65897
- CO_2, laser freq. stabilization by external nonlinearly absorbing SF_6 cell 4−69047
- CO_2, laser plasma, h.f. elec. field effect *(Russian)* 4−59387
- CO_2, laser power calc. 4−81304
- CO_2, liq., eqn. of state and thermodynamic props., 2500 bars 4−44645
- CO_2, Migdal eqn. of state parameters *(Russian)* 4−78552
- CO_2, mol., simultaneous ionisation and excitation by electron-impact 4−78521
- CO_2, mol. cryst, intermol. pot. energy and Gruneisen parameter, lattice Raman spectra 4−56845
- CO_2, mol. line parameters, direct integration transmittance model, planetary atmosphere 4−58043
- CO_2, permeability through water and $NaHCO_3$-Na_2CO_3 solution 4−44163
- CO_2, plasma, thermal excitation function *(Russian)* 4−60318
- CO_2, population inversion by mixing with supersonic N_2 nozzle flow 4−71547
- CO_2, positron scattering, cross section meas. 4−56302
- CO_2, pulsed laser, double discharge method excitation 4−51574
- CO_2, $\pi^3\pi^*$ config., Rydberg character and dissociatve behaviour, orbital dimensions approach 4−75020
- CO_2, quartic force field calcs. using expansion variables 4−78432
- CO_2, quartic force field model, appl. of intramol. pot. function 4−72199
- CO_2, quasistationary atm. press. laser with semi-self-maintained discharge *(Russian)* 4−69053
- CO_2, rarefied, mag. field depend. of heat flux *(Russian)* 4−69550
- CO_2, rarefied gas flow in capillary network, temp. depend. *(Russian)* 4−69596
- CO_2, Rayleigh scatt. coeffs. 4−46010
- CO_2, rotational relax. in vibrational laser levels 4−51551
- CO_2, Rydberg states using model potentials 4−56129
- CO_2, second virial coeff. calc. 4−56341
- CO_2, small signal light absorption 001-100 band, 300-615K 4−74988
- CO_2, specific heat, high resolution meas. 4−72576
- CO_2, sulphide reduction forming natural diamonds 4−54130
- CO_2, superatmospheric double discharge laser 4−55466
- CO_2, TEA laser, actively mode-locked with high-power multiband output 4−51560

carbon compounds continued
CO_2, TEA laser, actively mode-locked, multiline output 4−77656
CO_2, TEA laser, p-Ge saturable absorber, mode locked pulse prod. 4−47335
CO_2, TEA laser, small signal gain meas. 4−47342
CO_2, TEA laser, variable beam attenuator, propylene or propane gas cell 4−46710
CO_2, TEA laser, with helicoidal electrode config., active mode selection *(French)* 4−65902
CO_2, target gas for H^+, H_2^+ impact collisions, 0.3-3.0 keV electron capture cross-section to $n=3,4$ states 4−63374
CO_2, thermal cond. and viscosity, bibliography 4−78556
CO_2, thermodynamic props. near critical point, accurate representation 4−51493
CO_2, u.s. dispersion up to 50 GHz/atm *(Russian)* 4−52329
CO_2, u.s. wave propagation, force parameters and energy produced calcs. 4−60145
CO_2, u.v. preionised laser, parametric study 4−69043
CO_2, u.v. preionised laser discharge, optical homogeneity, holographic interferometry obs. 4−74484
CO_2, upper atmospheric density rel. to $O_2(^1\Delta_g)$ ionization rate 4−54257
CO_2, vib. relax., effect of vib-rot. interactions 4−69534
CO_2, vibr. relaxation in CO_2-N_2 and CO_2-O_2 mixtures 4−66525
CO_2, vibr.-relax. in He, Ar, Xe mixtures, spectrophone method 4−69535
CO_2, vibrational energy transfer, time histories of IR emission 4−72251
CO_2, vibrational relaxation by atomic oxygen 4−72250
CO_2, viscosity measurement, classical slip correction for capillary viscometers 4−65599
CO_2 absorption at 11 μ using i.r. heterodyne spectroscopy on Martian atmosphere 4−62042
CO_2 absorption spectra, spatial and temporal variations 4−58237
fossil CO_2 accumulation in oceanic mixed layer 4−61723
CO_2 bubbles in Newtonian liquids, mass transfer 4−48357
CO_2 c.w. TEA hybrid laser, single mode performances 4−71535
CO_2 chemical laser, pumped by $CS_2 + O_2$ reaction 4−74487
CO_2 condensed layers, 20K, adsorption capacity and pumping speed for H_2 *(German)* 4−82316
CO_2 dosimeter for neutron and photon dose and flux in reactor 4−81679
CO_2 double molecule formation and breakdown, in dipolar and quadrupolar gases, rot.-translational energy transfer 4−66527
CO_2 gas lasers, sealed-off, methods of obtaining long lifetimes 4−71528
CO_2 gas mixture, TEA laser discharge, i.r. and mass spectroscopy, chem. comp. *(German)* 4−77647
CO_2 geometrical conformation and reaction energies, even-tempered at. orbital calcs. 4−52034
CO_2 heat transfer from flat plate 4−69562
CO_2 in Ar matrix with alkali metal, CO_2^- vibr. spectra 4−78454
CO_2 laser, 15 atm. He-Co_2-N_2 mixture, electron-beam controlled, operation 4−74486
CO_2 laser, automatic freq. stabilized, control circuit parameters determ. *(German)* 4−43307
CO_2 laser, cold-cathode electron-beam-controlled, parametric expt. and theoretical study 4−59390
CO_2 laser, decomp. instability of vibr. relax. *(Russian)* 4−59402
CO_2 laser, excitation and gain calcs. 4−59389
CO_2 laser, high energy, styrofoam calorimeter applic. 4−51084
CO_2 laser, light velocity meas. 4−73972
CO_2 laser, lower frequency components 4−69046
CO_2 laser, method for output freq. stabilisation 4−51575
CO_2 laser, multiline mode-locked u.v.-preionized 4−69040
CO_2 laser, pressure-broadened for high tunability design 4−43295
CO_2 laser, pulsed, with 150J radiation energy, construction and parameters *(Russian)* 4−71540
CO_2 laser, transversely excited high pressure, discharge and oscillation characs. 4−55465
CO_2 laser, u.v. sustained discharge pumping, high energy pulses 4−74488
CO_2 laser, used for photolysis of freon 12 4−54054
CO_2 laser, V-I characts. and efficiency, two temp. gas model 4−51554
CO_2 laser, wavelength meas. for 9.3 micron R(12) transition 4−74493
CO_2 laser, with helical distrib. of electrodes, pulse shape and energy 4−51572
CO_2 laser breakdown, self-phase modulation of light 4−48440
CO_2 laser discharge, electron beam spreading, effect on sustainer current and field distrib. 4−43303
CO_2 laser discharge, formative time lags, meas. 4−71524
CO_2 laser emission, spectral comp. during quality modulation *(Russian)* 4−59403
CO_2 laser radiation wavelength meas. for light velocity determ. 4−65366
CO_2 laser stabilisation using plasma impedance variation as error signal 4−65910
CO_2 laser stimulated emission cross-section meas. by sidelight fluorescence drop 4−65911
CO_2 lasers, electron beam controlled, 1 kJ and 10 kJ systems 4−59407
CO_2 mass var. in atmosphere and polar caps of Mars 4−54425
CO_2 mixture, ionisation instability of non-self-sustained discharge 4−75250
CO_2 mol. excited by H^+, H_2^+, N^+ impact at 2-7 10^7 cm/sec vibration, energy loss spectra 4−63493
CO_2 molecular crystal, thermodynamic props., Monte Carlo, cell model and quasiharmonic calcs. 4−52843
CO_2 Pacific, eastern equatorial, dissolved O_2-CO_2-^{13}C system 4−57980
CO_2 pulsed laser, increased press. with preionisation at cathode, construction 4−77652
CO_2 sealed-off laser, output power depend. on discharge current, mixture ratio, total pressure *(German)* 4−81298
CO_2 solid: ^{57}Fe, isolation matrix Mossbauer obs., isomer shift effects 4−76205
CO_2 supercritical solvent, fast flux I_2 mass transfer 4−64723

carbon compounds continued
CO_2 TEA and CO_2-N_2 lasers operational principles *(Polish)* 4−65895
CO_2 X-ray fluorescence 4−81716
CO_2-air mixture, ionisation, electron attachment and detachment 4−56559
CO_2-Ar mixtures, thermal conductivity meas. by hot-wire method in 0-150°C range *(Russian)* 4−43904
CO_2-H_2O radiating mixture, total band absorptance, 2.7μ region, 300K 4−56208
CO_2-He-N_2 mixture, laser-induced breakdown, refraction effect on spot size depend. 4−44253
CO_2-He-Ne gas dynamic laser, shock tube meas. of gain 4−59386
CO_2-N_2, discharge laser without helium *(Russian)* 4−43309
CO_2-N_2, gasdynamic laser, thermal excitation, optimal inversion modes 4−47343
CO_2-N_2 mixture, thermally ionized, spectral characts., 5000-30000K 4−60317
CO_2-N_2 TEA laser, adjustable output pulse length 4−43291
CO_2-N_2-He low press. discharge, mass spectroscopy study chem. reactions *(German)* 4−80175
CO_2-N_2-He(H_2), plasma injection, continuous discharge, laser action 4−62832
CO_2-N_2(He), gas, transient cooling by absorption of Q-switched laser radiations 4−59446
$CO_2 + Ar^+$, charged transfer, in collisions, energetics 4−53984
$CO_2 + CO$, collision-broadened linewidths calc., role of higher-multipolar and repulsive forces 4−66454
CO_2 + ethane, phase equilib. and densities, BWR eqn. 4−63889
$CO_2 + H$, stripping collisions, 1-10 keV, small-angle ion scatt. 4−81728
$CO_2 + H_2$, weakly ionised system, bimolecular collision processes 4−80181
$CO_2 + H^+(H)(He^+)(Ne^+)$, electronic excitation spectra, 200 eV-25 keV, form. of CO_2^+ 4−53978
$CO_2 + HF(DF)$, temp. depend. of V to R,T energy transfer probabilities 4−48145
$CO_2 + HF(DF)$, vibr. excitation temp. depend. cross section in 'orbiting' collision 4−66517
$CO_2 + H(D)F$, vib. relax. temp. depend. 4−52287
$CO_2 + I^-$ collisions, mass spectroscopic investig. 4−72093
$CO_2 + K$, 2-50 eV collisions, population of K fine struct. states 4−66320
$CO_2 + N_2$ mixture, gas dynamic laser, nonequilib. flow 4−51570
$CO_2 + N_2$ system, CNDO calc., intermolecular V-T and V-V potentials 4−72253
$CO_2 + NO^+$, atmospheric gas ion cluster formation rate coeffs. 4−67999
$CO_2 + O$, translational to vibration energy transfer 4−56315
$CO_2 + O \rightarrow CO + O_2$, in $CO_2/N_2O/Ar$, forward and reverse reaction rates, i.r. emission behind refl. shock waves 4−53979
CO_2^-, g-factor anisotropy, CNDO calc., spin-orbit interaction 4−69457
CO_2^-, orbital calcs. of mag. hyperfine interactions 4−81788
CO_2^+, in Martian atmosphere, positive and negative ion distrib. calc. 4−54418
CO_2^+, revised rate constants for fluorescence quenching reactions 4−52282
$CO_2^+ + H_2^+(He^+)$ ion collisions, vibr. energy distrib. of CO_2^+ investig. 4−69532
$CO_2^+ + O_2$, charge transfer reactions exam. 4−83023
CO_2^{2+}, electron impact charge separation reaction 4−76592
CO_3^-, $CO_3^-.H_2O$, photodissoc., 2.35-2.71 eV 4−56288
CO_3^-, CO_4^-, ion mobilities in O_2 at 293K 4−60149
CO_3^-, radical, prep. in solid soln. in Ar, vibr. spectrum investig., struct. 4−48006
C_2O, groundstate triplet spin dipole-dipole interaction, ab initio calc. 4−47942
C_3O_2, equilib. geometries and reaction energies from even-tempered atomic orbital calcs. 4−52034
C_3O_2, pot. function for CCC bending, ab initio calcs. 4−72143
C_3O_2 molecule, Auger electron spectrum 4−52252
$CO(CN)_2$, electronic spectrum, CNDO calculations 4−56201
$CO(CN)_2$, mean-sqaure amplitude quantities 4−81766
COF_2, isotopes, microwave rot. spectra, 18-77 GHz, rot. consts., mol. struct. 4−48051
COS, ordering of ionic states, 'breakdonw' in Koopmans' theorem investig. 4−72232
COS^{2+}, electron impact charge separation reaction 4−76592
$CO(X^1\Sigma^+)$, dipole moment function, multiconfig. SCF calc. 4−66417
CS, isotopes, microwave spectra to 300 GHz, data summary 4−69503
$CS + O$, vibr. distrib. of CO 4−50156
$CS + O \rightarrow CO(V) + S$, CO vibr. levels investig. using intracavity laser technique 4−66408
CS_2, four-photon processes in stimulated Raman scatt. *(Russian)* 4−74534
CS_2, i.r. spectrum, antisymmetric stretching vibr., intermol. interactions 4−78460
CS_2, i.r. spectrum, hot bands, laser assignments 4−72182
CS_2, liq., depolarised Brillouin spectra 4−57516
CS_2, liquid, cooperative, second harmonic laser light scatt. 4−62860
CS_2, molecular association with m- and o-toluidines, n.m.r. study 4−49236
CS_2, nonlinear optics, intensity filtration of laser light 4−74082
CS_2, quartic force field calcs. using expansion variables 4−78432
CS_2, quartic force field model, appl. of intramol. pot. function 4−72199
CS_2, Renner effect, calc. 4−43810
CS_2, spectral line width determ., spectrometer resolution increase using Fabry-Perot apparatus *(Russian)* 4−42805
CS_2, temperature dependence of sub-millimetre absorption of liquid 4−45297
CS_2, transformation during compression by shock wave *(Russian)* 4−75571
CS_2 cell, laser beam self-focusing rel. to spatial instability modes 4−43345
CS_2 hypersound speed rel. to pressure, 1 to 1000 atm., determination by stimulated Brillouin scattering 4−52818

carbon compounds continued
CS_2-CCl_4 vapour mixture, direct contact condensation on water, theory 4−75085
$CS_2 + 4O_2$ spontaneous, ignition reaction so + O, anomalous ultraviolet emission 4−50159
$CS_2 + CH_3NO_2$, critical liquid system, coexistence curves and rectilinear diameter 4−45945
$CS_2 + O$ molecular beam reaction, prod. anal., kinetics investig., chem. laser appls. 4−73422
$(CS_2 + O_2)$ chemical laser, pulse initiated, $(1 \rightarrow 0)$ band, stimulated CO emission 4−77646
CS_2^{2+}, electron impact charge separation reaction 4−76592
$C^{80}Se$, ${}^1\Pi$-$X^1\Sigma^+$ system, 35×10^3 cm^{-1}, rotational analysis 4−47972
$^{12}C^{16}O$ laser frequency, absolute meas. in 30-60 THz region 4−65932
$^{12}C^{18}O_2$, optical pumping, laser line freq., vibr.-rot. constants 4−43863
$^{12}C^{32}S_2$, mol. consts. calc. from i.r. spectra data *(French)* 4−81763
$^{12}C^{32}S^{34}S$ and $^{13}C^{32}S^{34}S$, high resolution i.r. spectra of 10^01 band *(French)* 4−52140
^{13}C and ΣCO_2 in surface waters and atmospheric CO_2 4−64840
$^{13}C^{16}O$, isotopic anal. by i.r. overtone spectroscopy 4−74165
$^{13}C^{16}O$ laser frequency, absolute meas. in 30-60 THz region 4−65932
$^{13}C^{16}O$ laser transitions, wavelength meas., 1500 to 1900 cm^{-1} 4−60073
$^{13}C^{16}O_2$, $^{13}C^{18}O_2$, optical pumping, laser line freq., vibr.-rot. constants 4−43863
$^{13}CO_2$, adsorpt. on mol. sieves, n.m.r. studies 4−81792
$^{14}CO_2$ meas. in exhaled air, titration method 4−58596
$CaCO_3{:}Co_2^-{:}CO_3^{3-}$, e.s.r., superhyperfine struct. 4−57367
Co, u.s. wave propagation, force parameters and energy produced calcs. 4−60145
Co_2, nucleate boiling departure of h.p., temp. conditions 4−43950
DF-CO_2 laser, pulse profile and intracavity conditions determ. numerical procedure 4−74491
$HeC^{2+,+}$ molecule-ions, Roothaan-Hartree-Fock calcs. 4−59991
I_2-CO_2 system, high temp. diffusion coeffs. determ. by point-source method 4−78562
ICN, photodissociation, impulsive model of vibr. excitation 4−48149
$KCl{:}CN^-$, Kerr effect of CN^- mols. 4−49328
$KCl{:}CN^-$, neutron inelastic scattering from coupled defect-phonon modes 4−69871
N_2-CO_2 gas dynamic laser based on binary mixture *(Russian)* 4−74497
N_2-CO_2-He, transient glow discharge 4−75398
$Ni_{1-x}Fe_x$-C, $(x = 0\text{-}0.65)$, C impurity effects on props., transition from strong to weak ferromag., band struct. 4−45111
OCC unstable intermediate, restricted HF LCAO-MO-SCF calcs. 4−56146

carbon fibres
elasticity modulus and elec. resist., depend. on orientation index 4−49940
electrical resistivity obs. 4−64080
electron beam devices, carbon fibre field emitter, appl. to scanning electron microscope 4−79853
graphite, treatments affecting fibre surface morphology and epoxy bonding characts. 4−53836
graphite/Al composite, liq. phase hot pressed, mech. props. 4−61517
graphite/epoxy composite, fibre/matrix interactions 4−64632
graphite/epoxy prepreg., prestressing effects on laminate strength props. 4−49955
graphite/epoxy shells, unidirectional, axial wave vel. meas. 4−76535
hybrid carbon and glass fibre composite technology 4−80072
laminates, fracture mechanics 4−76533
macro fibre manufacturing process 4−61511
mechanical properties, effects of gamma irradiation 4−73375
modified, electrophysical props. 4−70571
orientation degree, quantitative determ. from X-ray reflection data *(Russian)* 4−70570
polyacrylonitrile, carbonized, SEM obs. of structure 4−53888
pyrolytic, discrete samples, for microstruct. anal., prep. 4−67939
rayon precursors small-scale heat-treatment for stress graphitization 4−61540
reinforced composite, in-plane displacement meas., interference technique 4−42724
reinforced composite, notched, deformation obs. 4−64627
reinforced epoxy resin, axial fatigue behaviour 4−45761
reinforced epoxy resin, unidirectional, viscoelastic behaviour, constitutive eqns. 4−49931
reinforced epoxy resin composite, fatigue strength and failure mechanisms 4−45760
reinforced fibreglass-plastics, mech. props. 4−80084
reinforced glassy C composite, strength changes on graphitization 4−53831
reinforced plastics, compressive failure modes 4−49952
reinforced plastics, structural characts. 4−45774
reinforced plastics, unidirectional, transverse compressive behaviour 4−53824
reinforced resins, boundary layer theory, elastic constants 4−74294
strength, cryst. shear limit 4−76542
structural studies, review 4−67949
structure and strength *(Russian)* 4−53826
thermal conductivity, heat treatment effects 4−44716
thermal conductivity of oriented insulation, from 300 to 1300K in N_2 and Ar atmosphere 4−56923

carbon microphones *see microphones*

carbon tetrachloride, CCl_4 *see organic compounds*

carcinotrons
No entries

cardiology
see also electrocardiography
angiocardiograms, aortic valve and apex locating algorithms 4−68515
angiocardiography, biplane, dynamic computer generated displays 4−83333

cardiology continued
angiocardiography, computerised, for quantitative evaluation of valvular insufficiency 4−50839
angiographic computer analysis of ventricular volume and shape 4−83334
ballistic impulse, causing increase in effective X-ray focal spot size 4−50849
blood flow, distribution across the canine heart wall during systole 4−50747
cardiovascular forces, transfer through body 4−54640
catheterisation studies, sterilisable hand radiation monitor 4−46496
coronary collateral blood flow, direct measurement in conscious dogs by an e.m. flow meter 4−58493
generators, equivalent, of lower degree, applicable hexadecapolar shift equations 4−76948
impedance cardiograph Minnesota theory and applic. 4−71269
left ventricle, asynergistic motion detection technique 4−81053
left ventricular videometry 4−81052
left-ventricular dimensions, intraventricular u.s. method 4−50824
magnetocardiography, second derivative gradiometer using SQUID 4−68749
myocardial blood flow, total and regional, in dogs and sheep, measured by microspheres and antipyrine 4−55123
myocardial function and disturbance, electrical and cellular aspects 4−68492
myocardial ischemia, acute, in the dog, reflex blood pressure control 4−50746
myocardial strains, effect on coronary blood flow 4−58489
output measurement, in the conscious rabbit, thermodilution technique appraisal 4−51196
papillary muscle, isolated, feline, deactivation by quick releases 4−50736
phonocardiograms digital analysis 4−58970
Purkinje fibre model, stability properties 4−65245
Purkinje fibres, canine, alternating response to repetitive premature excitation, microelectrode study 4−58497
stroke volume, beat-by-beat, from aortic pulse pressure analysis 4−50748
ventricular fibrillation thresholds rel. to electrical equipment leakage faults 4−73894
ventricular hypertrophy, concentric, right, regional myocardial blood flow, in lambs 4−50744

carrier density
see also current density; electron density
anthracene, double injection, free carrier densities 4−67220
graphite, magnetoelectric properties investigation, fields up to 500 kOe, 4.2K *(Russian)* 4−82435
impure semiconductor, carrier conc. and Fermi level, formulae 4−82359
insulator, trap free, mobility depend. on carrier density 4−79362
m.o.s. structure, ageing effect at high temp. 4−57177
m.o.s. structure, capacitance and interface charge buildup model 4−49078
m.o.s. structures, surface potential statistical fluctuations using Gaussian probability distribution 4−44998
semiconductor, distrib. under inhomogeneous high illum. 4−53123
semiconductor, intrinsic, recomb. laws for bulk and surface carriers, magnetoconc. phenomenon *(French)* 4−72793
semiconductor, many-valley, crit. value for metal-insulator transition 4−44859
semiconductor, strongly degenerate, with Kane dispersion relation, rel. to intrinsic parameters determ., theory 4−60743
semiconductor, under triple recomb. conditions, density and temp. of nonequilib. carriers, spontaneous oscills. 4−57137
Ag_2S, $Ag_2S_{0.5}Te_{0.5}$, electron mobility and effective mass, 200-480°C and 35-420°C respectively 4−44911
$Al_xGa_{1-x}As$, p-n junctions from mol. beam epitaxial layers 4−57163
As-Sb alloy, temp. depend., rel. to elements 4−49003
Bi, from magnetoresistance ang. depend., tensor components 4−60812
$CdGeP_2$, n- and p-type, Hall meas., 200-400K 4−48981
CdS, film, rel. to scatt. length 4−45029
CdS, single cryst., component v.p. effect 4−72768
CdSe, with cond. memory, conc. and Hall mobility of electrons *(Russian)* 4−72838
CdTe, high purity single cryst. electrical and photoluminescent props. 4−64424
CdTe, ion implanted layer, electrical activity and radiation damage 4−72498
CdTe:Al, In, Cl, I electron conc. and self-compensation obs. 4−53056
$Ce_{3-x}S_4$ $(x = 0, 0.06, 0.28)$, elec. props., depend. on composition and temp. 4−44936
Fe_xSe_y, Hall effect meas. 4−60833
GaAs, bulk and epitaxial, Cu diffusion effect 4−60645
n-GaAs, carrier conc. nonuniformity meas. by Faraday effect, apparatus design 4−68730
n-GaAs, conc. profile determ. by Faraday effect *(Russian)* 4−53631
GaAs, crystal degradation by abrasion and subsequent heat treatment 4−49605
GaAs, epitaxial layers, evaluation for microwave devices 4−45460
GaAs, implanted layer elec. props. 4−75864
GaAs, layerwise inhomogeneity in crucible-free zone refined three-dimensional single crystals 4−45434
p-GaAs, minority carrier distrib. and lifetime effects on threshold current of EBP laser 4−55483
GaAs, n-n^+ epitaxial layer for Gunn diode 4−64087
GaAs, native oxide growth, struct., comp., elec. and encapsulating props. 4−67123
GaAs, Schottky barrier and p-n junctions from mol. beam epitaxial layers 4−57163
n-GaAs, spectral depend. of plasma refl. coeff. influence of surface treatment *(Russian)* 4−79724
GaAs, undoped layer growth in quartz boat, carrier concs. 10^{14} cm^{-3} range 4−67736
GaAs epitaxial layers, electron density and mobility, photoluminescence and deep traps obs. *(Japanese)* 4−45025
GaAs film, in GaAs-$Al_xGa_{1-x}As$ double heterostruct., absorpt. and photolum. obs. 4−53549

carrier density continued
GaAs:(Se,Si), epitaxial layer, transfer of dopant from $AsCl_3$, carrier conc. 4−44555
GaAs:Se, electron conc. depend. on donor conc., subsidiary extrema in conductivity zone 4−44817
GaAs:Se dendrites, cryst. conditions effect on elec. props. 4−44912
GaAs:Si, Fermi level effect on Si site distrib. 4−60753
GaAs:Te, irrad. parameters depend. 4−60790
GaAs:Te, solid soln., lattice const., elec. props., Te interstitial and vacancy conc. 4−44531
GaAs:Te dendrites, cryst. conditions effect on elec. props. 4−44912
GaAs:Zn, effective surface conc., doping efficiency 4−44939
n-GaN, epitaxial vapour deposition, carrier conc., mobility and photoluminescence *(Japanese)* 4−45438
GaN film, rel. to s.c.l. current flow 4−79421
GaP, temp. depend. anal. of charge carrier conc. 4−82397
n-GaP epitaxial layer, impurity parameters detn. *(Czech)* 4−64511
n-Ge, carrier concentration, microwave transmission technique 4−57120
Ge, determ. from meas. of Hall coeff. 4−44943
Ge, Hall mobility meas. by probe methods 4−46754
p-Ge, heavy hole density, rel. to photocond. due to inter-valence band transition 4−44958
Ge, intrinsic and with donors and/or acceptors 4−44918
Ge, irradiated with 30 keV Ga^+ ions, electrical characts. 4−67236
Ge, magnetoreflectance meas., 34 GHz 4−82767
Ge, p-n-p transistor, ion implantation effect 4−57713
Ge, twisted specimens, screw dislocations, electronic states, carrier density and Hall mobility obs. *(German)* 4−69991
Ge-Si, heavily doped, hot-pressed, thermoelec. figure of merit, carrier conc. depend., theoretical optimization 4−72805
$Hg_{1-x}Cd_xTe$, in conduction bands, calcs., spin-orbit splitting effects 4−53040
HgSe, intrinsic carrier conc., temp. depend., overlap energy 4−75895
InAs:Zn,Te, carrier conc., impurity conc. depend. rel. to solubility limit, Hall meas. 4−75818
$In_{1-x}Ga_xP$:Te, temp, depend., conc. var. 4−82408
InP epitaxial layers, rel. to PCl_3 mole fraction in PCl_3-In-H_2 system 4−73263
n-InSb, mechanism of resistivity decrease by mm microwave irradiation 4−64092
InSb, thickness dependence of galvanomagnetic props. 4−79369
InSb:Te, impurity distrib. ratio investigation 4−45447
n-$In_xSn_{1-x}Te_{1+-y}$, supercond. transitions, depend. 4−82517
Mg_2Ge, growth from melt, elec. characts. 4−82816
PbS film, rel. to photocond. mechanism 4−49095
PbSe, epitaxial, vapour deposition, carrier conc., mobility and Hall effect meas. 4−53614
n-PbSe, obs. of lattice vibs. and dispersion of free carries 4−48719
$Pb_{1-x}Sn_xSe$, epitaxial, vapour deposition, carrier conc., mobility and Hall effect meas. 4−53614
$Pb_{0.82}Sn_{0.18}Te$, temp. depend. of intrinsic carrier conc. and mobility ratio 4−82415
PbTe-$AgSbTe_2$, solid soln. *(Bulgarian)* 4−57695
Pb(Zr, Ti)O_3 type solid solutions, experimental measurement 4−53091
Sb film, optical props., i.r. region, as function of carrier conc. 4−73216
Sb_2S_3, single cryst., bipolar effects *(Russian)* 4−75883
Si, d.c. conductivity of inversion layers, 0.4-4.2K, carrier density and temp. depend 4−48916
n-Si, Hall effect meas. scatt. parameters 4−44941
Si, magnetoreflectance meas., 34 GHz 4−82767
Si, n-type, warm electron cond. *(Russian)* 4−79365
Si, polycryst., electronic props. 4−44925
Si and $B_{13}P_2$, double-layer epitaxial growth on Si substrate, Si layer elec. props. 4−70426
Si epitaxial layer, impurity distrib., comparison of measuring methods 4−64520
Si:P, polycrystn. film, annealing effect 4−45027
Si:Pd, heat treatment influence on elec. props., acceptor levels 4−75857
SiO_2, vitreous, obs. of mass and charge transport at high temps. 4−48792
SiO_2-Si, m.o.s. structure, ionic clustering effects on C-V characts. 4−72871
Si. diffused zone, meas. using gate controlled structure 4−57696
$ZnCr_2Se_4$, resistivity, Seebeck and Hall effects meas., 77 to 300K heat treatment effects 4−60793

carrier lifetime
graded band gap semiconductor, minority carriers, asymm. band edge gradient 4−64117
metal, phonon dynamics influence, freq. and temp. depends. 4−72685
semiconductor with two or more trapping levels, photocond. and lifetime of excess carriers 4−53118
$BaTiO_3$, ferroelectric-semiconductor, photocond. review 4−64112
CdTe, high purity single crystal, elec. props., photoluminescent props. 4−64424
CdTe films, multiple p-n junction structures, photomag. effect spectrum 4−75958
GaAs, epitaxial, decay time of optically injected free carriers, reflectivity obs. 4−67252
p-GaAs, minority carrier distrib. and lifetime effects on threshold current of EBP laser 4−55483
GaAs, minority carrier lifetime measurement 4−57105
GaAs, minority carriers, temp. depend., photoelectric meas. 4−67228
GaAs:Ge, optical phase shift meas. 4−75853
GaAs-$Ga_{1-x}Al_xAs$, laser, current depend. on carrier lifetimes 4−59428
$GaAs_{1-x}P_x$(:N), spontaneous and stimulated meas. 4−49416
GaP crystals, optical techniques for luminesc. characterisation, minority carrier lifetime 4−73194
p-GaP:Zn,O, dope-dependent luminescence efficiency degradation, obs. 4−49465
GaP:Zn(S), minority carrier diffusion length, lifetime, conc. depend. 4−72763
Ge, change due to heating, effect on photocond. spectrum 4−72824

carrier lifetime continued
p-Ge, optical heating of carriers, photocarrier mobility and lifetime 4−72830
Ge, rod-like samples, minority carrier bulk lifetime, mag. field depend., 5-77K 4−67229
$Hg_{0.8}Cd_{0.2}Te$, Auger limited, photocond. meas. 4−60828
n-$Hg_{0.8}Cd_{0.2}Te$; obs. at 77 K 4−44965
InAs, epitaxial, minority carrier lifetime, photoconductive signal decay meas. 4−45024
$In_{0.48}Ga_{0.52}P$, on GaAs, photoluminesc. phase shift meas. 4−49417
InSb, galvanomag. props., diffusion current effects 4−82499
SbSI, ferroelectric-semiconductor, photocond. review 4−64112
Se, amorphous, change in glass transition region 4−57106
Si, film, on sapphire, minority carriers, spatial depend. 4−70083
p-Si, lifetime of photocarriers heated by light 4−49041
Si, minority carrier lifetime meas., separation of bulk and surface effects 4−54990
Si, minority carriers, effect of annealing 4−57174
Si junction photodetector, laser induced damage effects 4−55497
Si single cryst. film, dielectrically isolated and defined by electrochem. etching 4−57098
p-Si:B, γ-irrad., steady state photocond. and excess carrier lifetime, theory 4−53118

carrier mean free path
bulk jellium, inelastic m.f.p. for electrons 4−75844
p-type semiconductor, photoelectron distrib., photoelectric effect 4−72825
semiconductor, rel. to amplitude spectra calc. for γ-ray detector 4−80993
semiconductor, transport in surface vicinity with strong band-bending 4−72844
$As_2Se_3(S_3,Te_3)$, photoluminesc. line shape anal. 4−45355
Au film, r.f. triode sputtered, elec. and optical props. 4−75973
Cs, electron mean free path, temp. depend. determ. by u.s. attenuation meas. 4−67206
GaP:Cs, negative electron affinity, secondary and photoemission meas. 4−76342
Ge, magnetoreflectance meas., 34 GHz 4−82767
In film, helium ion injection effect on supercond. characts. *(Russian)* 4−82522
Si, magnetoreflectance meas., 34 GHz 4−82767
Sn, temp. depend., r.f. size effect meas. 4−60789
. ZnSe, Schottky barrier diode, impact ionisation meas. 4−57166

carrier mobility
see also carrier mean free path; carrier relaxation time; current density; electron-hole recombination; electron mobility; electron-phonon interactions
amorphous semiconductor transport theory 4−75850
anthracene, mol. cryst., hole cyclotron reson. obs. 4−79287
anthracene, recomb. electrolum. and enhanced double injection 4−67660
anthracene, trapping effects in pulsed conductivity 4−57134
anthracene crystals, high-field drift mobility meas. 4−60805
benzene, model insulating fluid *(German)* 4−79390
biphenyl in n-hexane, time-of-flight obs. 4−82418
butene-2, electron mobiliites, cis-trans effect 4−82417
chalcogenides vitreous semiconductors, expt. review 4−79268
cryogenic liquids, review 4−82666
crystal long range strain field, electron scatt. connection to de Haas-van Alphen effect dephasing 4−79273
cubic semiconductor, ohmic hole mobility 4−82405
d.c. diffusivity, hopping analogues, appl. to percolative models 4−82404
disordered semiconductor, exciton collisions, absorption process *(Russian)* 4−61174
disordered system, electron localisation and mobility edge sharpness, probabilistic approach 4−53029
disordered system, resistivity theory from random force correl. formula 4−57077
disordered systems, effect of time depend. pot. fluctuations 4−48918
electron condensation in system of polarons or fluctuons *(Russian)* 4−72738
electron release from dipole potentials, field depend., cond. process 4−67230
ferroelectric semiconductor, thermoelectric phenomena 4−64106
ferromagnetic semiconductor, heavily doped, screening, uniform state instability and charge carrier scattering 4−79340
ferromagnetic semiconductors, effect of phonon, magnon fields 4−79341
gapless semiconductors, calc. of crit. indices *(Russian)* 4−72760
graded band gap semiconductor, minority carriers, asymm. band edge gradient 4−64117
graphite, magnetoelectric properties investigation, fields up to 500 kOe, 4.2K *(Russian)* 4−82435
n- hexane-neopentane mixtures liq. dielec., electron mobility rel. to conducting state energy 4−60821
insulator, trap free, mobility depend. on carrier density 4−79362
Langmuir film, low thickness, breakdown cond. mechanism 4−73074
Langmuir film, molecular, destructive breakdown 4−73075
liq., cond. state energy of electrons investig. 4−82437
liquid crystal, cholesteric, temp. depend., rel. to struct. changes 4−75873
magnetoelectric resonance theory *(Russian)* 4−76169
metal, asymptotic soln. of Boltzmann transport eqn. 4−70004
metal, resistivity theory from force-force correl. function 4−57070
metallic thin films, determ. from surface elastic wave attenuation on piezoelectric substrate 4−53157
methane liq., cond. state energy of electrons investig. 4−82437
minority carriers in anisotropic semiconductors, determ. method 4−72795
m.o.s.t., in strong inversion layer, diffuse scatt. model 4−60871
multiple scattering model for mols. and crysts. 4−72667
nondegenerate electron gas, electron impurity Coulomb collisions 4−70013
phenanthrene, hole drift mobility temp. depend. 4−53093
photoconductor, rel. to transport noise spectrum in presence of nonuniform absorpt. 4−70050

carrier mobility continued
polar crystal, electron drift mobility, finite temp. and finite coupling, calc. 4−64078
polyethylene, at cryogenic temp., transient SCLC obs. 4−82421
polyethylene, oxidation effect on charge trapping 4−72849
polymer, cond. mechanisms, a.c. and d.c. 4−72792
polymer, pulsed electron beam time of flight meas. 4−82419
polythene, meas. of transient currents and electron mobility 4−53096
pyrene-TCNE single crystals, transient photocurrents 4−64115
quasi-periodic field *(Russian)* 4−44926
semiconductor, ambipolar mobility freq. dispersion in presence of deep traps 4−75913
semiconductor, degenerate, diffusivity-mobility ratio, magnetic field oscillatory dependence rel. to magnetic quantisation 4−79370
semiconductor, degenerate, having non-parabolic energy bands, generalised Einstein rel. for diffusivity-mobility ratio 4−48980
semiconductor, degenerate, impurity conc. influence on Debye screening length 4−57048
semiconductor, electron scatt. pot. for ionized impurity *(German)* 4−57082
semiconductor, empirical relationship with donor conc. 4−57086
semiconductor, ferromag., hot electrons, magnon scatt. processes 4−72791
semiconductor, generalisation of Fick's law 4−75846
semiconductor, inelastic hot electron scatt. by optical phonons, theory 4−75879
semiconductor, many valley, charact. parameters of selected const. energy ellipsoid 4−75859
semiconductor, meas. by Van Heek method, improved circuit 4−51106
semiconductor, microwave cond. in high electric fields 4−64101
semiconductor, narrow-band, pair production by conduction electrons *(Russian)* 4−44884
semiconductor, thin epitaxial, time of flight technique 4−60798
semiconductor, transport in surface vicinity with strong band-bending 4−72844
semiconductor, wurtzite-type, anisotropy of piezoelec. scatt., theory 4−57118
semiconductor film, spatially quantised, transversal elec. field structure *(Russian)* 4−70086
semiconductor in magnetic field perpendicular to current current discontinuities predicted 4−49004
semimetallic film, spatially quantised, transversal elec. field structure *(Russian)* 4−70086
supersonic electron drift velocities causing phonon generation at point junctions 4−52838
TCNQ complexes electron transport processes 4−48957
tetrahedral amorphous semiconductors, transport meas. 4−79360
two-valley semiconductor, space charge wave propagation 4−70033
unipolar semiconductor, helical plasma instability conditions 4−49031
vanadium-bronze, Hall effect at microwave 4−48972
n-YIG:Si, elec. cond., thermoelec. power, Hall effect and magnetoresist. meas., mag. effects 4−79349
Ag-Au, electron scatt., virtual crystal model 4−72746
AgBr, photographic emulsion, spectral sensitisation, electron transfer 4−54069
Ag_2S, $Ag_2S_{0.5}Te_{0.5}$, electron mobility and effective mass, 200-480°C and 35-420°C respectively 4−44911
$Al_xGa_{1-x}As$, p-n junctions from mol. beam epitaxial layers 4−57163
$Al_xGa_{1-x}As$:Ge, electron diffusion length, comp. depend. 4−60810
As-Sb alloy, temp. depend., rel. to elements 4−49003
As_2S_3-CdI_2, evaporated layer, hole drift mobility 4−75855
$As_2(Se_{1/3}Te_{2/3})_3$, localized states, carrier transport mechanism, glassy bulk, sputtered film 4−64009
$BaTiO_3$, ferroelectric-semiconductor, photocond. review 4−64112
$BaTiO_3$, tetragonal, mobility anisotropy in small polaron model 4−64075
$BaTiO_3$:Gd, drift mobility, doping conc. depend. 4−75863
Bi, from magnetoresistance ang. depend., tensor components 4−60812
Bi, magnetoresistance tensor component, low temp. and mobility tensor component meas. 4−82434
$CdGeP_2$, Hall meas. on electrons and holes, 200-400K 4−48981
n-CdS, anomalous mobility behaviour, elec. evidence for impurity pairs 4−72798
CdS, inhomogeneous elec. cond., effect on Hall mobility meas. 4−44935
CdS, single cryst., component v.p. effect 4−72768
CdS, thin film, surface scatt. effects 4−45029
CdS single crysts., cond. inhomogeneity effects on elec. and optical props. 4−70015
CdSe, with cond. memory, conc. and Hall mobility of electrons *(Russian)* 4−72838
n-CdTe, anomalous mobility behaviour, elec. evidence for impurity pairs 4−72798
CdTe, high purity single crystal, elec. props., photoluminescent props. 4−64424
n-CdTe, plasmon phonon interaction and free carriers obs. i.r. reflectivity meas. 4−53443
CdTe films, multiple p-n junction structures, photomag. effect spectrum 4−75958
CdTe:Br transport characterisation for γ detectors 4−46816
CdTe:Cl transport characterisation for γ detectors 4−46816
CdTe:Cl(Br) self-compensation, time of flight technique 4−72761
$Ce_{3-x}S_4$ ($x=0$, 0.06, 0.28), elec. props., depend. on composition and temp. 4−44936
Cu, small angle scattering effects 4−67202
Cu:Ni(Ge)(Au), conduction electron scattering, de Haas-van Alphen 4−64058
CuCl, exposure to Cl_2, elec. props. and acceptor levels investig. 4−54085
$CuFeS_2$, chalcopyrite type magnetic semiconductor 4−61319
$Cu_{2-x}Te$, film growth, optimum thickness, Hall mobility, cond. 4−45443
Dy_2S_3, transport props. and mechanism, single crysts. 4−48969
Fe, cond. electron polarisation sign determ. using Mossbauer obs. of Fe/Sn layers *(Russian)* 4−79663
Fe_xO ($0.99 \leqslant x \leqslant 1$), antiferromag. semicond., critical resist. 4−79519

carrier mobility continued
Fe_xSe_y, Hall effect meas. 4−60833
GaAs, compensated, hot electron mobility, 4.2K and 1.8K 4−60806
GaAs, effect of annealing on radiation defects, 100-800K *(Russian)* 4−67721
n-GaAs, electron mobility in impurity conduction band 4−72796
n-GaAs, electron scatt. pot. for ionized impurity, carrier mobility *(German)* 4−57082
GaAs, epitaxial layer, Cu contamination effect on electron mobility 4−75888
GaAs, epitaxial layers, evaluation for microwave devices 4−45460
n-GaAs, epitaxial nondoped, electrophysical props. in temp. range 10-1100K 4−79242
GaAs, far i.r. opt. props. of free carriers 4−82695
GaAs, Faraday effect in intense mag. fields, effective mass and relax. mechanism obs. *(French)* 4−45275
GaAs, from u.s. absorpt. obs. *(Slovak)* 4−64074
GaAs, Hall meas. on f.e.t. waters 4−82414
GaAs, high field drift vel. calc. 4−48992
GaAs, implanted layer elec. props. 4−75864
GaAs, n-n^+ epitaxial layer for Gunn diode 4−64087
GaAs, nonsaturating velocity-field characts., domain meas. 4−75870
n-GaAs, rel. to free carrier light absorpt., 90-500K, 5-14 μm *(Russian)* 4−82702
GaAs, Schottky barrier and p-n junctions from mol. beam epitaxial layers 4−57163
GaAs, temp. depend. of electron mobility, lattice mobility curve 4−82398
GaAs epitaxial layer, liquid phase grown on semi-insulating substrate 4−64088
GaAs epitaxial layers, electron density and mobility, photoluminescence and deep traps obs. *(Japanese)* 4−45025
GaAs film, GaAs-$Al_xGa_{1-x}As$ double heterostruct., minority carrier diffusion length, optical obs. 4−53549
n-GaAs in range 20 to 50 kV/cm 4−70024
GaAs:Cr, semi-insulating, with mixed cond., Hall and magnetoresist. meas. 4−53108
GaAs:Ge, diffusion const., optical phase shift meas. 4−75853
GaAs:Te, irrad. parameters depend. 4−60790
$GaAs_{0.62}P_{0.38}$:Zn, ion implantation conditions depend. 4−49577
$Ga_xIn_{1-x}Sb$, scattering processes, transport phenomena under pressure 4−57096
n-GaN, epitaxial vapour deposition, carrier conc., mobility and photoluminescence *(Japanese)* 4−45438
GaN film, rel. to s.c.l. current flow 4−79421
GaP:Zn(S), minority carrier diffusion length, lifetime, conc. depend. 4−72763
GaSe, effect of interaction of holes with optical phonons 4−75893
GaSe, Hall and drift mobility, anomalous valence band anisotropy 4−48911
GaSe, transient charge technique *(German)* 4−82400
Gd_2S_3, transport props. and mechanism, single crysts. 4−48969
n-Ge, containing point defects, charge carrier scatt. mechanism *(Russian)* 4−75934
p-Ge, film, mobility of carriers scatt. by acoustic phonons, temp. depend. 4−72877
Ge, intrinsic and with donors and/or acceptors 4−44918
Ge, irradiated with 30 keV Ga^+ ions, electrical characts. 4−67236
n-Ge, many valley, charact. parameters of selected const. energy ellipsoid 4−75859
p-Ge, mobility, noise temp. and diffusivity of hot holes 4−44931
p-Ge, optical heating of carriers, photocarrier mobility and lifetime 4−72830
Ge, p-n-p transistor, ion implantation effect 4−57713
Ge,film, cryst. struct. and elec. props. 4−72657
p-Ge film, elec. cond., Hall coeff. and hole mobility, 20K, two-layer model interpretation 4−82502
$Ge(Se_{1/3}Te_{2/3})_2$, localized states, carrier transport mechanism, glassy bulk, sputtered film 4−64009
n-$Hg_{0.8}Cd_{0.2}Te$, galvanomagnetic props., high and low mobility samples 4−67234
$Hg_{1-x}Cd_xTe$, calcs. 4−60792
HgI_2 radiation detectors, charge carrier transport anal. 4−51148
HgSe, electron scatt. mechanism, thermal cond., Lorenz number 4−70023
HgSe, Hall coeff. and mobility meas., temp. depend. 4.2 to 300 K 4−44942
ice:HF, cryst., Hall mobility meas., double freq. method 4−75887
InAs, epilayer, anomalous transport coeffs. 4−79417
$In_xGa_{1-x}As$, epitaxial layer, electron Hall mobility meas., phonon and disorder scatt. 4−45028
$In_{1-x}Ga_xP$:Te, Hall mobility, comp. depend., 300K 4−75890
n-InP, bulk and epitaxial, vel.-field characts. 4−82402
InP, high field drift vel. calc. 4−48992
n-InP, magnetophonon effect, warm electron relax. 4−57107
InP_xAs_{1-x} highly doped n-type solid solution, reflection spectra, carrier effective mass 4−53463
n-InSb, doping characts., systematic control by nucl. reactions 4−70428
n-InSb, drag of cond. electrons by photons due to direct transitions between spin branches 4−57506
InSb, electron drift and Hall mobility at 30, 77 K, impurity effects, calcs. 4−53095
InSb, Faraday effect in intense mag. fields, effective mass and relax. mechanism obs. *(French)* 4−45275
n-InSb, Hall mobility, 20-77K 4−49014
InSb, hot electrons, drift vel. and average energy 4−72789
InSb, thickness dependence of galvanomagnetic props. 4−79369
n-InSb, warm electron mobility, and comparison with theory 4−82425
K, from resistivity measurements 1.6 to 5.1K with samples of various purities 4−53079
KBr, with F-centres, low temp. Hall effect, polaron theory 4−64103
Mg_2Ge, growth from melt, elec. characts. 4−82816
NH_3-metal solution, electron condensation in polaron or fluctuon system *(Russian)* 4−72738
NH_4SO_4 and $NH_4H_2PO_4$, conductivities of doped crystals, charged carrier mobility 4−63941
$(NH_4)_2SO_4$, $NH_4H_2PO_4$, proton carrier mechanism 4−60799

carrier mobility continued
- Nd_2O_3, elec. cond. meas., oxygen partial press. depend., 900 to 1100°C 4−60794
- Nd_2S_3, transport props. and mechanisation, single crysts. 4−48969
- $Pb_{0.0995}Ge_{0.005}Te$, 300-950K, heavy hole localization effect 4−72770
- PbS, Monte Carlo calc. of hot electron mobility 4−67225
- PbSe, epitaxial, vapour deposition, carrier conc., mobility and Hall effect meas. 4−53614
- $Pb_{1-x}Sn_xSe$, epitaxial, vapour deposition, carrier conc., mobility and Hall effect meas. 4−53614
- $Pb_{0.82}Sn_{0.18}Te$, temp. depend. of intrinsic carrier conc. and mobility ratio 4−82415
- PbTe, film, high mobility, prep. by hot wall technique 4−73272
- $Pb(Zr, Ti)O_3$ type solid solutions, experimental measurement 4−53091
- $PbZrO_3$, current-voltage characteristics and thermoelectric effects 4−53090
- Pd dilute alloys, resistivity anomalies, reduction in s-d scatt. with temp. increase 4−44887
- Rb, from resistivity measurements 1.6 to 5.1K with samples of various purities 4−53079
- SbSI, ferroelectric-semiconductor, photocond. review 4−64112
- Se, amorphous, high-field mobility 4−70031
- Se, amorphous, impurities effect on charge transport 4−75989
- Se, liq. and amorphous, hole transport mechanism 4−75885
- semiconductor, Hall mobility meas., influence of magnetoresistance 4−64073
- p-Si, (100) surface, cond. electron transport props. in n-type inversion layers 4−44977
- n-Si, electron scatt. due to plastic deformation *(Russian)* 4−72780
- n-Si, Hall effect meas. scatt. parameters 4−44941
- Si, hole saturation velocity, temp. depend. 4−48971
- Si, homoepitaxial, exposed to neutrons 4−66941
- Si, polycryst., electronic props. 4−44925
- Si, quantized inversion layers with many occupied elec. subbands, interband scatt. 4−44920
- Si, surface inversion layers, hot carriers, field-dependence behaviour 4−60801
- Si, thermally oxidized surface inversion layers, two-dimens. electron-lattice scatt. calcs. 4−44921
- Si and $B_{13}P_2$, double-layer epitaxial growth on Si substrate, Si layer elec. props. 4−70426
- Si inversion layer, in semicond.-insulator struct., evidence for mobility edge 4−60869
- Si single cryst. film, dielectrically isolated and defined by electrochem. etching 4−57097
- Si:As, elec. and backscatt. meas., annealing effect 4−64503
- Si:P, polycrystn. film, annealing effect 4−45027
- Si:P film, polycryst., thickness depend. 4−57189
- Si. diffused zone, meas. using gate controlled structure 4−57696
- α-Sn, electron irrad. damage effect, impurity scatt. 4−75852
- $SrTiO_3$ single crystals, trapping levels, thermally stimulated cond. meas. 4−79353
- Ta_2O_5, defect structure 4−72461
- Te, crystal, a-edge-dislocated, hole mobility 4−64084
- p-Te, microwave Faraday effect meas. 4−44952
- Te, undeformed and plastically deformed, hole transport, ohmic conductivity and Hall effect 4−82411
- Te film, hole mobility, surface scatt. effects 4−49094
- ThO_2, ThO_2-$YO_{1.5}$ solid solns., construction mechanisms at high oxygen pressures 4−52929
- TiO_2 in corundum solid soln., disordering model 4−53088
- p-$TlSbTe_2$, transport props. meas., acoustic mode scatt. 4−72771
- Tl_2Te, liquid, mobility edges, pseudogap model 4−44820
- V_2O_5-KPO_3 glass, evidence of hopping cond. among localized states 4−70021
- Zn dilute alloys, electron scatt., dHvA effect, mag. breakdown 4−67152
- $ZnCr_2Se_4$, resistivity, Seebeck and Hall effects meas., 77 to 300K heat treatment effects 4−60793
- $ZnIn_2S_4$, photoelectronic props., 80K-room temp. 4−57135

carrier motion *see carrier mobility*

carrier relaxation time
- anisotropic relaxation time, calc. for d.c. cond. 4−44904
- rel. to charge density, in a conducting medium 4−60788
- electroluminescence, multiphoton effects and electron relax. times 4−57636
- p^+-i-n^+ structures, asymmetric, negative magnetoresistance 4−79409
- p-type semiconductor, photoelectron distrib., photoelectric effect 4−72825
- semiconductor, wurtzite-type, anisotropy of piezoelec. scatt., theory 4−57118
- semiconductor film, rel. to thermoelec. power, case of strong surface band bending theory 4−49096
- Au film, freq. depend. of Drude relax. time, two-carrier model 4−45022
- CeB_6, single cryst., effect of stress modulation on plasma edge splitting 4−49381
- GaAs, far i.r. opt. props. of free carriers 4−82695
- p-GaAs, hole relax. time, 300-673K, i.r. spectra obs. 4−48984
- Ge, change due to heating, effect on photocond. spectrum 4−72824
- n-Ge, hot carriers, microwave complex cond. meas. 4−44929
- $GeSb_4Te_7$, calc. from electrical props. 4−44922
- $In_xGa_{1-x}As$, epitaxial layer, electron Hall mobility meas., relax. time approx. 4−45028
- K, low field Hall coeff., temp. depend. 4−64060
- LaB_6, single cryst., effect of stress modulation on plasma edge splitting 4−49381
- NdB_6, single cryst. effect of stress modulation on plasma edge splitting 4−49381
- PrB_6, single cryst., effect of stress modulation on plasma edge splitting 4−49381
- n-Si, degree of compensation determ. from Hall mobility 4−73270
- Si, quantized (110) inversion layers, anisotropic relax. time 4−75965
- SiO:Pt films, thermally stimulated currents, relax. time distrib. of charges *(French)* 4−57104
- p-Te, microwave Faraday effect meas. 4−44952

carrier scattering *see carrier mobility; electron-phonon interactions*

carriers (charge) *see charge carriers*

carry circuits *see adders*

cars *see automobiles*

cartography
- aerial and satellite photographs, combined restitution process 4−51095
- aerial photogrammetry, system calibration, Method of Mixed Ranges 4−58852
- contour generation, optical processing systems using transparencies 4−58122
- DAHLTA tacheometer, combined with KARTI plotting table 4−46112
- dynamical meteorology arbitrary map projections, pure image space 4−68176
- ERTS data interdisciplinary analysis and interpretations 4−70825
- ERTS-1 applicability for photogeologic and tectonic mapping 4−70827
- geophysical fields 4−57894
- Moon, Deslandres area, components of lunar grid and azimuths 4−50508
- photogrammetric, atmospheric refraction compensation, equation for 4−61903
- photogrammetry, independent triangulation models, electronic calculators applic. 4−61902
- photomaps, contour charts, orthoprojector system 4−62483
- side looking airborne radar mosaics, Brazil's Project RADAM, techniques 4−61904

cascade networks *see ladder networks*

cascade showers *see cosmic ray showers and bursts*

casting
- Alnico magnets, mag. props in rel. to crystal texture of columnar castings 4−53255
- ceramic slips in casting, role of surface tension and contact angle 4−45757
- continuous, ingot cooling cycle determ., min. shell deform. *(Russian)* 4−76519
- heat transfer in flowing molten metal in sand casting 4−45624
- ingot/mould system, elec. modelling of solns. of solidification problems *(Russian)* 4−53653
- metal continuous casting, two-dimens. model including convection in liq. region 4−73279
- Al-Cu alloy with duplex dendritic struct., casting effect on mech. behaviour 4−49790
- Cu-Sn-Cr bronze, crystn. parameters effects on struct. form. *(Russian)* 4−45577
- Fe, temp. field estimate, quality criteria *(Russian)* 4−76518
- Si-Ge alloy ingots, hot-pressed, prep. and props. 4−49608
- Si-Ge alloys, chill casting for hot pressed ingot prod. 4−61430

castings
- alloy, automatic recording of linear settling 4−65370
- steel, homogenization treatment and hot isostatic pressing effect on microporosity 4−45682
- Cu-Sb composite, superconducting, metallurgical effects 4−60916
- Fe-C-Si alloy castings, distribution and liquation of N *(Russian)* 4−70448
- Mg alloys, binary, undercooling meas. for mutual nucleation 4−45493
- Mo-C, cast and recrystallised, effect of alloying with Fe, Ca, Ni, Ir, mechanical props. 4−82948
- Si-Ge, hot pressed ingots, reduction of chill cast alloy 4−64596
- U alloy, densitometric meas. of thickness of defects revealed by γ radiography *(French)* 4−73401

catalysis
- *see also catalysts; reaction kinetics*
- atom recombination, surface catalyzed, excitation quenching and energy transfer effects investig. 4−50160
- autocatyltic stochastic reaction model for non-equilib. phase transition *(German)* 4−76602
- catalytic liquid membrane reactor, concept., applics., oxidation of ethylene to acetaldehyde 4−45894
- ethylene exchange and addition reactions on oxides, gas chromatograph-mass spectrometer obs. 4−46898
- formic acid, decomposition on Ni-2%Cr alloy, magnetocatalytic effects, expt. evidence 4−57883
- heterogeneous, structure sensitivity, steric hindrance, surface chemistry 4−73449
- heterogeneous catalysis on solid surfaces, review 4−73451
- inorganic semiconductors, sensitization of photoreduction of methyl viologen 4−83278
- interstellar molecule origin by catalytic reactions on grain surfaces 4−83253
- linear potential sweep voltammetry, adsorption, autoinhibition, autocatalysis effects on electrochem. react. 4−51223
- magnetic effects, theory 4−57884
- magnetocatalytic effects, expt. evidence 4−57883
- trans-3-methyl-3-thioniabicyclo[4.3.0] nonane iodide, base-catalyzed H-D exchange, stereochemistry 4−43759
- polymerisation, development prospects, review *(Dutch)* 4−64643
- reaction energy dissipation 4−73453
- self-consistent field molecular orbital theory, atomic clusters 4−73448
- semiconductor catalysts, exoelectron emission research and applic. in chem. and biology 4−54087
- semiconductor-electrolyte interface charge transfer reactions, role of energy levels 4−54023
- semiconductors, catalysis of electrochemical reactions by surface states 4−54022
- spatial switching in chem. reactions with heterogeneous catalysis 4−53985
- vacuum society symposium, New York, USA (1973) 4−71176
- Ag, surface self-diffusion in presence of chemisorbed iodine 4−75714
- CO, oxidation over $La_{0.65}Sr_{0.35}MnO_3$ powder, magnetocatalytic effect, expt. evidence 4−57883
- CO_2, sealed laser, degree of dissociation 4−65901
- D_2 exchange and addition reactions on oxides, gas chromatograph-mass spectrometer obs. 4−46898
- Ge transport by iodine in flow system 4−61300

catalysis continued
H and OH radical recombination, in $H_2/O_2/N_2$ flames, catalysis by iron investig. 4−61581
p-H_2, catalytic conversion by organic radicals 4−69521
H_2, ortho-para conversion using FeO(OH) gel as catalyst 4−73414
H_2, p- to o- conversion in nonmetallic mag. surfaces, theory and expt. 4−57882
Mo compounds, conf. Reading, Berks., England (Sep. 1973) 4−61601
N atom recombination, surface catalytic efficiency of sputtered Mo on quartz and pyrex 4−50209
NH_3, catalytic decomposition by W, total press. variation determ. of reaction rates 4−76598
N_2O, decomposition over Ni, magnetocatalytic effects, expt. evidence 4−57883
Ni(110), surface microcatalysis, HCOOH decomposition exam. 4−73452
Pt, (111) face, catalytic oxidation of adsorbed S *(French)* 4−68026
Pt, correlation between catalytic activity and surface structure 4−73450
S, adsorbed on (111) face of Pt, catalytic oxidation *(French)* 4−68026
$SnCl_2/PdCl_2/HCl$ catalyst for plating dielectric substrates, electron microscope obs. 4−61620

catalysts
see also catalysis
auto exhaust control using mixed oxide catalysts 4−54735
granular packing layer, heat-generating, in pipe, temp. field 4−51481
metal powder, porous, diffusional retardation of chemisorption 4−60691
semiconductor, exoelectron emission research and applic. in chem. and biology 4−54087
sintering of promoter catalysts, dispersoid particle behaviour 4−80056
surface, heterogeneous recombination of gas atoms, temp. depend. 4−54086
transition metal electrocatalysts., optical surface spectroscopy 4−54025
CuCl, elec. props. and acceptor levels produced by Cl_2 gas 4−54085
$MoO_3:V_2O_5$, e.s.r., i.r., X-ray diffr. investigs. rel. to composition, paramag. centre determ. 4−76146
Ni-SiO_2, adsorption of acetylene, saturation magnetis., LEED and thermodesorption meas. *(French)* 4−44776
Pt, Al_2O_3, adsorpt. of H_2, isotherm determ. by i.r., heat of adsorpt. calc. 4−44767
Ru, adsorpt. of CO and O_2, work function meas. 4−80209
SiO_2-supported Pt, adsorpt. of N_2, i.r. absorpt. spectral investig. 4−80211
TiO_2, rutile, surface and catalytic props., parahydrogen conversion 4−80212
V_2O_5/γ-Al_2O_3, high temp. effects 4−64601

cataphoresis *see electrophoresis*

cathode-ray oscilloscopes
see also oscillographs
No entries

cathode-ray tube displays
automatic film measuring apparatus KAMA bubble chamber appl. 4−77209
bubble chamber picture analysis 4−77221
circular plotter for kinoform lens construction 4−46688
electron microscope sequential colour TV display with beam rocking 4−68818
radioisotope scanning images, visual signal detection, model 4−58575
stereo graphics display with mini-computer control 4−62567
three dimensional, for use with SATR bubble reconstruction and track following routines 4−81013

cathode-ray tube screens *see cathode-ray tubes; fluorescent screens*

cathode-ray tubes
see also image convertors; image intensifiers; image storage tubes; television camera tubes
colour integrator using spectrophotometer 4−46651
computer scanning, conference, Oxford, England (April 1974) 4−77258
hologram recording, using cathode-ray tube with laser screen 4−80927
holographic memory, image reconstruction using semicond. laser screen of cathode ray tube 4−77104
laser, colour TV and video recording application *(Czech)* 4−54953
scanning device for bubble chamber film, programmed controller 4−77211
scanning devices AELT-1, AELT-2, for bubble chamber film 4−77210
spherical aberration, quadrupole-octupole lenses, third order correction *(Russian)* 4−71254
$SrGa_2S_4:Ce^{3+}$, Pb^{2+} white emitting phosphor for flying spot scanner tube 4−57637
$SrGa_2S_4:Sn^{2+}$ red emitting phosphors for flying spot scanner tube 4−57637

cathode rays
No entries

cathodes
see also electron emission; oxide coated cathodes; photocathodes; thermionic cathodes
cathodic arc in plasma at different thermodynamic conditions 4−60373
detectors for NMR, improvement 4−42842
epoxy coated, for h.v. vacuum insulation 4−65481
erosion in low current rotating arcs 4−82067
field-emitters, stability and lifetime 4−79858
film, arc heating 4−44418
hollow, types for optical spectroscopy 4−74053
hollow cathode discharge, cathode material influence, operating voltage reduction 4−75399
infusible cathode rod with an arc in a hydrocarbon 4−78838
metal-dielectric, explosive emission of electrons *(Russian)* 4−63724
point cathode electron source, sphere on cone model 4−65949

cathodes continued
SEM scintillation collector, secondary electron collection efficiency *(Russian)* 4−71248
switch, contact-breaking current, post-arc column and cathode sheath recovery strength effects 4−60375
vacuum arc, cathode spot current density 4−60360
vacuum arc, cathode spots contraction mechanism 4−60359
Ag-SiO/B_2O_3-Cu(Ag), cathode behaviour, SEM obs. 4−75968
CdS field emission cathodes, microplasma bistable state in elec. breakdown 4−79857
Cu, vacuum arc, metal displacement due to plasma expansion 4−60350
GaAsP cold cathode, development, electron energy distrib. and applic. 4−64483
p-Ge field emission cathodes, microplasma bistable state in elec. breakdown 4−79857
LaB_6 rod cathodes for triode electron gun *(Russian)* 4−73233
Pt cathode surfaces, optical absorption phenomena 4−61623

cathodes, electrochemical *see electrochemical electrodes*

cathodoluminescence
alkali metal halide, electron-hole recomb., cond. relax. *(Russian)* 4−73202
cathodoluminophor barrier screen for electron beam apparatus *(Russian)* 4−73200
diamond, H3 cathodolum., decay time reduction rel. to defect interactions 4−53538
diamond, natural and synthetic, linearly polarised luminescence from linear defects 4−79804
electron microscopy, cathodoluminesc. detection 4−65546
electron probe system for study 4−55110
fluorides:Yb^{3+}(Er^{3+}), fluorescence decay, cathode-ray excitation 4−49471
glass, Pr^{3+} activated, cathodolum. and induced absorpt. bands *(Russian)* 4−53539
glass ceramic, microstruct. characteriz. by cathodolum. 4−49892
III-V semiconductors application, crystal orientation and imperfections obs. *(Czech)* 4−66801
mechanisms, hypotheses, exptl. tests and applications 4−49469
oxysulphides:Eu^{3+}, Tb^{3+}, additional centres, electron-hole processes *(Russian)* 4−82729
phosphor particle deposits, optical props. and electron excitation output, statistical model 4−57639
plant tissue, detection by electron microscopy 4−65546
rare earth oxysulphide, commercial materials, energy output *(Russian)* 4−82754
SEM, real-time cathodlum. spectroscopy 4−77253
β-AgI, pure and Cu-doped, optical emission and absorption obs. 4−57604
AlN:Mn *(Russian)* 4−45367
Ar-Ne, solid, exciton spectra, at. and mol. centres, mechanism 4−67667
$Ba_2ZnS_3:Mn^{2+}$ phosphor efficiency obs. 4−57603
CaS:As phosphor, cathodoluminesc., decay studies 4−82756
CdS, single crystals, dislocation luminescence *(German)* 4−76322
Eu activated phosphates, halophosphates and silicates *(Russian)* 4−82726
GaAs nonuniform semiconductor, SEM microanalyser in cathodoluminescent mode *(Russian)* 4−71250
GaN, and growth from Ga_2O_3 4−76323
GaP:Zn(S), minority carrier diffusion length, lifetime, conc. depend. 4−72763
GaSe, electron-beam excited, spontaneous and stimulated emission, possible laser appl. 4−82716
HfP_2O_7, self-activated, efficiency and emission energies, obs. 4−57638
InOCl, Tb^{3+} activated phosphor, synthesis, emission properties 4−64428
$SrGa_2S_4:Ce^{3+}$, Pb^{2+} white emitting phosphor for flying spot scanner tube 4−57637
$SrGa_2S_4:Sn^{2+}$ red emitting phosphors for flying spot scanner tube 4−57637
Ta, ion bombarded, secondary ion and light emission 4−76344
Y_2O_3:Eu red cathodoluminescent layer chemical vapour deposition on particles 4−49470
(Zn,Cd)S(Cu), radioluminescence produced by Ni β-rays 4−76321
ZnCdS:Ag, l.v., factors affecting efficiency *(Russian)* 4−82755
$ZnGa_2S_4:Mn^{2+}$, obs. and comparison with Ga_4S_3 and ZnS 4−57602
ZnO, low-energy rel. to ZnO-plasma display fabrication 4−61236
ZnS, growth conditions effect, defect struct. 4−82126
Zn_2SiO_4:Mn green cathodoluminescent layer chemical vapour deposition on particles 4−49470
Zn_2SiO_4:Mn surface, electron-induced desorption of $O_2 \propto$ cathodoluminescent efficiency change 4−48849

cathodophosphorescence *see cathodoluminescence*

cathodothermoluminescence *see cathodoluminescence*

catholytes *see electrolytes*

causality *see physics fundamentals*

causticity *see pH*

cavitation
see also bubbles; vortices
acoustic emission from free vortices streaming from supporting surfaces *(Russian)* 4−52512
axisymmetric cavities, anal. of small perturbations *(Russian)* 4−78695
axisymmetric flow with developed cavitation, ring model *(Russian)* 4−52502
biological tissues, lesion, importance compared with temperature rise with ultrasound 4−80752
bubble, size oscillating and moving along pressure gradient, dynamics rel. to viscosity *(Russian)* 4−52511
bubble stream, dynamic behaviour and compliance 4−48364
collapse of empty liquid cavity, initial phases of motion 4−75159
cryogenic liquids, caused by ultrasonic waves 4−78696
cryogenic liquids, effect of thermodynamic props. on erosion during cavitation 4−75722
damping, gas bubbles in water, from desinent threshold for subharmonic-$^1/_2$ 4−78691
erosion effect, magnetic induction vector direction influence 4−60252

cavitation continued
hydrodynamic friction forces in starved point contact considering cavitation 4−75200
hydrofoils in water tunnels, wall effects comparison *(German)* 4−72344
laser induced cavitation *(German)* 4−72341
liquid-drop collisions, energy transfer and cavity formation 4−52508
metal, cavitational surface failure *(Russian)* 4−53718
MHD droplet, nonconducting, effect of current on vel. field and dissolution rate in liq. *(Russian)* 4−81962
in nonuniform pressure fields, dynamics and strength 4−78699
oscillation of gas-filled spherical cavity in viscoelastic polymeric media *(Russian)* 4−56448
plate, influence of faint shock-wave 4−66662
review, control, resistance and uses 4−78668
steel, cavitation damage tests correl. with residual stress meas. 4−45876
steel, cavitation resistance after vacuum remelting, inclusions and defects influence *(Russian)* 4−45602
steel, cavitation resistance rel. to structural conditions 4−61437
surfacing of cavity in ponderable fluid, oscillations, stability 4−44124
thermal action of cavitation on metals *(Russian)* 4−70481
unsteady cavity flow in tunnel 4−66661
u.s., absolute luminant emittance during sonoluminescence 4−80890
viscoelastic liquid, bubble pulsation and cavitation, theory 4−52509
viscous effects in cavitation inception on axisymmetric bodies 4−48363
in water, collapsing, causing aerating of gassy liquids by ultrasonic fields 4−78697
water, hydrodynamic scaling effects, strength of water 4−78698
water, pulsing causing electrohydrodynamic sonoluminescence 4−75173
water, sonoluminescence due to Nd laser pulse induced cavitation 4−53489
Hg, cavitation during flow in transverse mag. field *(Russian)* 4−81961

cavity resonators
see also acoustic resonators; laser cavity resonators
atomic beam frequency standards, second-order Doppler and cavity phase dependent frequency shifts, calc. 4−65349
atomic clock, automatic tuning devices *(French)* 4−65331
cylindrical for e.p.r. investigation, determ. *(German)* 4−42843
double-ring storage facility, DESY, resonator manufacturing techniques 4−77144
earth-ionosphere cavity resonances, line splitting, Q and frequency dependence on azimuthal inhomogeneities 4−80384
frequency standard, Rb, light-weight, using 12 W 4−46554
helical waveguide cavity dielectric loss meas. at 9 and 35 GHz 4−65489
paraelectric resonance spectroscopy, use of large rectangular cavity 4−42839
parametric four-photon-oscillator, amplification, Fabry-Perot and ring resonators *(German)* 4−55511
particle volume meas. from microwave resonance 4−42708
Q-factor meas., effect of surface roughness on surface resistance 4−46748
quasi-TE$_{0,1,1}$ mode in resonator with losses, field analysis and complex reson. freq. 4−77592
rectangular with dielectric sphere, projection algorithm *(Russian)* 4−65866
superconducting microwave cavity, high-Q, coupling with Josephson junction, theory 4−60924
Cs atomic beam frequency standards, second-order Doppler shift and cavity phase error corrections 4−65350

celestial mechanics
see also N-body problems; stellar motion
algebraic manipulation systems 4−58194
artificial satellite, lunar orbit determ. 4−58201
artificial satellite, lunar perturbations 4−58202
artificial satellite orbit anal. rel. to odd zonal harmonics in geopotential 4−57899
artificial satellite orbital parameters, accuracy determ. method 4−76923
aspherical Moon, force field disturbance and orbital motion 4−65047
asteroid 1685 Toro, resonance with Earth and Venus *(Swedish)* 4−58271
asteroid orbit stability for close approach to Jupiter 4−54442
asteroid orbits at 3/1 commensurability 4−73644
box orbit boundary eqns. determ. 4−68319
canonical forms, for symplectic and Hamiltonian matrices 4−55177
close binaries, apsidal motion variable orbital period effects 4−73728
comet-asteroid flyby, mission strategy 4−80674
cometary motions, from pre-Copernican era to present time 4−61974
coplanar circular orbits, with opposite rotation, optimal transfer 4−76770
distant satellite motion, intermediate orbital solution with third order terms 4−65048
dynamical astronomy division of American Astron. Soc. meeting (Tucson, 30 Nov-1 Dec. 1973) 4−54353
dynamically symmetrical satellite, circular orbit, uniaxial stabilisation *(Russian)* 4−80450
Earth satellite orbits, computer illustrations 4−76771
education, Lense Thirring effect, magnitude calcs. Sun spin influence on planet orbits 4−71153
ejection of massive objects from galactic nuclei, gravitational slingshot 4−65181
elliptical restricted three-body problem, second order motion near equilateral points *(German)* 4−68312
elliptically restricted problem, differential eqns. soln. for motion around equilateral points *(Spanish)* 4−65046
Encke equation, for orbit integration 4−54358
ephemerides, condensed, algorithm representation *(French)* 4−65042
Euler-Lambert eqn., approx. analytical solns. 4−83169
exotic close binaries, orbital elements with mass variations 4−65180
four fixed body problem rel. to celestial mechanics 4−73596
gravitational rings and origin of irregular satellites 4−65041

celestial mechanics continued
Hamiltonian systems about critical point, normal forms 4−68317
incompressible heterogeneous spheres, nonradial oscillations *(French)* 4−70858
INTELSAT IV F-4 spacecraft, gravity-gradient torque effects 4−61979
intermediate orbit for distant satellites 4−46147
interplanetary dust particles in solar elliptic orbits, nongravitational effects on evolution 4−46204
interplanetary spacecraft, disturbing parameters in evaluation of accuracy of motion predictions 4−46143
Jupiter, second order perturbations, comparison with Le Verrier *(French)* 4−50434
Kerr metric, circular orbits 4−73595
Lagrangian solutions of three solid body problem using Weber's law *(French)* 4−70859
lunar satellites determ. of intermediate orbit elements *(Russian)* 4−80451
Mariner 9, satellite orbit determ., rel. to Mars gravity model 4−65043
Mercury, possible histories of obliquity 4−65091
minor planets, heliocentric and geocentric motion 4−61975
modified Jacobi polynomial, applications to expansions of disturbing functions 4−68308
Moon-Earth trajectories, approx. geometrical calcs. 4−76769
N-body problem, numerical computations, doubly individual step method 4−59090
N-body problem, numerical integration, by separating force into near and far components 4−59091
N-body problems, gravitational numerical solution difficulties 4−59088
N-body problems, macroscopic properties, effect of integration errors 4−59093
N-body problems, numerical integration, explicit Taylor series applic. 4−59094
N-body problems, star clusters, numerical integration 4−61982
N-doby problem, numerical integration, variable order method 4−59089
numerical theories of motion 4−58197
optimal trajectories to Mars *(French)* 4−61972
orbit integration, multirevolution methods 4−59095
orbital calculations, numerical integration techniques, comparison 4−59086
ordinary differential equations; conf. Austin, Tex., USA, 19-20 Oct. 1972 4−59084
Periodic Comet Encke transverse nongravitational parameter from 1786-1971 4−50514
Periodic Comet Kopff, nongravitational motion 4−54451
periodic orbits in restricted three-body problem from varying mass-ratio 4−73598
periodic Trojan type orbits in Earth-Sun system 4−50431
planar restricted three-body problem, families of periodic orbits 4−70862
planetary motion, analytical soln., of Newtonian eqns., perturbations *(Hungarian)* 4−46176
planetary satellite, motion in oblate primary potential, secular perturbations from zonal harmonics 4−46146
planetary theories 4−61973
planets, geodetic and dynamical props. 4−68355
planets, mean elements 4−58239
Pluto, semi-analytical theory of secular perturbations 4−54413
precession in spin-orbit coupling 4−54354
quadrature soln. of two-body problems with varying gravitational constant 4−54355
resonance asteroids of Minerva family, computer derivation of intermediate orbits 4−68399
resonances in axial rotations of astronomical bodies, generalized Cassini laws *(Russian)* 4−50436
resonant rotations of astronomical bodies, stability of generalized Cassini laws *(Russian)* 4−46145
restricted three body problem, stability regions for quasiperiodic motion 4−65040
restricted three-body problem with small mass-ratio, second-order orbit matching 4−68313
retrograde satellites, effect of mass ratio in circular plane restricted problem 4−50433
Runge-Kutta-Nystrom methods, initial value problems 4−58195
Sampson's theory for motion of Galilean satellites 4−54357
satellite, gravity-stabilized, nonlinear reson. effects on ang. motion 4−68318
satellite orbit prediction, numerical averaging procedure 4−50432
satellite orbital differential equations, multi-step integration, multi-off-grid methods 4−59085
satellite orbits with nonsingular elements, variation of parameter formulation 4−59087
satellite oscillations, parametrically excited in near-Earth orbit, stability *(German)* 4−68320
satellite solar perturbations, computation with Poisson series 4−61981
satellite trajectories near Moon, stroboscopic method of soln. *(French)* 4−76773
satellite transit to circular orbit under rective gravitational force, kinetic energy minimisation *(Russian)* 4−74265
satellites, perturbations in close orbits caused by Earth asphericity 4−54359
Saturn, second order perturbations, comparison with Le Verrier *(French)* 4−50434
solar electric propulsion orbital transfer, circular orbits, starting orbit radius calc. 4−80448
solar system, origin, review 4−61992
solar system, quantisation 4−58196
solar system dynamical evolution, long-term numerical solutions 4−54366
spin stabilised body, graphical construction model *(German)* 4−58203
stability of L$_2$ points of asteroid orbits in solar nebula 4−54367
Sun-Jupiter system, periodic orbits of second generation 4−61977
The Galaxy, third integral, approx. form, rel. to numerical orbits 4−58421
three homogeneous spheroids problem, stability 4−76772

celestial mechanics continued
three-body general problem, review and dynamical theory 4–73597
three-body problem, angle of escape 4–58199
three-body problem, convergence of expansions of differential equations 4–58200
three-body problem, effect on capture probability of initial masses, vels. at infinity and radii 4–83168
three-body problem, elliptic restricted, nonexistence of periodic solution, rel. to straight line libration points 4–68310
three-body problem, elliptic restricted, periodic solutions 4–68309
three-body problem, hyperbolic-elliptic escape, rejection without escape 4–61978
three-body problem, planar elliptic restricted, non-existence of periodic solution, rel. to triangular libration points 4–68311
three-body problem, rel. to Laplacean instability in stellar dynamics 4–61976
three-body problem, restricted circular, close orbits 4–58198
trajectory deviation, differential geometry rel. to Keplerian motion 4–70860
trajectory meas. content of information on initial parameters 4–46144
Trojan asteroids, unusual orbits of three faint objects 4–54454
two approaching space vehicles nonlinear filtration process of Markov process 4–80449
two body problem, relativistic spinor regularisation 4–46142
two-body collision in presence of massive third body *(French)* 4–70861
two-body problem, nth order terms in development of astrodynamics *(French)* 4–68316
two-body problem, velocity-related series expansions 4–54356
two-dimensional elliptic restricted three-body problem, reduction to Hill's equation 4–58192
unrestricted three-body problem, stability of Laplace's solutions 4–68315
unstable 4-body systems, dynamical decay 4–68314
Uranus satellites, tidal changes in orbital inclinations 4–62046
Vanguard 3 (1959-7A), eleventh order geopotential resonance 4–73594
α Virginids meteor stream, orbital and radiant evolution 4–54452

cell model (liquids) *see liquid theory*

cells (electric)
see also fuel cells; photoelectric cells; primary cells; secondary cells
electrochemical study of stressed and strained metal 4–67833
electrochemical surface area meter 4–58739
electrolytic conductance, meas. using four-electrode cell 4–50176
electronic conducting materials exhibiting ionic motion 4–53101
e.m.f. measurement on solid and liquid electrolytes at high temperatures 4–62489
h.f. electrodeless conductometers, inductive meas. cell design 4–55144
interfacility standard cell calibration by current transfer 4–65337
solid-state cell determ. of O_2 activities in Fe-Ti-O system 4–63895
solid-state galvanic cells, coulometric titration, applic. to wustite 4–58991
standard cell enclosure with 20 μk temperature stability 4–65338
standard cell intercomparison automation 4–65336
standard cell test facility, 12 years' performance of automatic system 4–65340
standard cell voltage meas. automation, prototype crossbar switching system 4–65339
HCl, recovery of Cl_2, theory and cell design 4–54019
NaCl aqueous soln., pressurised electrolytic cell with Hg cathode 4–54021

cellular biophysics
actin, myosin interaction, contraction of cross-striated muscle fibre, struct. changes 4–83277
anoxic cells, radioresistance and eff. of PNAP on radn. response of in vitro tumour model 4–50887
bacteria motility, non-rotating flagellar filament theory 4–54635
bone marrow cells, transplanted into irradiated mice, cell dose and survival after irradiation correlation 4–65273
Burkitt lymphoma cell line, lack of recovery from radiation damage 4–54709
Cellular process control mechanisms, conf., Bombay, India (Feb. 1973) 4–71086
chloroplasts, photophosphorylation, e.s.r. obs. 4–83300
chromosome aberrations, in cells with trisomy 21, ultraviolet and X-irradiation interaction 4–54710
ciliary propulsion, viscous fluid, oscill.-boundary-layer theory 4–81888
cytogenetic effectiveness of 28 GeV protons on maize seeds 4–54711
cytoplasmic solvent structure of single barnacle muscle cells, studied by e.p.r. 4–46359
dark repair inhibition, by caffeine, of u.v. irradiated cells, effect of cyclic AMP and some structural analogues 4–46365
dielectric measurements of Nitellopsis cells with intracellular electrodes 4–76939
DNA damage by radiation, repair process, review 4–58488
DNA in xeroderma pigmentosum, human and mouse cells, postreplication repair of u.v. damage 4–80757
DNA synthesis, cell transition kinetics in regenerating liver 4–83285
DNA synthesis, during various phases of cell cycle in the uterus of ovariectomised mice, X-ray effects 4–71087
electrotonic cell coupling, dynamic properties, in early Xenopus embryos 4–58484
electrotonus, on a nonlinear dendrite, mathematical model and numerical solution 4–83306
enzyme kinetics, effect of cellular membranes, mathematical model 4–83279
enzyme separation and stability, dynamic eqns., integral representation of solns. 4–83282
epileptic neuron 4–73879
erythrocyte sedimentation rate signal at $g=2.03$, origin from rabbit liver and the effects of nitrites 4–58487
erythrocyte shape equation 4–73880
flagellar motors, bacterial, dynamic properties 4–46362
flagellar rotation, and the mechanism of bacterial motility 4–46360
flagellar rotation, change in direction, basis of chemotactic response in E. coli 4–46361

cellular biophysics continued
flow systems, for high-speed cell analysis and sorting 4–54631
genetic nets and dissipation structures, algebraic approach 4–83281
growth initiation animal cells, membrane transport, control mechanisms 4–83288
hamster cell growth and radiation survival characts., effect of intercellular contact 4–46468
hematopoietic cell line, human, tracer kinetic data during different phases of growth, computer analysis 4–83283
human cells, ageing diploid (WI-38) u.v. induced repair replication 4–46471
inactivation and particle detection, unified track structure theory 4–58618
interphase death in rat thymocytes in vitro, r.b.e. of fast cyclotron neutrons 4–54706
intracellular diffusion rates, significance of Xe clearance rate from rate liver sections in vitro 4–58495
kinetics, of cell cycle and proliferation, discrete time model, applic. to labelled cohort movement 4–68480
laser application, single cell physical parameters obs. 4–42942
leukocyte damage by radiation, obs. using fluorescent probes 4–46465
lymphocyte specific gravity, relationships with human diseases 4–46363
mammalian cells and bacteria in culture, combined effect of bleomycin and radiation 4–71084
mast cell structure, quantitative anal. 4–68481
membrane, dynamic model 4–54641
mice, syngeneic host, proliferation of donor thymus cells in bone marrow and spleen 4–46467
microspectrofluorometer for intracellular metabolism of NAD(P)H 4–68832
microspectrofluorometer giving 32 msec fluorescence scan of living cells 4–42801
mitotic oscillator, meas., arc discontinuity 4–83280
motility, of Leptospira icterohaemorrhagiae 4–62274
mutation induction by gamma rays in bacteriophage ΦX174 4–80694
myocardial function and disturbance, electrical and cellular aspects 4–68492
Na kinetics in liver, nonsteady state 4–83294
neoplastic processes, finite automata approach 4–80696
neurone depolarisation, by glycine in Onchidium 4–62283
neurones, of snail, effect of intracellular Li 4–50742
nitrofurans, pulse radiolysis studies and chemical radiosensitization 4–46364
non-uniform membranes, cell with, extracellular stimulation 4–83287
oocytes of mice, X-ray induced nondisjunction 4–71085
permeation through thin membranes, mol. model, effect of hydrodynamic interaction 4–81969
phagic solution type T_2, u.v. absorption, modifications as function of temp. 4–80695
plasma membrane lectin-binding components, mobility and mobility restriction obs. 4–68482
proliferation, single dose partial body X-ray irrad. eff. in mouse small intestinal epithelium 4–54717
protoplasmic streaming in algae cells, laser Doppler shift obs. 4–71270
radiated cell survival curve, evidence of a 1-hit component, from cell recovery vs. dose per fraction 4–58606
radiation therapy, appl. of π^- beam Monte Carlo radiation transport code calc. 4–80751
radioprotection, of Acholeplasma laidlawii B, by cysteine 4–54632
radiosensitisation, of anoxic E. coli mutants by diamide 4–58485
radiosensitivity, in mouse mammary tumour, cyclic radiation-induced variations 4–54716
rat liver cells, X-rays from ^{113m}In and ^{198}Au, biological effect rel. to dose rate 4–54708
red blood cell metabolism of uranium miners 4–80755
retina, crayfish, cellular area and volume relationships 4–62304
Schizosaccharomyces pombe, repair mechanisms and ultraviolet and γ-ray sensitivity 4–46469
sensitisation mechanism, to ionising radiation, by O_2 and other sensitisers 4–54633
sensory adaptation, distributed relaxation processes 4–68486
spherical cells with elastic membrane, dispersion, complex viscosity 4–54634
spherical mammalian cells, differential light scattering 4–73878
squid giant axon, potential and time constant effects on fast ramp voltage clamp 4–83305
steady states of finite dimens. excitable medium, neural networks, syncytial cells 4–83286
survival and regeneration characteristics of spermatogenic stem cells of mouse testis 4–54713
synchronous fluctuations, Ehrlich's ascites carcinoma cells parameters 4–83284
techniques, in cell biology and biophysics 4–77262
theoretical physiology, process anal. 4–50743
thoracic duct lymphocyte destruction by implanted u.s. transducer 4–54701
u.v. and X-radiations, interaction on strains of E. coli, physical and biological measurements 4–58600
Volvox, simulation of inversion 4–58486
wet whole cell, high voltage electron microscopy, structure visibility 4–68826
X-irradiation of M. radiodurans, DNA fragment release 4–58479
Xenopus laevis, red cells, haemoglobin detection, immunofluorescent double labelling 4–68828

centrifuges
gradient centrifugation, purification of C_d phage 4–83273
pump performance prediction by computer 4–80857
spectrophotometric centrifugal fast analyser, automatic 4–81074
thermally controlled, conversion analysis *(Italian)* 4–78596

ceramals *see cermets*

ceramic industry
colour match prediction and batch control techniques 4–54915

ceramic refractories *see refractories*

ceramics
see also ceramic industry; refractories
β-spodumene glass-ceramics, dielec. losses, composition, heat treatment 4−67525
acoustic emission generation, microstruct. aspects 4−64695
actinide carbides, thermodynamics, literature survey 4−51880
alkaline earth zirconates, synthesis of capacitor materials 4−70540
automotive power plants, high temp. materials 4−76521
brittle fracture statistics 4−64692
brittle high-strength materials, biaxial compressive load testing device 4−50092
brittle materials, failure prediction using fracture mechanics and acoustic emission 4−73394
brittle materials, Griffith criterion for reversible and irreversible fracture 4−73360
brittle materials, origin and use of fracture mechanics 4−64618
brittle solid, Hertzian ring cracks initiation and propag., fracture toughness eval. 4−64698
casting slips, role of surface tension and contact angle 4−45757
cement paste, surface energy and mechanical behaviour 4−49875
Ceramic Colour Standards, goniophotometric functions and industrial applications 4−54901
Ceramic Colour Standards, international comparison of instruments 4−54819
chemical analysis, differential spectrophotometric method applic. 4−51209
contact angle in metal-ceramic system, thin film technique determ. 4−75686
contact angle of Zn 4−45755
crack extension and arrest in residual localised stress fields assoc. with second phase particles 4−73352
crack propagation by diffusion 4−73354
crack propagation rel. to acoustic emission monitoring 4−64697
cracks, inclusions, stress concs., premature failure 4−70547
dense and porous, shock fracture mechanisms comparison with single crysts. *(German)* 4−61503
elastic interaction between inclusions and cracks 4−64621
emanation thermal analysis, ETA, measurement rel. to prep. and . prop. 4−62422
failure prediction using acoustic emission 4−45882
fatigue failure probability rel. to engineering design 4−73366
ferroelectric, permittivity estimation from single cryst. data 4−70266
ferroelectric discs, thin, piezoelec., pyroelec. and dielec. props. 4−64355
ferroelectric-antiferroelectric transition with sharp temp. drop, energy conversion *(French)* 4−61112
fine-focusing optical mount of piezoelec. ceramic 4−80871
fireclay, thermal conductivity, moisture content depend. 4−53926
flashover voltage over ceramics in high vacuum 4−82058
foamed, dielec. characteriz. at mm wavelengths, cut-off filter potential 4−76215
fractographic identification of strength-controlling flaws and microstruct. 4−67918
fracture, K_{Ic} factors determ. with diamond saw cuts 4−73349
fracture energy determ. using notched-beam test 4−73340
fracture mechanics, conf., University Park, USA (July 1973) 4−64617
fracture mechanics applic. and role of elastic consts. 4−64620
fracture mechanics parameters eval. procedures 4−64619
fracture mirror meas. 4−67917
fracture surface examination by Auger spectroscopy 4−67921
fracture surfaces, quantitative SEM and raster profilometer analysis 4−67923
glass, β-spodumene, containing ZnO, bending strength rel. to heat treatment *(German)* 4−45733
glass, containing ferrite phase, suitability as memory material 4−49194
glass, creep testing method 4−80156
glass, microflaw origin and detection 4−64694
glass, microstruct. characteriz. by cathodolum. 4−49892
glass, prestressed, fracture and strain energy release 4−73364
glass, quenched, delayed fracture induced by water vapour, gas adsorption effect *(German)* 4−53795
glass, stressed, dicing, calorimetric technique for strain energy release meas. 4−61479
glass-ceramic, residual glass phase behaviour 4−64598
glass-cermics, controlled crystallisation, theory and practice 4−76525
grain boundary diffusion and effective width, separation 4−61377
grain boundary phenomena, interpret. concepts 4−53809
grain boundary phenomena, solute segregation and grain boundary diffusion 4−64605
graphite, notched beam test, fracture energy 4−73340
green sheet fabrication for multilayer ceramic products, ultrafast-drying binder system 4−45734
heterogeneous solids, crack tip stress singularity problem soln. 4−64622
high alumina, interaction with titanium 4−70543
high temperature deformation, interdependent processes 4−80065
high temperature deformation, review 4−61481
high temperature microphotometry and microdilatometry of inhomogeneous materials 4−80852
lamp arc tubes of translucent ceramics 4−49902
magnetic, effect of chemical and thermal history of ferrite powders on rate of redox processes 4−70544
magnetoferroelectric ceramic, with ferromagnetic phases of various crystalline structures 4−70545
metal-infiltrated porous, fracture resistance 4−73363
mica glass-ceramics, fracture energy and thermal shock resist. rel. to microstruct. 4−73345
microhardness, reliable average value determ. method 4−53941
microstructural considerations for applic. of fracture mechanics techniques 4−73350
mullite porcelain, electron microscope investigation 4−57758
multilayer green sheet substrates, properties 4−57760
nuclear materials, heat capacity meas. by laser flash calorimetry 4−50976
nuclear reactor fuel, thermally stressed, crack propag. analysis 4−72001

ceramics continued
optical materials, manufacturing methods, struct. and physico-chem. props., review 4−54879
optical materials, optical props. and areas of appl., review 4−70275
piezoceramic plate, thickness-twist mode generation 4−57476
plasma sprayed reinforced coatings, effective area of adhesion 4−70554
polyaxial stress states, Weibull statistics 4−49899
porcelain, firing temp. effect on elastic and anelastic consts. *(French)* 4−80062
porcelain, hard, dielec. props. rel. to mineralogical comp. and microstruct. 4−49302
porcelain, multiphase electrical, fracture mechanics technology applicability 4−73393
powder compacts, pore growth during initial sintering stages 4−53818
pressure sintering, non-oxide ceramics, high performance appl., including Si_3N_4, Be_4B 4−82959
prosthetic applications of flame and plasma sprayed ceramics 4−80063
pulverisation test, hot pressed ceramic based materials 4−82955
pyroceramics, microbrittleness determ. 4−49880
silicate-fluoropatities, $M_4Ln_6[SiO_4]_6F_2$, M=Ca, Sr, Ln=Nd, Y, Yb, synthesis and comp. 4−53797
sintering diagrams construction 4−53782
sintering rate and ultimate shrinkage control by gas composition 4−45735
sliding friction behaviour, chemomech. control 4−61489
slow crack growth rel. to microstruct. 4−73355
spheres, dielectric, resonance splitting in free vibrations *(German)* 4−64321
spinel and periclase-spinel, thermal shock resist. increase 4−49905
spodiosite analogues, vibr. spectra assignments and cryst. struct. effects 4−64378
ST-50-1 glass ceramic substrates phase composition 4−70541
ST-50-1 structure by electron diffr. X-ray diffractometry 4−70542
static strength testing, error sources 4−64691
subcritical crack growth, component lifetime prediction after proof testing 4−73353
substrate, real time crack detection using stress wave emission 4−64699
surface energy by temperature-variant contact angle method 4−72626
testing, thermal with electric arc, technique and expt. *(Bulgarian)* 4−76557
thermal conductivity, thermal diffusivity, and emissivity, Lambert's law 4−63949
thermal shock resistance 4−73361
types and characteristics *(Japanese)* 4−82954
vitro-ceramic materials, rare-earth-doped, for i.r. up-conversion 4−57612
wustite, fracture properties enhancement by precipitation 4−70548
wustite, sintering, effect of nonstoichiometry 4−67905
Al_2O_3, alumina, acoustic emission meas. during crack propag. 4−67912
Al_2O_3, alumina, delayed failure and ageing in water and physiological media 4−61482
Al_2O_3, alumina, hot pressed, annealing effect on fracture toughness, strength and microstruct. 4−49891
Al_2O_3, alumina, metastable, crystn. in presence of V_2O_5 4−64601
Al_2O_3, alumina, physical density meas. by optical method 4−59013
β-Al_2O_3, alumina, polycryst., Na ion cond. mechanism *(Japanese)* 4−69936
Al_2O_3, alumina, powder spheroidisation, powder flow rate meas. 4−80149
Al_2O_3, alumina, powders, repeated pressing effect on sintering *(Japanese)* 4−49917
Al_2O_3, alumina, sintered bodies, microcrack form., stress intensity factor and healing processes *(German)* 4−45731
β-Al_2O_3, alumina, strength and fracture mechanisms 4−61499
Al_2O_3, alumina, with NiO and ZnO additives, high temp. mech. props., conc. and grain size depend. *(German)* 4−49878
β-Al_2O_3, alumina electrolyte material, dislocation behaviour 4−61492
Al_2O_3, anodic-spark-deposited coatings, polymorphic phases 4−64611
Al_2O_3, calcination preparation of high purity oxide *(French)* 4−45756
Al_2O_3, corundum, etching of surfaces with molten V_2O_5 4−64609
Al_2O_3, effect of Cs vapour on insulating props. 4−49887
Al_2O_3, fatigue fracture under static and cyclic loading, 25-359°C 4−73357
Al_2O_3, fracture energy, grain size depend. meas. discrepancy 4−45752
Al_2O_3, grain boundary phenomena, interpret. concepts 4−53809
Al_2O_3, Lucalox, SEM fractographic obs. rel. to testing temp. and grain size 4−67922
Al_2O_3, mass transport eqn. for diffusional creep, 1200-1600°C 4−49884
Al_2O_3, notched beam test, fracture energy 4−73340
Al_2O_3, sapphire, c-axis filaments, yielding and flow behaviour 4−49895
Al_2O_3, sapphire, rod strengthening by BaO 4−45745
Al_2O_3, sapphire, surface hardening assoc. with machining 4−64610
Al_2O_3, sapphire filaments, room temp. fracture strength depend. on strain rate 4−80068
Al_2O_3, sapphire filaments, room temp. fracture strength, strain rate depend. 4−80069
Al_2O_3, sintered, additives, influence on microstruct. 4−53807
Al_2O_3, sintering effect of NiO, ZnO additives 4−82960
Al_2O_3, sintering kinetics, effect of iron oxide 4−45744
Al_2O_3, solid soln. softening by $MgO.TiO_2$ 4−45750
Al_2O_3, vaporisation, crystal morphological changes 4−56873
Al_2O_3-BeO system melts, surface tension and density 4−70538
Al_2O_3-MgO-Cr_2O_3, alumina substrate, surface props. 4−57757
β-Al_2O_3-Na_2O, intergrowth of crystal structures 4−73343
B_4C, metallographic preparation 4−67117
BN, phase transforms., review 4−70555
BN based semihard material Geksanit-R characterization 4−70557

ceramics continued
  BaF_2, synthesis and hot pressing in air high transparency in visible and i.r. 4−70546
  $BaFe_{12}O_{19}$ powder, milling effect on intrinsic coercivity 4−64245
  $Ba_2NaNb_5O_{15}$, sintered, SEM obs. of morphological changes 4−61495
  $3BaO.5SiO_2$ glass-ceramics, mech. props. w.r.t. microstruct. 4−49894
  $BaTi_2Fe_4O_{11}$, (R block), synthesis, cryst. struct. determ. *(German)* 4−56665
  $BaTiO_3$, dielectric dispersion investigation in ferroelectric phase 4−64341
  $BaTiO_3$, grain-size effect on dielec. and piezoelec. props. 4−76222
  $BaTiO_3$, initial sintering kinetics, influence of Ba/Ti ratio 4−45748
  $BaTiO_3$, u.v. illumination effect on switching processes 4−64342
  $BaTiO_3$ composite ceramics, two-step positive temp. coeff. of resist. 4−48986
  $BaTiO_3$ electrical conductivity mechanism 4−64076
  $BaTiO_3$:CuO, semicond., PTC effect below the Curie temp. *(German)* 4−82412
  Be_4B, Be_2B and BeB_6, thermal diffusivity 4−67908
  BeO, exoelectron dosimeters, activation energies determ. from isothermal fading 4−54730
  BeO, hot isostatic pressing, microstruct. and fracture characts. 4−45759
  BeO, thermally stimulated exoelectron emission maximum and exoelectron yield shift during powder treatment 4−49541
  BeO, thermally stimulated exoelectron emission dosimeter 4−50899
  BeO dosimeter, photon irrad., energy depend. of exoelectron emission 4−54729
  BeO dosimeters, Li_2O treated, fast neutron detection in mixed radiation fields 4−54728
  $Bi_{0.7}La_{0.3}(Fe_{0.986}Mn_{0.014})O_3$, obs. of magnetoelectric effect 4−49011
  CaF_2 powders, water effect on sintering and ionic cond. 4−49918
  $CaO.ZrO_2$-ZrO_2 eutectic, directionally solidified, fracture behaviour and microstruct. effects 4−73370
  $CaTiO_3$-$SrNb_2O_6$, dielec. const. rel. to comp. 4−53360
  $CeTiNbO_6$, synthesis 4−53799
  CoO, final-stage densification during press.-sintering diffusion model 4−45742
  CoO, initial stage sintering kinetics 4−64602
  CoO, intermediate stage sintering kinetics 4−64603
  CoO-Fe_2O_3-B_2O_3 system glass-ceramics, mag. characteriz. 4−79545
  CoO-MgO-Cr_2O_3-TiO_2SnO_2 system, spinel solid soln. form. and colour *(Japanese)* 4−49919
  Fe-Mg-O system, phase relations, low temperature, magnesiowustite 4−70239
  Fe_2B tetragonal single crysts., plastic props., 20-800°C 4−82956
  FeO, wustite and wustite-Fe_2O_3-Fe, grain size depend. of fracture parameters 4−73347
  Fe_2O_3, polycryst., creep rate data, interdependent transition 4−80065
  GeO_2-La_2O_3-$Ga_2O_3(Ta_2O_5)$ system glasses, viscosity and elastic props. correl. with phase diagram 4−67897
  Hf-HfO_2 system, phase relations in HfO_2-rich region 4−45749
  $HfTiO_4$, fracture toughness, effect of microstruct. factors 4−61502
  La_3NbO_7, formation by coprecip. from solns. of synthesis from oxides 4−45896
  La_2S_3, synthesis and dielec. props. 4−70256
  $LaTiNbO_6$, synthesis 4−53799
  LiF granules, on LiF single cryst. surface, dislocations formed during sintering 4−49907
  $LiFe_5O_8$ and $LiFe_{4.7}Mn_{0.3}O_8$, prep. technique and calcination temp. effect on densification 4−61480
  LiNa ferrites, sintering kinetics 4−67898
  Li_2O-Al_2O_3-$nSiO_2$, sp. ht., 1.5-6K, comp. and struct. depend. 4−60621
  Li_2O-ZnO-SiO_2 glass, ceramics, high temp. plasticity, model based on dilatancy and dissolution 4−49890
  Li_2O-ZnO-SiO_2 glass-ceramics, high temp. plasticity, const. strain rate tests 4−49889
  Li_2O-ZnO-SiO_2 glass-ceramic, dynamic fatigue 4−61497
  LiZn ferrites, resist. and Curie pt., comp. depend. 4−53232
  $MgAl_2O_4$-Al_2O_3 system, liquidus-solidus determ. 4−53816
  $MgCr_2O_4$, oxygen activity influence on sintering behaviour 4−53812
  MgO, as-grown, subgrain boundaries 4−53805
  MgO, calcination and sintering research 4−67910
  MgO, machined crysts., residual stresses 4−49893
  MgO, polycryst., strain hardening and recovery during compressive creep 4−61491
  MgO, pure dense, grain growth 4−49898
  MgO, stress corrosion cracking, four-point bend and static fatigue tests 4−73358
  MgO, transient and steady state creep 4−61496
  MgO, vaporisation, crystal morphological changes 4−56873
  MgO mass transport eqn. for diffusional creep, 1200-1600°C 4−49884
  MgO:ZrO_2, solid soln. form, solubility, ZrO_2 4−45737
  MgO-Al_2O_3-Fe_2O_3 system, nonstoichiometric ferrites, phase comp. 4−67896
  MgO-Al_2O_3-SiO_2 system, disperse hardening phase of metals *(Russian)* 4−80064
  MgO-$MgAl_2O_4$ eutectic, directional solidification microstructures 4−45741
  MgO.3.5 Al_2O_3 spinel, nonstoichiometric, precip. strengthening and effects 4−73356
  $MgTiO_3$, formation, mechanism and kinetics, from oxalates by coprecipitation 4−67995
  MnO-Fe_2O_3(-PbO)-B_2O_3(-SiO_2) system, glass form. boundaries and crystn. tendency 4−53817
  MnZn ferrite, prep. and In_2O_3 additions effect on phys. props. 4−49912
  $Na_{0.5}Bi_{4.5}Ti_4O_{15}$, ferroelectric ceramics with layer struct., piezoelectric props. 4−82668
  NaCl, grain boundary phenomena, interpret. concepts 4−53809
  $NaNbO_3$-$CdTiO_3$, dielec. const. and pyroelec. potential, comp. and temp. depend. 4−57452
  $NaNbO_3$-$LiNbO_3$-$KNbO_3$, solid solns., phys. props. investigation for ultraacoustic appl. 4−45739

ceramics continued
  Na_2O-$3SiO_2$ glass, Na diffusion, anomalous effects of water 4−53813
  Na_2O-CaO glass, polymeric coatings effect on strength 4−73359
  Na_2O-SiO_2 binary glasses, fracture mechanics 4−73367
  Na_2O-SiO_2 glasses, ammonium ion diffusion *(Japanese)* 4−49916
  NbC, form. by Nb_2O_5 carbonization in plasma arc, characts. 4−61484
  NbC powder, ultrafine, sintering behaviour 4−61490
  Nb_2O_5, polycryst. sintered, anomalous elastic behaviour 4−45746
  Nd_3NbO_7, formation by coprecip. from soln. of synthesis from oxides 4−45896
  $NdTiNbO_6$, synthesis 4−53799
  $Ni_{0.35}Zn_{0.65}Fe_2O_4$ films, arc plasma sprayed on alumina substrates, prod. and microstruct. characteriz. 4−61494
  $(Pb_{0.985}, Bi_{0.015}), (Zr_{0.53}, Ti_{0.42})O_3$, ferroelectric ceramic, reln. between thermoelectret and ferroelectric polarisation 4−67533
  $(Pb,La)(Zr,Ti)O_3$, β-phase electro-optic ceramic, field induced microstructure 4−63829
  $(Pb,La)(Zr,Ti)O_3$, elec. controlled secondary phase 4−67540
  $(Pb,La)(Zr,Ti)O_3$, polymorphic phase 4−63924
  $(Pb,La)(Zr,Ti)O_3$, vibr. modes, Raman and i.r. spectra 4−61145
  $(Pb,La)(Zr,Ti)O_3$, with diffuse transition region, phase relations and dielec. props. 4−70272
  $(Pb,La)(Zr,Ti)O_3$:Nb,Fe, photochromic effect, transmission spectra 4−76233
  $PbBi_2Nb_2O_9$, ferroelectric ceramics with layer struct., piezoelectric props. 4−82668
  $PbBi_4Ti_4O_{15}$, ferroelectric ceramic with layer struct., piezoelectric props. 4−82668
  PbO, tetragonal, isothermal oxidation in air 4−53801
  $Pb_3(PO_4)_2$-$Pb_3(VO_4)_2$-$Pb_3(AsO_4)_2$ system, binary and ternary phase behaviour *(German)* 4−49877
  $PbTiO_3$, piezoelec. ceramic, resonant vibration 4−49306
  $Pb(Zr, Ti)O_3$ type solid solutions, electrical properties 4−53091
  $Pb(Zr,Ti)O_3$, grain-size effect on dielec. and piezoelec. props. 4−76222
  $Pb(Zr,Ti)O_3$, permittivity, elec. field depend. 4−67513
  $PbZrO_3$, current-voltage characteristics and thermoelectric effects 4−53090
  $Pb(Zr_{0.40}Ti_{0.60})O_3$, current-voltage characts. in vicinity of phase transition 4−64077
  $(Ph,La)(Zr,Ti)O_3$, optical recording of digital data 4−67532
  Pr_3NbO_7, formation by coprecip. from solns. of synthesis from oxides 4−45896
  $PrTiNbO_6$, synthesis 4−53799
  PuN, carbothermic synthesis, kinetic meas. 4−43646
  SbSI, ferroelectric, utilisation *(Russian)* 4−79686
  SiC, contact reaction with liq. Si 4−70556
  SiC, dense hot pressed, microstructural and strength characts. 4−73351
  SiC, hot pressed, high-temp. shear modulus 4−49901
  SiC, notched beam test, fracture energy 4−73340
  SiC, polytypic transitions, effect of annealing and doping with B and N 4−53657
  SiC, reaction-bonded, irrad. damage 4−59842
  SiC, Young's modulus, resonant bar technique for vibration modes 4−73344
  SiC bodies, isostatic pressing 4−61507
  SiC trace constituents determ. by neutron activation analysis and gamma spectrometry 4−55162
  Si_3N_4, hot pressed, high-temp. shear modulus 4−49901
  Si_3N_4, hot pressed, inclusion effects on room temp. strength 4−67920
  β-Si_3N_4, hot pressed, microstruct. characts. 4−61493
  Si_3N_4, hot pressing, Y_2O_3 additive applic. 4−53808
  Si_3N_4, laser thermal shocking, surface eval. using acoustic emission 4−64696
  Si_3N_4, prep. by nitriding of Si powder compacts, temp. gradients 4−49915
  Si_3N_4, prod. by nitridation of silicon powder compacts 4−61500
  Si_3N_4, reaction sintered, characteriz. for high temp. radome applics. 4−61483
  Si_3N_4, sintered, strength and oxidation resist. 4−49900
  Si_3N_4, synthesis, characteriz. and consolidation 4−53803
  α-Si_3N_4, synthesis, oxygen impurity effects 4−49920
  Si_3N_4 containing MgO, hot pressing behaviour 4−53810
  Si_3N_4 formation by nitridation of Si, impurity effects 4−80067
  SiO_2, finely dispersed arc silica, dissolution rate *(German)* 4−49876
  SiO_2-Al_2O_3 glasses, rapid crystn. phenomena 4−53804
  SiO_2-Al_2O_3-MgO-CeO_2-TiO_2, glasses, effect of heat treatment during crystn., phase transitions 4−44475
  SiO_2-Fe_2O_3-K_2O glasses, Fe-leucite formation rel. to high thermal expansion *(Japanese)* 4−70558
  Sm_3NbO_7, formation by coprecip. from soln. of synthesis from oxides 4−45896
  $SrBi_4Ti_4O_{15}$, ferroelectric ceramic with layer struct., piezoelectric props. 4−82668
  $SrHfO_3$, synthesis, sintering and technological characteriz. 4−61504
  SrO-Al_2O_3-TiO_2-SiO_2 system, pyroceramic formation 4−45736
  $SrTiO_3$, thin films obtained by cathode sputtering, dielectric properties 4−70404
  TaC powder, ultrafine, sintering behaviour 4−61490
  ThO_2 powders, phys. props. influence on sinterability, surface area, densities, particle size 4−81627
  Ti-Al_2O_3 sintered systems 4−67903
  Ti-ZrO_2 pseudobinary in Ti-Zr-O system, phase relations 4−45743
  TiC, TiC-Co, TiC-Ni and TiC-NiCr, fracture mechanics, statistical analysis and fractography 4−67919
  TiO_2, recovery of creep-resistant substruct. in air and vacuum under reduced stress 4−45747
  TiO_2, rutile, surface hardening assoc. with machining 4−64610
  TiO_2, single cryst. and ceramic samples, defect obs. by thermally stimulated depolarisaton currents 4−57099
  TiO_2 powders, calcination and crystallite growth kinetics 4−45758
  (U,Pu)N, carbothermic synthesis, kinetic meas. 4−43646
  $(U,Pu)O_2$ fuel, densification during fast reactor irrad. 4−66267
  $(U_{0.75},Pu_{0.25})O_2$, high-density, fabrication by hot pressing 4−59841

- **ceramics** continued
  - U-C-N system, energetically active carbon influence on thermodynamics and phase relationships 4−51883
  - UC, prep. by carbothermic reduction of oxide 4−59838
  - UC, prep. by reduction of fluoride 4−63274
  - UC and UC_2, reaction with N_2, graphitization of precipitating free C 4−51882
  - UC fuel technology, oxygen contamination influence on irrad. behaviour 4−66265
  - UC-US system, US rich solid soln. prep. 4−66264
  - UC_x, hyperstoichiometric, carbon self-diffusion mechanism 4−63277
  - U_2C_3 deposition kinetics 4−51884
  - UN, carbothermic synthesis, kinetic meas. 4−43646
  - UO_2, high-density, fabrication by hot pressing 4−59841
  - UO_2, mech. eqn. of state and high temp. deform. 4−76520
  - UO_2, sintered, grain growth and densification, effect of titania 4−81624
  - UO_2, thermal evolution spectrometry of injected low energy inert gas ions 4−51896
  - UO_2, thermally shocked, crack healing 4−51893
  - UO_2 powder compacts, radial and axial shrinkage behaviour obs. 4−81631
  - UO_2 sintered, in-reactor densification, depend. on temp. and microstruct. 4−81632
  - UO_{2+x}, nonstoichiometric, thermodynamic props., 500-1100°C *(Japanese)* 4−45754
  - UO_{2+x}, nonstoichiometry considerations 4−51887
  - U_4O_9, phase transitions 4−51888
  - V oxycarbide, recrystn., grain growth during sintering 4−49883
  - VC_x, elasticity consts., temp. depend., room temp. to 2200°C 4−61487
  - WC and WC-Co, fracture mechanics, statistical analysis and fractography 4−67919
  - WC-TiC system, volume diffusion and mixed carbide form. *(German)* 4−70552
  - WC-ZrC system, precip. obs. 4−67907
  - Y_2O_3 granular ceramics obtained by sintering and h.f. fusion, characteriz. 4−61506
  - Y_2O_3-Al_2O_3 pseudo-binary system, phase stability 4−48737
  - $Zr_{1-x}Nb_xC_y$ solid solns., room temp. elastic props., comp. depend. 4−61486
  - ZrO_2, metastable tetragonal, characteriz. and stabilization 4−64607
  - ZrO_2, partially stabilized with CaO, fracture toughness 4−53802
  - ZrO_2, partially stabilized with CaO, microstruct. development and fracture toughness 4−73348
  - ZrO_2, phase transformations, study by X-ray diffraction in heat chamber *(Spanish)* 4−45732
  - ZrO_2 partially stabilized by CaO, work-of-fracture correl. with fracture toughness 4−64608
  - ZrO_2:Y_2O_3, hardening during high temp. creep *(Russian)* 4−53792
  - ZrO_2-CaO system, partially stabilized, microstruct. development 4−67909
  - ZrO_2-Y_2O_3(12 mol.%) solid solns., precip. atm. influence on sinterability 4−53806
- **Cerenkov counters** *see Cherenkov counters*
- **Cerenkov radiation** *see Cherenkov radiation*
- **cerium**
  - atomic electron scattering, $M\alpha$ and $M\beta$ X-ray emission lines 4−59951
  - configuration crossover in 4f substances under pressure 4−67143
  - electron momentum density distribution by positron annhilation *(Russian)* 4−82197
  - gettering technique, high purity Li prep. 4−81619
  - isostructural phase transition, electron mechanism, chemical shift of X-ray lines 4−76327
  - oxide glasses, Ce doped, low temp. paramag. props. 4−53208
  - phase transition, α-γ, Mott transition 4−82373
  - photoabsorption in the vicinity of 3d absorption edge 4−61246
  - self diffusion, under press., δ phase *(French)* 4−72587
  - single phase β and α prep. for low temp. meas. 4−57686
  - thermoelectric power, obs. of electronic γ-α transition at 7 kbar 4−79302
  - Al_2O_3:Ce cathodic luminophors with short after-emission, photolum. *(Russian)* 4−79800
  - CaF_2:Ce^{3+}, dielectric relax. and absorption spectrum, dipole orientation and aggregation investigation 4−61101
  - γ-Ce, cryst. field splitting and level scheme of $^2F_{5/2}$ multiplet determ. 4−82372
  - Ce-Bi-Tl coaxial wire produced by extrusion for electric resistance pressure meas. 4−54861
  - Ce^{3+} in YPO_4, $LuPO_4$, energy levels, crystal field theory calcs. 4−79311
  - Cs_2NaYCl_6:Ce^{3+}, e.p.r. spectra, g-factors, spin Hamiltonian parameters, dopant sites, 4.2K 4−45174
  - in Fe, effect on internal friction *(Chinese)* 4−79979
  - La-Th:Ce, supercond.-normal phase boundary, impurity conc. depend. 4−67304
  - $LaCl_3$:Ce^{3+}, electric multipole interaction investigation 4−67178
  - $LaCl_3$:Ce^{3+}, spin-lattice relaxation rates, 2.7 to 29K 4−57371
  - $La_2Mg_3(NO_3)_{12}.24H_2O$:$Ce^{3+}$, phonon-limited resonant two-phonon relax. process, conc. depend. at 4.2K 4−76155
  - $LaPO_4$:Ce^{3+}, Tb^{3+}, quantum efficiency of diffusion limited energy transfer 4−53498
  - $LuPO_4$:Ce^{3+}, electronic and vibronic spectra 4−45352
  - $LuPO_4$:Ce^{3+}, zero-phonon and vibronic lines obs. in near u.v. luminesc. 4−61215
  - $PbTiO_3$:Ce, static electric quadrupole interaction of ^{140}Ce and ^{204}Pb, PAC obs. 4−73061
  - YPO_4:Ce^{3+}, electronic and vibronic spectra 4−45352
  - YPO_4:Ce^{3+}, zero-phonon and vibronic lines obs. in near u.v. luminesc. 4−61215
  - Y_2SiO_5:Ce cathodic luminophors with short after-emission, photolum. *(Russian)* 4−79800
  - ZnS:Ce^{3+}, models of luminogene centres, validity *(French)* 4−70358
- **cerium alloys**
  - liquid, mag. susceptibility meas., mag. phase transition *(German)* 4−79511
- **cerium alloys** continued
  - Ce-Ni-Si, ternary alloys, 33.3-100 at.% Ce, phase equilib., cryst. struct. and composition 4−48731
  - $CeAl_3$, dense Kondo system, singlet ground state form. at low temp., specific heat meas. 4−49158
  - $CeAl_3$, transition to mag. state without mag. scatt. 4−60960
  - CeBi, single crystals, magnetic props., 2-30K 4−70181
  - Ce_2Fe_{17}, helimag. transition, negative thermal expansion 4−72963
  - $CeIn_3(Tl_3)(Sn_3)(Pb_3)$, mag. props. 4−70143
  - CeIr, dissoc. energies, mass spectra, multiple bond interpret. 4−60110
  - $Ce_{1-x}La_xAl_3$, Kond sideband effects in Seebeck coefficient 4−79332
  - $Ce_{15}Ni_4Si_{13}$, cryst. struct. determ. 4−48541
  - CePt, dissoc. energies, mass spectra, multiple bond interpret. 4−60110
  - CeRh, dissoc. energies, mass spectra, multiple bond interpret. 4−60110
  - $CeRu_2$:Gd, superconducting, field depend. of e.s.r. g-shift 4−76016
  - $CeRu_2$:Gd, type II supercond. state, e.p.r. of localised moment 4−49127
  - $CeSn_3$, anomalous mag. susceptibility, Fermi liq. model 4−67355
  - $CeZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
  - Ir-Ce system, phase diagram and thermodynamic props. of intermetallic phases *(Russian)* 4−49665
  - La:Ce, mag. susceptibility, crystal field effects calc. 4−72959
  - $La_3Al(Ce)$, Kondo superconductor, mag. impurity effects on supercond. props. 4−76009
  - $(La_{0.9936}Ce_{0.0064})Al_2$, sp. ht. meas., evidence for intermediate temp. supercond. 4−49119
  - $(La_{1-x}Ce_x)Al_2$, supercond. normal cond. transition, obs. below transition temp. 4−57195
  - $(La_{1-x}Th_x)_{1-c}Ce_c$, disappearance of Kondo effect, low temp. resistivity obs. 4−57074
  - $(La_{1-x}Th_x)_{1-c}Ce_c$, mag. to non mag. transition, supercond. temp., Kondo resistivity 4−57281
  - LaY:Ce, superconducting Kondo system, sp. ht. jumps 4−64151
  - Ni-Ce, microalloying effect on recrystn. texture *(Russian)* 4−49708
  - Pr-Ce, obs. of elec. resist., Kondo effect 4−44888
  - Sm-Ce-Co-Fe-Cu, permanent magnet props., cryst. structures 4−79541
  - Y-Ce, dilute alloy Kondo system, mag. susceptibility and exchange resist. 4−49160
- **cerium compounds**
  - *see also cerium alloys*
  - $(Ce,Mg)NO_3$, dipolar heat capacity, 1K 4−82560
  - Ce-Cr-B system, phase diagram 4−69888
  - Ce-N-O system, binary Ce-N system, structure, oxygen component effects, 950°C 4−72454
  - CeB_6, single cryst., stress induced splitting of plasma edge, obs. 4−49381
  - $Ce_{1-x}Ca_yO_{2-y-x}$, nonstoichiometric, ionic transference number meas. 4−52933
  - $CeD_{2.99}$, non-stoichiometric tetragonal superstruct., neutron diffr. obs. at room temp. 4−66875
  - CeF_3, enthalpy and other thermodynamic props., 100-1600°C 4−52905
  - CeF_3 solid electrolyte, ionic cond. 4−53102
  - CeF_3-BeF_2 system, phase diagram 4−72553
  - CeF_3-LiF system, phase diagram 4−72553
  - CeF_3-SrF_2:Nd^{3+}, as laser medium 4−47353
  - CeF_3BeF_2-LiF system, phase diagram 4−72553
  - $CeH_{1.98}$, CeH_2, $CeH_{2.72}$, inelastic neutron scatt., lattice dynamical approach 4−75593
  - $CeH_{1.98}$, $CeH_{2.72}$, polycryst., inelastic neutron scatt. meas., lattice dynamics investigation 4−69873
  - $Ce(HAsO_4)_2.2H_2O$, ion exchange material, sorpt. props. investig. using alkali metal halide solns. 4−50211
  - $Ce(HPO_4)_2.1.33H_2O$, ion exchange material, sorpt. props. investig. using alkali metal halide solns. 4−50211
  - $Ce_2Mg_3(NO_3)_{12}$, parallel susceptibility at zero temp., antiferromag. ground state 4−70146
  - $Ce_2Mg_3(NO_3)_{12}$, partial dehydration rel. to mag. thermometry use, paramag. susceptibility meas. 4−60942
  - $Ce_2Mg_3(NO_3)_{12}$, zero temp. parallel susceptibility 4−64193
  - $Ce_2Mg_3(NO_3)_{12}.24H_2O$, ballistic phonon propagation 4−56832
  - $Ce_2Mg_3(NO_3)_{12}.24H_2O$, paramag. thermometer calibration using supercond. fixed pts. 4−65400
  - $Ce_2Mg_3(NO_3)_{12}.24H_2O$, thermal boundary resist. with liquid ^3He 4−44740
  - $Ce_6Ni_2Si_3$, cryst. struct. X-ray diffr. obs. 4−75504
  - CeO_2, matrix-isolated molecule, i.r. spectra and struct. 4−52154
  - CeO_2, nonstoichiometric, ionic transference number meas. 4−52933
  - CeO_2, optical film, refractive index control in reactive sputtering 4−49503
  - CeO_2 and CeO_2:ZnO, effects of heating in vacuum, CO, and H_2, e.s.r. determ. 4−57353
  - CeO_2 photoabsorption in the vicinity of the 3d absorption edge 4−61246
  - CeO_2:$^{239}Pu^{3+}$, CeO_2:$^{243}Am^{4+}$, e.p.r. determ. of g-values 4−53297
  - CeO_2:Er^{3+}, e.p.r. meas. of stress-induced g-shifts of Γ_7 levels 4−76156
  - CeO_2:Eu, e.s.r. 4−57354
  - CeO_2-MgO-SiO_2-Al_2O_3-TiO_2, glasses, effect of heat treatment during crystn. 4−44475
  - CeO_2 + Li liquid reaction 4−83027
  - $CeO_2 + U_3O_8$, high-temp. reactions in air and in hydrogen, composition of resultant *(Czech)* 4−43649
  - CeP, paramag. spin fluctuations, pulsed n.m.r. obs. 4−49258
  - CeS, mag. ordering, neutron diffr. obs. 4−57287
  - $Ce_{3-x}S_4$($x=0$, 0.06, 0.28), elec. props. and thermal cond., depend. on composition and temp. 4−44936
  - $CeTiNbO_6$, synthesis 4−53799
  - $Ce_2Zr_3O_{10}$, cryst. struct., X-ray characteriz. 4−44523
  - $CsI.RI_3$ complex formation obs., R=Nd,Ce 4−56188
  - SrF_2:CeO_2, radiation coloured, thermodiscoloration 4−73143
- **cermets**
  - defect free refractories, strength and plasticity 4−67899

cermets continued
metal composites with dispersed and skeleton struct., characteriz. for nucl. applic. *(German)* 4−49865
optical filters, neutral density, broad band 4−80870
thermal conductivity, moisture content depend. 4−53926
Al-Al$_2$O$_3$, composite material, density and mechanical props. 4−82970
^{252}Cf$_2$O$_3$-Pb, double encapsulated neutron source 4−80982
Cu-Al melt, interphase tension with solid UO$_2$, effect of Zr addition 4−43651
LaCrO$_3$-Cr, monochromatic emittance, 300-1900K, oxidation effects 4−61485
Ni-NbC(ZrC), 0-20 wt.% MC 4−67753
TiC-Co, TiC-Ni and TiC-NiCr, fracture mechanics, statistical analysis and fractography 4−67919
TiC-Co(Ni) cemented carbides, stat. analysis of behaviour under high press. 4−70553
TiC-Mo-Ni hard alloys, carbon content and sintering temp. effect on struct. form. and mech. props. 4−70527
TiC-Nb(Ta)(Mo)W system, synthesis, chem. anal., X-ray phase anal., and thermoemission props. 4−49881
WC-Co, fracture mechanics, statistical analysis and fractography 4−67919
WC-Co, fracture toughness parameters determ. 4−73362
WC-Co alloy, sintering in hydrocarbon-hydrogen mixtures 4−70526
WC-Co alloys, shock hardening *(Russian)* 4−53786
WC-Co alloys, sintered, WB effect on phys. and mech. props. 4−70528
WC-Co cemented alloy, SiC addition effect on microstruct. *(Korean)* 4−67911
WC-Co cemented carbides, stat. analysis of behaviour under high press. 4−70553
WC-Co heterogeneous system, anodic polarisation and passivity *(Russian)* 4−53794
ZrB$_2$-ZrO$_2$-W system cermets, mech. and elastic props. 4−61505
ZrC-Nb(Ta)(Mo)(W) system, synthesis, chem. anal., X-ray phase anal. and thermoemission props. 4−49881

cesium *see caesium*

change of state *see phase transformations*

channeling *see channelling*

channelling
see also energy loss of particles
amorphous films on single crystals, analysis by channelled accelerated ion elastic scatt. 4−57014
charged particles, energetic, channelling and blocking effects on motion in crystals, review 4−56786
crystal atomic chain discontinuity effects on channelling 4−72509
diffusion coefficients in light ion channelling 4−72508
electron channelling patterns applic. to embrittlement studies 4−80012
electron channelling patterns produced by electron microprobes *(Russian)* 4−71256
electron diffraction, dynamical theory 4−63847
fast particle dechannelling by lattice defects 4−79080
fast particle energy losses *(Russian)* 4−69841
inelastic scattering of channelled particles, quantum theory *(Russian)* 4−79087
ion bombarded crysts., apex angle of surface cones 4−79827
ions, fast ion dechannelling at dislocations 4−72504
ions in crystal, planar at great depth, multiple scatt. 4−52796
metal, electronic stopping power of low-velocity channelled heavy ions 4−79078
micrographs from SEM and electron channelling patterns, rotation 4−68812
nonrelativistic electrons in single crystal, influence on elastic scatt. 4−56787
Pauli principle model, electronic stopping power of channelled ions 4−69836
slow ions, inelastic scatt., stopping power, diffusion coeff. 4−72507
virtual photons, dense channelling electron beam, exchange patterns, diamond like crystal 4−66954
Ag, sputtering yield depend. on ion mass and cryst. orientation, channelling model 4−73228
Au, electron and positron scattering by thin crysts., intensity distrib. 4−69838
Au, He$^+$(N^{3+}) excitation, failure to observe coherent effects 4−79082
BaF$_2$, planar channelling of 0.9 MeV protons 4−79077
CaF$_2$, planar channelling of 0.9 MeV protons 4−79077
CdTe, implanted, of α-particles, lattice disorder distrib. obs. 4−79886
Cu, ion scatt. distrib., surface half-channel 4−79834
Fe:Br, single crystals, ^{81}Br location, angular distrib. calcs. and channelling technique 4−56766
GaAs, obs. of anisotropic scatter of β-particles 4−48663
GaAs:Te 70 keV ion implantation, annealing effects obs. 4−49610
GaP, ion-implanted, optical props. and channelling 4−61307
Ge, atomic displacement cascades, struct. disordered region form., machine modelling 4−75548
LiF, of protons, deuterons, α-particles, damage meas. 4−56782
NaCl, proton, and backscatter for annealing effects obs. *(Russian)* 4−82306
NaCl, proton and α-particle irrad., F-centre form. rate and distrib., channelling effect *(Russian)* 4−82171
NaCl, proton dechannelling rate, temp. effect *(Russian)* 4−72514
Nb, coherent bremsstrahlung by electrons and positrons *(Russian)* 4−75554
Nb, Li implantation, damage and range profiles 4−81647
Nb, of protons, dissolved O location determination *(Russian)* 4−66928
Nb:Ar$^+$, He$^+$ backscatt. analysis of ion bombardment damage 4−79076
Si, atomic displacement cascades, struct. disordered region form., machine modelling 4−75548
Si, channelled He ions, energy distrib., impact parameter method 4−75550
Si, coherent bremsstrahlung by electrons and positrons *(Russian)* 4−75554
p-Si, H$^+$ and He$^+$ irrad., ionisation effects 4−66948

channelling continued
Si, He beam induced P impurity displacement 4−49620
Si, obs. of anisotropic scatter of β-particles 4−48663
Si, of protons, axial to planar transition, computer simulation 4−72505
Si, planar channelling of protons, crit. angles, min. yields 4−72513
Si, Sn diffusion parameters in doped oxide method, backscattering and channelling anal. 4−82819
Si:P, depth distrib. of implanted ions in misaligned cryst. 4−73267
Si:P, doping and radiation damage profiles for [110] axis 4−73268
SiO$_2$, film grown on SiC by anodization, struct. determ 4−72663
V, Ga(Bi)(In)(Cs)(Se)(Kr) ion implanted, radiation damage, channelling and backscatt. obs. 4−72496
W, of protons, diffusion coeffs. 4−52796
W crystal, energy losses of channelled particles, backscatt. spectra determ. 4−72511
W:Ar$^+$, He$^+$ backscatt. analysis of ion bombardment damage 4−79076

character recognition equipment
coherent processor, reflection holographic filters 4−51064

characteristic temperature *see specific heat*

characteristics measurement
see also headings for specific characteristics, e.g. gain measurement; viscosity measurement
current-voltage, first and second derivative of superconducting tunnel junctions 4−54989
plastic scintillation counters 4−77173
transistor characteristics, circuit for displaying on oscilloscope, educational 4−54796

charcoal
see also carbon
adsorption of gas fission products, absorbents testing, referrence method *(Czech)* 4−59853
impregnated with fluorides of alkaline metals, gas fission products adsorption *(Czech)* 4−55902

charge (electric) *see electric charge*

charge carriers
see also carrier mobility; electron-hole recombination; hot carriers; minority carriers
anthracene, cryst., photocond. investig., using tunable dye lasers 4−67248
anthracene, crystals, singlet exciton-charge carrier interaction, fluorescence meas. 4−82745
anthracene, ultrahigh purity single crysts., carrier trap obs. 4−67223
bees wax, elec. cond., semicond., thermoelectret 4−79363
dielectric solid, role in electric breakdown *(Russian)* 4−57473
dielectric solids, recombining space charge, some a.c. response results 4−75872
dilute alloy, absence of electron polarisation 4−79485
e.m. absorption, interaction theory 4−57129
ferroelectrics, transverse mode, influence of charge carriers 4−82675
p-GaSb, phonon cond. and scattering by bound holes, thermal cond. calc. 4−82239
magnetic semiconductor, interaction between conduction electrons and Frenkel excitons 4−69998
metal, electron spin echo theory 4−79604
metal, nearly-free-electron model, stationary and moving charge densities 4−79256
metal, u.s. attenuation due to free electrons 4−63863
m.o.s. structures, m.o.s., thermal-field treatment, effect on parameters 4−60862
noble metal band dilute alloys, oscillations, electronic struct., Knight shift, pair interaction, appl. to Cu alloys 4−79275
noise theory, microscopic fluctuations treatment 4−70040
organic insulator, unipolar excess bulk charge density, voltage depend. 4−72784
organic semiconductor, interaction between conduction electrons and Frenkel excitons 4−69998
piezoelectric semiconductor, total energy calc. 4−64333
scattering of conduction electrons by metallic surface, boundary condition for distribution function *(Russian)* 4−82469
semiconductor, excitation of higher harmonics by free carriers 4−72812
semiconductor, light absorption, instability conditions 4−72808
semiconductor, paramag. impurity centre interaction, relax. mechanism 4−67448
semiconductor film, size quantised, state density function in mag. field 4−82498
semiconductors, enthalpy and entropy of formation of holes and electrons 4−53041
thermodynamic properties, metallic layer, boundary spreading effect *(Russian)* 4−60837
transition metal alloy, dil., electronic struct. change. oscill., knight shift, pair interaction 4−79275
Al:Er, dil., exchange and cryst. field parameters from transmission e.s.r. 4−79603
Bi, mag. focusing of electrons and holes 4−82361
GaAs, epitaxial, decay time of optically injected free carriers, reflectivity obs. 4−67252
GaAs$_x$Sb$_{1-x}$, photocond. in presence of mag. field, carrier effective mass *(French)* 4−49034
GaP, temp. depend. anal. of charge carrier conc. 4−82397
n-Ge, containing point defects, charge carrier scatt. mechanism *(Russian)* 4−75934
n-Ge, instability of injected carriers subjected to strong electric fields 4−67226
Ge:(Al$_1$P), donor-acceptor binding energy 4−44860
p-InSb, effective mass of holes determ. from galvanomag. meas. 4−79372
InSe, i.r. absorption cross section of nonequilib. carriers meas. at 300K 4−67593
KBr, cation vacancy accumulation kinetics *(Russian)* 4−57015
KCl, cation vacancy accumulation kinetics *(Russian)* 4−57015
Li, spin echo damping law for cond. electrons 4−67453
LiH, u.v. irrad., paramag. reson. of cond. electrons in colloidal Li *(Russian)* 4−67452
NH$_4$SO$_4$ and NH$_4$H$_2$PO$_4$, conductivities of doped crystals, charged carrier mobility 4−63941

charge carriers continued
  $Na_{0.01}V_2O_5$, band conduction effects in e.s.r. spectra 4—49231
  p-Si, cyclotron resonance investigation of carrier heating by impurity absorbed CO_2 laser radiation 4—72705
  Si, majority carrier removal during irradiation with heavy charged particles 4—66950
  Si:B, charge carrier and B implantation conc. profiles comparison 4—64504
  Te, influence of electric field on interaction of sound with carriers 4—72837

charge compensation
  see also crystal field theory; crystallography
  B_2O_3-P_2O_5 glasses, radiation electron-hole centres ratio, controlled change 4—67449

charge conservation *see C invariance*

charge-coupled devices
  optical image sensing arrays 4—43357

charge exchange
  see also electron capture; ionisation
  alkali atom + methyl halide collisions, chemiionisation cross sections investig., mol. electron affinities determ. 4—67993
  alkaline earth ions, resonant charge exchange *(Russian)* 4—74917
  amino acid, carboxylic acid group dissoc. u.s. relax. meas., proton transfer 4—52224
  anthracene-pyromellitic-acid-dianhydride, zero phonon charge transfer transition and vibr. coupling 4—67601
  anthracene-tetracyanobenzene charge transfer complex, e.s.r., triplet states in single cryst. 4—70212
  anthracenide salts, protonation kinetics 4—61607
  aromatic amines, effect of electron-accepting solvents on spin-orbit coupling *(Russian)* 4—45929
  aromatic exciplex systems, laser photolysis, triplet state generation investig., intersystem-crossing paths identified 4—45926
  atomic resonance collisions, cross section calculations for high density gases 4—52008
  autocomplexes, electronic spectra and structure 4—43822
  binary alloy, charge transfer and spin susceptibility, Wolff model 4—57248
  biphenyl-tetracyanobenzene charge transfer complex, e.s.r., triplet states in single crysts. 4—70212
  p-chloranil, and ions, electronic struct., props., SCF CI calcs., charge transfer investig. 4—78414
  collision chamber for ion-molecule reaction obs., 10^2-10^4 eV 4—46891
  cross section oscillations, Li^+-Li, Na^+-Na, K^+-K, impact parameter method 4—78371
  L-cysteic acid monohydrate, X-irrad., proton transfer 4—57859
  dense interstellar clouds, fractional ionization 4—80658
  dichloroanthracene, mol. cryst., electro-optical props., charge transfer excitons 4—53062
  9,10-dicyanoanthracene-alkylnaphthalenes charge transfer complexes, fluoresc. and absorpt. spectra, exciplex fluoresc. 4—63446
  dimethylsulphoxide, and conjugate base, proton transfer, ^{13}C n.m.r. *(French)* 4—61016
  DNA, charge and excitation migration, LCAO model 4—52310
  EDA complexes, energy of charge-transfer spectra interpretation by MO calcs. 4—56203
  electrochemical proton-transfer reaction, kinetics, model 4—54027
  electrode-solution interfaces, theory 4—54024
  electron transfer in atomic-molecular collisions 4—66348
  electron transfer reaction, within donor acceptor ion pair, investig., nonradiative transitions theory 4—80173
  elementary particle inclusive reactions, charge transfer distribution in neutral cluster models 4—74650
  energy dependence of cross sections, possible dynamical origin 4—55697
  fusion plasma, wall bombardment due to charge exchange of injected neutrals 4—74799
  H^+ + H collisions, elastic and inelastic diff. meas., direct excitation, charge exchange 4—66341
  ion + atom collisions, level matching enhancements in inner-shell vacancy prod., mol. orbital model 4—74912
  ionosphere ionization-neutralization and dynamic characteristics, optimum number of rocket soundings 4—46063
  liquid crystal, nematic, effect of charge transfer acceptors on dynamic scatt., effect of liquid crystal as donor 4—60402
  molecular complex, electron transfer reactions *(German)* 4—57842
  molecular complex in solution, theory of excited state 4—52079
  molecular solid, electron correl. 4—48890
  2-naphthol-aliphatic amine in aprotic solvents, proton phototransfer reaction obs. *(Russian)* 4—54065
  naphthyl derivatives, charge transfer spectra, σ-π and n-π conjugation rel. to π Si-Si system 4—56124
  nitrobenzene and derivatives, positronium interactions, electron donor-acceptor props. investig. 4—50202
  one-electron atom-fast particle collisions, asymptotic charge transfer cross section *(Russian)* 4—63375
  phenyl derivatives, charge transfer spectra, σ-π and n-π conjugation rel. to π Si-Si system 4—56124
  photon induced emission in plane-parallel electrodes 4—67701
  plasma flow interaction with gaseous targets *(Russian)* 4—75234
  plasma jet interaction with chem. active ionised gas target, instability development *(Russian)* 4—72373
  polyethylene/Hg, contact electrification, effect of surface oxidation 4—79399
  program for cross-section and probability calculations 4—47901
  proton transfer reactions in polar media, quantum theory 4—45906
  pyrene solutions in cyclohexane, charge transfer reaction obs. *(Russian)* 4—54043
  semiconductor-electrolyte interface charge transfer reactions, role of energy levels 4—54023
  strongly interacting particles, tables of data 4—74670
  TCNQ, and ions, electronic struct., props., SCF CI calcs., charge transfer investig. 4—78414
  TCNQ, molecular solid, electron correl. 4—48890
  tetracene-alkali metal, photoelectron emission *(Russian)* 4—75029
  tetracyanobenzene + aromatic, charge-transfer complex, doped, localised excited triplet states, e.s.r. 4—64027

charge exchange continued
  tetracyanoethylene-benzene complexes, charge transfer excited state, Raman spectra 4—56237
  N, N, N^1, N^1-tetramethyl-p-phenylenedianone, and ions, electronic struct., props., SCF CI calcs., charge transfer investig. 4—78414
  thermal energy atomic charge transfer, Penning reaction, excited metal ion prod. 4—74908
  transition element dichalcogenides, charge-transfer complexes in interacted layer compounds 4—82371
  transition metal complex, hexahalo, relativistic optical electronegativities 4—60746
  transition metal complexes with conjugated ligands, electron transfer transitions 4—43787
  transition metal compounds, charge transfer transition accompanying X-ray photoionization 4—52253
  transition metal phthalocyanines, MCD spectra, charge transfer bands assignment 4—67576
  TTF-TCNQ solution, charge transfer equilibria, absorption spectrum 4—76263
  two-body scatt. charge and hypercharge exchange, s-channel partial-wave amplitudes in peripheral and central regions 4—59627
  vector-meson production, SU_3 and exchange degeneracy relations 4—66094
  $e^+e^- \rightarrow$ hadrons, charge fluctuations in parton and generalised vector meson dominance models 4—62962
  $^4He(\pi^+, \pi^-)^4p$, 100 MeV, total cross section determ. 4—66234
  $KN \rightarrow \pi\Lambda$ hypercharge-exchange, dispersion reln. anal. 4—59625
  KN scatt., data compilation 4—74671
  $K^-p \rightarrow K^0n$, dual absorptive model, phenomenological study 4—47586
  $pp \rightarrow nn$, 25 and 35 GeV/c, cross-section meas. 4—55687
  $pp \rightarrow nn$, backward charge exchange 1 to 3 GeV 4—43437
  π charge exchange in nucleus, effect on p absorption evidence for neutron halos 4—71761
  πN amplitudes, Regge residues 4—43436
  $\pi N \rightarrow K\Lambda$ hypercharge-exchange, dispersion reln. anal. 4—59625
  πN two-body scattering, guide to data tape 4—59622
  π^-p interactions, use of multiprocessing data acquisition system SPINE 4—63022
  $\pi^-p \rightarrow \pi^0n$, 20 to 50 GeV/c, differential cross-section meas. 4—55685
  $\pi^-p \rightarrow \pi^0n$, 5-9 GeV/c, high momentum transfer meas. 4—77913
  $\pi^{\pm}p$ elastic and charge exchange scatt., data compilation 4—74672
  $Ar^+ + Cs \rightarrow Ar + Cs^+$, 1.44-28.7 keV, charge-exchange cross-section behaviour 4—59971
  $Ar^+ + H_2(D_2)(CO_2)$, charged transfer, collision energetics 4—53984
  Ar^{+m} + Ar charge transfer, metastable atom prod., method for metastable ion detection 4—82777
  BH_3:NH_3, electronic struct. anal. using LCAO method, charge transfer, bonding investig. 4—52072
  Ba^+, resonance charge transfer cross sections, energy depend., 6-1000 eV *(Russian)* 4—72099
  $BeH^+.H_2(D_2)$ isomerisation reaction, pot. barrier investig. 4—68004
  $C^+ \rightarrow C^-$, change exchange in Mg and Zn vapour 4—52010
  $CO + {}^3He^{2+}$, mol. ionisation and dissoc., secondary ion form. 4—75054
  CO^+ + CO, charge transfer cross sections using multistate impact parameter 4—75052
  CO^+ + CO collisions, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4—72246
  $CO_2 + H^+(H)(He^+)(Ne^+)$, electronic excitation spectra, 200 eV-25 keV, form. of CO_2^+ 4—53978
  $CO_2^+ + H_2^+(He^+)$ ion collisions, vibr. energy distrib. of CO_2^+ investig. 4—69532
  Ca^+, resonance charge transfer cross sections, energy depend., 6-1000 eV *(Russian)* 4—72099
  CdS:Dy, photocond. and charge phototransfer, 297 and 77K *(Russian)* 4—82459
  $Cl^+ \rightarrow Cl^-$, change exchange in Mg and Zn vapour 4—52010
  Cs beam, collision with target mols., negative ion source 4—46895
  $Cs + H^+$ charge exchange collision, H metastable state formation 4—59968
  $D^+ + H_2O$, cross section energy depend., 10 to 25 keV *(French)* 4—78508
  F^+ bombardment of H_2, N_2, He, Ne, Ar, 14-100 keV cross-sections meas. 4—60127
  $H + H_2(He)(Ar)(Kr)(N_2)$, 5-500 keV metastable atoms, electron loss and deexcitation 4—74871
  $H + H^+$, scattering, variational bounds on 1s-charge-exchange amplitude investig. 4—59963
  $H + He^{2+}(H^+)(D^+)$, mass depend of charge transfer cross section 4—74911
  $H^- + He(Ar)(N_2)(H_2)(O_2)$, absolute H^- detachment cross section 4—72096
  $H^- + O_2$, form. in water, charge transfer react. investig., cross section determ. 4—83022
  H^+ + multielectron atom collisions, charge exchange 4—52009
  $H^+ + Ar(H)$, fast highly excited atom production cross sections 4—47909
  $H^+ + H_2O$, cross section energy depend., 10 to 25 keV *(French)* 4—78508
  H^+ + Xe collisions, double charge transfer spectroscopy, separation of multiplet terms of Xe^+ and Xe^{2+} *(French)* 4—63370
  $H_2 + {}^3He^{2+}$, mol. ionisation and dissoc., secondary ion form. 4—75054
  $H_2 + Ar^+$, nonadiabatic collisions, charge exchange and chem. react., dynamics investig. 4—53981
  $H_2^+ + H_2O$, cross section energy depend., 10 to 25 keV *(French)* 4—78508
  $H_3^+ + H_2O$, cross section energy depend., 10 to 25 keV *(French)* 4—78508
  $H_2O + H_2^+(N_2^+)(O_2^+)(NO^+)$, change exchange, neutral particle ang. distrib. 4—56300
  $H_2O + H_2O^+(H_3^+)(D_3^+)(HD_2^+)$, change exchange, neutral particle ang. distrib. 4—56300
  $H_2O + H^+(H_2^+)(H_3^+)(D^+)$, cross section energy depend., 10 to 25 keV *(French)* 4—78508
  $H_2O + H^+(He^+)(Ne^+)(Ar^+)$, change exchange, neutral particle ang. distrib. 4—56300

- **charge exchange** continued
  - $H_3O^+ \ldots (H_2O)_n \ldots OH^-$, n = 1 to 3, linear polymer, SCF CNDO calcs., simultaneous proton transfer mechanism 4−47928
  - $He + He(H_2)(N_2)(Ar)(Kr)$, He electron loss cross sections 4−72095
  - $He^+ + {}^{14}N_2({}^{15}N_2) \rightarrow N_2^+ + He$, thermal energy charge exchange react., mol. isotope effect investig. 4−47900
  - $He^+ + Ar$, inelastic collisions, vac. u.v. spectral obs. 4−74916
  - $He^+ + Cd$, charge exchange cross section meas. *(Russian)* 4−78377
  - $He^+ + Zn$, charge exchange mechanism in metal vapour laser 4−74907
  - He_2^+-N_2 mixture, stimulated emission, afterglow of electron beam discharge 4−59384
  - ${}^3He^+ + {}^4He$, charge transfer reaction, rate const., ion cyclotron reson. study 4−72092
  - ${}^3He + \pi^-$, Panofsky ratio determ. 4−51848
  - ${}^3He(p,p){}^3He$ 600 MeV scatt., recoil and charge exchange *(Russian)* 4−78081
  - ${}^3He(\pi^-,\pi^+)3n$ double-change exchange, differential cross section, three-nucleon system study 4−74766
  - ${}^4He(p,p){}^4He$ 600 MeV scatt., recoil and charge exchange *(Russian)* 4−78081
  - $HgCl_2(Br_2,I_2)$, in non-aromatic organic solvents, 'contact' charge transfer interactions 4−72176
  - I_2^X mixtures, $X = O_2$, N_2 or aliphatic hydrocarbons, vapour phase contact charge transfer spectra in u.v. region 4−43828
  - $IrCl_6^{2-}$, octahedral, Ham effect in ${}^2T_{2u}$ excited state,charge transfer 4−73127
  - $K + Br_2$ system, harpooning elementary processes, model calcs. 4−50138
  - $K^+ + K$, symm., cross section oscill., impact parameter method 4−78371
  - $KClO_3$, in glassy H_2O and NH_3, vib. spectra of ion pairs 4−79718
  - $Kr + Ne^{++}$, collisions, electron transfer investig., cross sections determ. 4−61585
  - $Kr^+({}^2P_{3/2}) + H_2(D_2) = KrH^+(KrD^+) + H(D)$, activation energy 4−76584
  - $La + He^+$, hybrid charge transfer/Penning reaction 4−66343
  - $Li + M_2 \rightarrow Li^+$, dynamics of electron transfer collisions, up to 14 eV 4−78372
  - $Li^+ + Li$, symm., cross section oscill., impact parameter method 4−78371
  - $LiClO_3$, in glassy NH_3, vib. spectra of ion pairs 4−79718
  - LiD, phonon dispersion, charge transfer effect 4−82232
  - $Li^+(\mathrm{donor})_n$ complexes, CDNO/2 studies of ion solvation, rel. to charge transfer, struct. 4−45940
  - $N_2 + F^+(Ne^+)(Na^+)$ emission cross section for N_2^+ (3914 Å) 4−48150
  - $N_2^+ + N_2$ collisons, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4−72246
  - $N_2^+ + O \rightarrow O^+ + N_2 \rightarrow NO^+ + N$, energy dependence and branching ratio in ionosphere 4−70780
  - NH_3 + alkene positive ion, proton transfer reaction rate consts. 4−64703
  - NH_3 + alkyne positive ion, proton transfer reaction rate consts. 4−64703
  - $NH_3 + H_2(NH_2)(H_2O)(CO)(N_2)(N_2O)$, proton transfer reaction rate consts. 4−64703
  - $NH_3 + H^+ \rightarrow NH_3^{++} + H^-$, ionisation pots., electronic states of NH_3^{++} determ. by charge transfer spectroscopy 4−60106
  - $NO^+ + NO$, incident-ion vib. state effects on charge exchange 4−78531
  - $NO^+ + NO$ collisions, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4−72246
  - $Na + Na^+$ collisions, excitation, charge transfer, three-state description 4−78378
  - $Na^+ + Na$, symm., cross section oscill., impact parameter method 4−78371
  - $NaClO_3$, in glassy H_2O, vib. spectra of ion pairs 4−79718
  - $Ne + Kr^{++}$, collisions, electron transfer investig., cross sections determ. 4−61585
  - $Ne + O^{5,6,7,8+}$, K X-ray emission from Ne ions 4−78373
  - $Ne^+ + Cs \rightarrow Ne + Cs^+$, 1.72-40.2 keV, charge-exchange cross-section behaviour 4−59971
  - O + alkali metal atom, single-electron excitation, charge transfer 4−72079
  - $O^- + O_2 \rightarrow O + O_2^-$ at 1-32 torr in an electric field 4−63718
  - $O^+ \rightarrow O^-$, change exchange in Mg and Zn vapour 4−52010
  - $O^+ + N_2$, low energy ion-neutral reaction, NO^+, N_2^+ formation 4−57838
  - $O^+ + NO \rightarrow NO^+ + O$, energy dependence of rate const. 4−59960
  - $O_2^+ + O_2$, incident-ion vib. state effects on charge exchange 4−78531
  - $O_2^+ + O_2$ collisions, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4−72246
  - $O^n + H_2$, (n = −1 to +2), electron capture and loss, 100-500 keV 4−66339
  - $OH^- + C_2H_2 \rightleftharpoons C_2H^- + H_2O$. kinetics, $\Delta H_{,298}^0$ determ. 4−83013
  - ${}^{87}Rb + {}^{87}Rb^+$ collision, charge-exchange optical pumping expt. 4−63338
  - Ru complex, tris(2,2′-bipyridine) ruthenium(II) sulphate, charge-transfer photoluminescence 4−64421
  - Sr^+, resonance charge transfer cross sections, energy depend., 6-1000 eV *(Russian)* 4−72099
  - ${}^{51}V(\pi^+\pi^-){}^{51}Mn$, double charge exchange, distortion effects, DWIA application 4−69260
  - $Y + He^+$, hybrid charge transfer/Penning reaction 4−66343
- **charge measurement**
  - *see also electrometers*
  - betatron, accelerated charge meas. *(Russian)* 4−58878
  - electrostatic charging meas. technique *(German)* 4−77126
  - electrostatic research, electrometer probe 4−71218
  - integrating meter, for radiographic units 4−46448
  - Maryland Electrostatic Energy-Charge Analyzer, Si:Li surface barrier detector development 4−50727
  - $Ag/RbAg_4I_5/Au$ vacuum-deposited thin-film coulometers 4−51109
  - p-Ge high-purity detector surface effects at 77K, obs. 4−46818
  - Hg capillary coulometer, chemotronic instrument, noise characts. 4−51114
- **charge storage diodes**
  - No entries
- **charge transfer** *see charge exchange*
- **charring** *see combustion*
- **Chebyshev approximation**
  - Fredholm type singular integral eqn., numerical soln. method 4−51309
  - interfacial tension boundary problem, Chebyshev polynomial series soln. *(Russian)* 4−55220
  - neutron transport eqns., iterative solns. convergence accel. 4−81521
  - point kinetics equations 4−81583
- **checkout** *see testing*
- **checkout, automatic** *see automatic testing*
- **chelates** *see coordination complexes*
- **chemical adsorption analysis**
  - *see also chromatography*
  - gas, mixed in aqueous electrolyte, interfacial area and mass transfer simultaneous meas. 4−68853
  - oxide films, CVD, quantitative investig. of porosity and water content *(Japanese)* 4−74180
- **chemical analysis**
  - *see also chemical adsorption analysis; chemical analysis by nuclear reactions and scattering; electrochemical analysis; electron probe analysis; mass spectroscopic chemical analysis; microanalysis; polarimetry; polarography; radioactive chemical analysis; spectrochemical analysis; X-ray chemical analysis*
  - air monitoring, sub-ppm, using portable i.r. analyser 4−81081
  - Allende carbonaceous chondrite meteorite, melting relations, comp. comparison with Earth material 4−68398
  - amino acid analysis, peak area integration and identification by computer 4−71283
  - Auger electron signal strength corrections for modulation amplitude distortion in 4-grid pot. energy analyser 4−74183
  - Auger spectrometer, improvement employing concentric hemispheres 4−46945
  - automation, instant interfacing, multiphasic design discussed 4−55131
  - automation using A/D kit, voltage-frequency convertor application *(Czech)* 4−54993
  - body fluids, Olli 3000 computerised photometric clinical chem. analyser 4−68842
  - borehole radiometry using γ spectrometer with semicond. detector 4−58123
  - clinical, laboratory automation, review *(German)* 4−81073
  - dicarboxylic acids from electric discharge, primitive Earth atm. simulation 4−76708
  - dicarboxylic acids in Murchison meterorite 4−76811
  - DTA, evaporated thin films 4−42953
  - DTA, high pressure attachment *(German)* 4−62431
  - DTA, pressure chamber and gas regulating assembly 4−71284
  - DTA, quantitative, heat transfer errors 4−51225
  - DTA method, high sensitivity 4−51224
  - dust and particulate characteris. using SEM backscatt. electron imaging 4−77250
  - dust content in boiler flue gas, using smoke meter *(Japanese)* 4−46956
  - energy-deficient electrogenerated chemiluminescence in mixed systems, potential scan method of analysis 4−53487
  - fibreglass surfaces, anal. and investig. by X-ray photoelectron spectroscopy (ESCA) 4−58974
  - fluorimetry, single photon phase, with nanosecond time resolution 4−55149
  - gas chromatography, miniature system, for miniature gas chromatography system 4−62652
  - gas mixtures, numerical method for vacuum network 4−42956
  - high-resolution residual gas anal. in oil diffusion pump system 4−74176
  - human tissues, photon mass attenuation and mass energy absorption coeff. 4−54726
  - instrumental, digital automatic attenuator for use with potentiometric chart recorders 4−51105
  - ion-excited X-ray emission, comparison of equal velocity ion beams 4−74179
  - meteorites, Parambu, Brazilian shower, and mineralogy and petrology 4−62069
  - microdetermination of porphyrins, student experiment 4−58698
  - oil ashes, determ. of Fe, Cr, Mn, Co using modulated variable internal standard method 4−68835
  - petroleum content, residual, of productive beds, estimation from core samplers *(Russian)* 4−58137
  - photometry, use of transdiode for transmission-absorbance conversion 4−62581
  - residual gas analysis during sputtering of reactive metals 4−74171
  - semiconductor, automatic potentiometric titration in nonaqueous solns. 4−58983
  - silicate-fluoropatities, $M_4Ln_6[SiO_4]_6F_2$, M = Ca, Sr, Ln = Nd, Y, Yb, synthesis and comp. 4−53797
  - solution evaporation method for solid state ESCA studies 4−58998
  - spectrophotometric centrifugal fast analyser, automatic 4−81074
  - steel, mild, gaseous nitrocarburizing treatment, compound layer obs. *(Korean)* 4−76473
  - steel, stainless, austenitic Cr-Ni type, σ-phase content and chem. comp. *(German)* 4−61368
  - surface analysis methods, sputtering role 4−77307
  - surface characterisation by Auger electron spectrometry 4−76349
  - surface contaminants, spacecraft-type, solar u.v. radiation effects study by internal reflection spectroscopy 4−46959
  - surface reaction study by microbalance 4−65580
  - thermal analysis, non-isothermal, applic. of Arrhenius eq. to kinetic anal. of data 4−51232
  - thermal analysis using nonisothermal diffusion kinetics 4−54095
  - thermochemical, thin-film sensing element for explosive gases 4−55145
  - thermogravimetric and X-ray diffraction techniques combined 4−65581
  - thermomicrobalance use in determ. nonstoichiometry in complex oxide systems 4−65582
  - TLC, review of previous, present and future techniques and applics. 4−42952
  - trace components in solids, sampling variance investig., reference sample prep., sampling error reduction 4−42949

chemical analysis continued
Al alloys, solubility of hydrogen, quantitative meas. methods 4−49632
B concentration meas. in Diorit II reactor *(German, English)* 4−69279
$Bi_xSiO_{1.5x+2}$, comp. of melt pulled crysts. 4−79870
C, in atmospheric particulate matter, determ., particle size separation technique 4−77267
CO, determ. in air, colorimetric method 4−80770
$CeO_2+U_3O_8$, high-temp. reactions in air and in hydrogen, composition of resultant *(Czech)* 4−43649
Fe-Cu(1.4 at.%) alloy, precip. of Cu, atom probe analyses 4−45560
Fe-Ni grains and kamacite spheroids from lunar breccias *(French)* 4−68373
GeO_2, on Ge powders, thermoanalytical methods 4−51226
H, in atmospheric particulate matter, determ., particle size separation technique 4−77267
H_2S concentration in seawater measured using oxygen and hydrogen sulphide meter-5 *(Russian)* 4−71286
$Hg_{1-x}Cd_xTe$, single-cryst., Cd distrib. meas. by neutron radiography 4−62573
$MgTiO_3$, formation, mechanism and kinetics, from oxalates by coprecipitation 4−67995
N, in atmospheric particulate matter, determ., particle size separation technique 4−77267
Na, liq., oxygen analysis by V wire equilibration 4−58995
Na, liq., oxygen analysis by V wire equilibration 4−68840
O_2 concentration in seawater measured using oxygen and hydrogen sulphide meter-5 *(Russian)* 4−71286
Pb chalcogenides, stoichiometry effects on semicond. and dielec. props. 4−49021
Pu, assay methods for safeguards, review 4−77282
Sb_2S_3 amorphous layer comp. and elec. props. 4−49091
Th-U fuel elements, nondestructive determ. of ^{235}U and Th using passive γ-ray spectrometry *(German)* 4−63273
U assay requirements for accountability 4−78297
UF_6 streams, ^{235}U isotopic assay using n.m.r. methods, feasibility study 4−55163

chemical analysis by mass spectrometry *see mass spectroscopic chemical analysis*

chemical analysis by nuclear reactions and scattering
see also chemical effects of nuclear reactions and scattering
activation analysis, automatic counting system 4−55146
activation analysis, review of literature, X-ray fluoresc., multielement anal. 4−81072
activation with accelerators, conditions of maximum analytical accuracy 4−71292
aerosols, light element analysis by elastic proton scattering, Ep=16 MeV 4−51213
alloys, neutron-radiation anal. 4−46943
analytical methods in industry 4−71293
analytical methods in industry 4−72013
atmospheric aerosols, neutron activation anal. of trace elements using short-lived isotopes 4−46961
automatic, programmable system for multisample neutron activation analysis 4−51211
blood, Fe content X-ray analysis with activation by Pu 238 4−77256
catecholamines location in brain using $^{17}O(n,\alpha)^{14}C$ reaction 4−83328
clinical in-vivo activation analysis, simple inexpensive techniques development 4−83330
clinical in-vivo neutron activation analysis facility development 4−83329
concentration profiles in thin films, meas. using nonresonant nucl. reactions 4−63835
concrete and soil mixtures, quantitative field determ. of cement content 4−46953
enstatite achondrites, composition and origin in activation analysis 4−62073
fissile samples, nondestructive assay in support of nuclear safeguards 4−51214
light elements in biological specimens, proton bombardment 4−51230
metallography of bimetals by activity method *(Russian)* 4−70432
muonic X-rays, for in vivo tissue analysis 4−83332
neutron activated elements, in vivo analysis *(Dutch)* 4−46477
neutron activation, (n,p) cross sections, $E_n=14.8$ MeV, proton magic no.50 region 4−63152
neutron activation, Fe meteorites, elements *(Russian)* 4−76809
neutron activation anal. of rocks and rock forming minerals using Ge(Li) detector 4−81082
neutron activation analysis, 14 MeV, review of capabilities, applications, sensitivities 4−81086
neutron activation analysis, of a hand, for progressive bone disease monitoring 4−58552
neutron activation analysis, total body, in vivo, advantages of 14 MeV sealed tube sources 4−58577
neutron activation analysis of Si and Al in minerals and rock ores 4−58982
neutron activation analysis using ^{252}Cf sources, interference-free detection limit calc. 4−81084
neutron flux in activation analysis, detection, ZnS+B counter using $^{11}B(n,\alpha)^8Li\to 2\alpha+\beta^-$ counter 4−42888
particle track observations, applications in geology 4−80396
planetary surface elemental analysis, problems in use of neutron-gamma methods 4−62262
precious metal-concentrates, Ag, Rh, Ir, Au determ. by neutron activation anal. using ^{241}Am-Be source 4−46962
rocks, gamma spectrometry 4−46936
rocks and ores, neutron radiation analysis using Ge(Li) spectrometer 4−46105
small sample assay system based on neutron activation anal. 4−81088
surface analysis and thin film studies, low-energy ion-beam, telescope counter 4−68788
Teflon-4, F content determ. using delayed n recording in gamma activation anal. 4−77285
trace element and by p, α and ^{16}O induced X-rays 4−59000
trace elements, selective and nondestructive determ., 2-fold and 3-fold coincidence layouts applic. *(German)* 4−77277

chemical analysis by nuclear reactions and scattering continued
trace metals, in water and air, review of instrumental anal. techniques 4−62572
p-induced X-ray emission for trace element analysis 4−46957
Ag in rare coins, neutron activation analysis with ^{252}Cf source 4−51215
$^aC(p,\gamma)N$ A=12, 13, detection of stable C isotopes, ^{13}C enrichment determ. 4−46933
$^{40}Ca(n,\alpha)^{37}Ar$, total body activation, ^{37}Ar excretion meas., body calcium quantification 4−83331
Cd trace element determ. using high yield e.m. isotope separator and neutron activation 4−46958
CdS, single cryst., halogen impurities, thermal neutron activation 4−73264
^{252}Cf, neutron activation analysis system, interference-free sensitivities 4−77288
^{252}Cf accumulation in central channel of SM-2 reactor, activation analysis 4−55916
^{252}Cf neutron activation facility, rapid multielement analysis 4−81085
GaP, N conc. determ., proton induced reactions 4−61313
Ge(Li) detectors, neutron activation analysis, suppression of Compton background radiation 4−42884
$^1H(^{11}B,\alpha)\alpha\alpha$ nucl. reaction, hydrogen analysis in solids by ^{11}B ion beams 4−74181
^aI, A=127, 129, 131, in environmental samples, detection systems for low level radiochemical anal. 4−51210
^{127}I, airborne concentration meas. using charcoal collector and neutron activation anal. 4−54334
^{15}N enrichment analysis using low-energy proton capture reactions, γ-ray yield meas. 4−55147
$^{18}O(\gamma,p)^{17}N$, 25 MeV, activation anal. delayed n recording 4−77285
Pu, detection in uranium industry products by neutron coincidence technique 4−59885
Ra content of ores determ. from γ-ray spectra borehole meas. 4−77287
Rb, in atmospheric particulate matter, determ. by photon activation anal. 4−77268
Se, determ. in standard rocks by neutron activation anal. method 4−77269
Si, cleaning, B and O surface contamination due to common solvents, nuclear microanal. obs. 4−45475
Si, in atmospheric particulate matter, determ. by photon activation anal. 4−77268
Si in lymph node samples, n activation analysis 4−46398
Si:B epitaxial film, activation analysis, diffusion profile obs. 4−64521
SiC trace constituents determ. by neutron activation analysis and gamma spectrometry 4−55162
SiO_2, film, Na and Cl impurities, proton induced characteristic X-ray anal. 4−63833
Th ores anal. using gamma-ray spectrometer with Ge(Li) detector 4−77286
U analysis, whole rock, using neutron activation and path length integration 4−55151
U content of ores determ. from γ-ray spectra borehole meas. 4−77287
U ores anal. using gamma-ray spectrometer with Ge(Li) detector 4−77286
Y, in atmospheric particulate matter, determ. by photon activation anal. 4−77268
ZnSe, single cryst., halogen impurities, thermal neutron activation 4−73264
Zr and alloys, meas. of Hf impurity content using 14 MeV neutron activation anal. 4−81083

chemical association *see association*

chemical batteries *see cells (electric)*

chemical bonding *see bonds (chemical)*

chemical bonds *see bonds (chemical)*

chemical composition *see chemical analysis*

chemical effects of nuclear reactions and scattering
see also chemical analysis by nuclear reactions and scattering; radiation chemistry
^{80}Br, ^{80m}Br, $^{82m+82g}Br$, radiative neutron capture organic yields in cyclohexane and carbon tetrachloride 4−50181
^{82}Br, isomeric transition isotope effect in reacts. with cyclohexane, carbon tetrachloride 4−50181
$K_2[ReX_6]$, X=Br, Cl; cryst., computer simulation of (n,γ) recoil damage 4−52789

chemical effects of radiation *see radiation chemistry*

chemical elements *see elements (chemical)*

chemical engineering *see chemical technology*

chemical equilibrium
see also chemical reactions; reaction kinetics
binary liquid systems with addition reaction interactions, equil. functions 4−54011
dissociative fluid, stability of horizontal layer, stationary and oscillatory convection *(Russian)* 4−52536
ethyl chloride, pure and with H_2, ion-mol. reactions, 190-400K, equilib. consts. 4−53969
heterogeneous equilibria, calc. of association and aggregation consts. in vapour and second virial coeffs. 4−61611
tribromoacetic acid-water complex, spectroscopic energy determ. *(Russian)* 4−57889
trichloroacetic acid-water complex, spectroscopic energy determ. *(Russian)* 4−57889
GaAs, epitaxial deposition from $Ga(CH_3)_3$-AsH_3-H_2 system, thermodynamics, kinetics 4−75724
H cascade arc, nonequil. flow calcs. 4−56549
N_2O_4-N_2O_3-HNO_3-H_2O system, equilibrium constant, i.r. spectroscopy obs. *(Russian)* 4−59854
$UO_2Cl_2(g)$ produced in reaction $U_3O_8(s)+3Cl_2(g)$ 4−73429

chemical exchanges
see also ion exchange; isotope exchanges
$A+BC\to AB+C$, react. cross section energy depend. determ. 4−67994
$AB+B^1\rightleftharpoons AB^1+B$, n.m.r. lineshapes at high r.f. calc. 4−75018

chemical exchanges continued
- alkali atom + methyl halide collisions, chemiionisation cross sections investig., mol. electron affinities determ. 4−67993
- atom-molecule collision, reactions dissoc. energy limits of free radical prod. determ., from radical fluoresc. investig. 4−48136
- biopolymers, H-D exchange, rapid transfer apparatus for obs. of i.r. absorption spectrum 4−58808
- exotherm radical reactions, at.-diat. mol. collisions, prediction of vibr. inversion among prods., model 4−50129
- heavy water production, review of chemical exchange processes *(Italian)* 4−51874
- nitroxide stable polyradicals, magnetic interactions rel. to multicentre exchange reactions in organic cpds. 4−68031
- $F + HF \rightarrow FH + F$ exchange reaction, barrier height calc. 4−54008
- ^{68}Ge-^{68}Ga generator ^{68}Ga prod. in ionic form 4−70615
- P compounds in liquid HCl, ^{31}P n.m.r. 4−61613
- RbCl + K, beams, exchange reaction on beam detector (Pb-W) surface 4−76593
- $Si_2N(g) + Ge(g) = GeSiN(g) + Si(g)$, mass spectrometric determ. of heat of form., atomisation energy of GeSiN 4−61579

chemical industry
- noise analysis of compressor drives 4−50926
- polymerisation, development prospects, review *(Dutch)* 4−64643
- stack parameters, guide book for nuclear and ancillary chemical installations 4−78312

chemical kinetics *see reaction kinetics*

chemical lasers
- *heading is late addition, see also gas lasers*
- electrochemiluminescent, liquids, development prospects 4−51584
- electron beam irradiated discharges for laser initiation 4−59394
- feasibility from evaluation of chemiluminescent reactions in gases *(Russian)* 4−57841
- high-power, discussion 4−55463
- linear theory, diffusion problems *(Russian)* 4−69051
- quantum electronics, conference, San Francisco, USA, (1974) 4−69036
- review *(Japanese)* 4−71533
- Rhodamine 6G, dye laser *(Japanese)* 4−43308
- shock tube utilization 4−71545
- thermodynamic analysis, chem. react. entropy deficiency studies efficiency, operating conditions investig. 4−69042
- CF_3I iodine photodissociation, late time gain 4−59393
- CF_3I iodine photodissociation laser, gain versus time 4−62829
- CO_2, chemically pumped from $CS_2 + O_2$ reaction 4−74487
- $CS_2 + O_2$ chemical laser, pulse initiated, $(1 \rightarrow 0)$ band, stimulated CO-emission 4−77646
- DF-CO_2, pulse profile and intracavity conditions determ. numerical procedure 4−74491
- $F + H_2(alkane) \rightarrow HF + products$, continuous chem. laser, kinetics investig. *(French)* 4−57839
- H_2-F_2, electron beam initiated, 0.2 GW pulses 4−62831
- HBr, enhanced output, SF_6 addition 4−43289
- HBr, transversely excited, mechanism 4−71532
- HCN, excitation mechanism, fuelling role 4−43304
- HCl chemical c.w. laser, theoretical performance 4−47340
- HF, atmos. press. pulsed chem. laser 4−77653
- HF, c.w., comparison of H_2 and HBr as cavity fuels 4−71527
- HF, c.w., from F atom reaction with C_3H_8 and C_4H_{10} 4−43284
- HF, chain reaction, high initiation efficiency 4−77649
- HF, i.r. radiation triggered *(Russian)* 4−77664
- HF, initiated by 300 keV electron beam, performance 4−59392
- HF, kinetic rate eqns., analytic soln. 4−62825
- HF, laser performance, effect of mixing rate 4−47334
- HF, pulsed linewidth meas., time resolvable bleachable absorption 4−65926
- HF, rotational chem. laser operating via elimination reactions 4−77654
- HF, small single-mode stable c.w. laser, 2.5-3.5μ, operation 4−59391
- HF, TE, parametric study, donors, peak power 4−59396
- HF, TE, time resolved spectroscopic study, reaction anal. 4−43300
- HF/DF, initiation by electron beam irradiated discharge 4−59394
- HF(DF), reaction rate consts. for $F + H_2(D_2) \rightarrow HF(DF) + H(D)$ 4−70602
- I in P, As and Sb compounds, photodissociation media *(Russian)* 4−65906
- $I_{1/2} \rightarrow I_{3/2}$ emission, prod. during CF_3I flash photolysis, energy effects .of CF_3. addition 4−80204
- MgF, pumping by $Mg + F_2$ reaction, pulse characts. 4−65899
- $O + CS_2$ molecular beam reaction prod. anal., kinetics investig., chem. laser appls. 4−73422
- SF_6-D_2, repetitively pulsed electron beam initiated 4−55460
- SF_6-H_2, repetitively pulsed electron beam initiated 4−55460
- $SO + O \rightarrow SO_2 + \omega$, chemiluminescent reactions *(Russian)* 4−57841

chemical reactions
- *see also catalysis; chemical exchanges; chemiluminescence; chemisorption; corrosion; heat of reaction; ion-molecule reactions; oxidation; photochemistry; polymerisation; radiolysis; reaction kinetics*
- A15 type phase stability 4−82134
- $A^- + A \rightarrow A_2 + e$, electron distrib., mol. vibr.-rot. states, Franck-Condon principle 4−52005
- acetophenone, α-halogenated, radical mol. ions, kinetic energy release during unimol. decomp., predissoc. investig. 4−48106
- active N_2 reactions, short-lived radical intermediates investig. by e.s.r. 4−50130
- alcohols, specific hydrogen bonds, i.r. spectroscopy *(Russian)* 4−70604
- alkali metal + $Cl_2(Br_2)(O_2)$, ionising collisions 4−78527
- alkyl peroxides, reactivity, extended Huckel method calcs. 4−56135
- atom + diatom scatt., translation-internal mode energy transfer 4−78529
- atom + diatomic molecule reactive scattering, Fadeev-type eqns., coupled channel eqns. 4−47869
- atom-diatom reactive collision, R-matrix theory 4−67991
- atom-diatomic molecule collisions, reactive-scattering transition probabilities calc., kinetic isotope effects determ. *(German)* 4−45909
- atom-molecule conversion, influence on ion diffusion 4−78727
- Belousov reaction, velocity of spatial wave propag. 4−57837

chemical reactions continued
- benzyl radicals, monosubsituted, prod. from fluorobenzyl phenyl ketones, CIDNP investig. of F hyperfine coupling consts. 4−45927
- bimolecular reaction, in soln., rate const. expression derived, mol. rot. approach 4−76603
- binary liquid systems with addition reaction interactions, equil. functions 4−54011
- Brownian motion model for surface chemical reactions, infinite mass limit 4−54081
- t-butyl radicals, in soln., mutual termination rate const. meas. by e.s.r., cis-azoisobutane interference 4−50186
- chemical lasers, thermodynamic anal. of chem. react., efficiency, operating conditions investig. 4−69042
- chemically induced dynamic electron polarisation, theory for alkyl radicals produced in radiolysis 4−57857
- chemically induced dynamic nuclear polarisation, application of n.m.r. Fourier techniques 4−57396
- chemically reactive binary gas mixture, convection in mag. field *(Russian)* 4−63628
- 1-chlorobutane, energetic T atom reaction, up to 10 eV 4−57878
- CIDNP, theory 4−78497
- coal-H_2, high-press. reaction kinetics, apparatus for meas. 4−83026
- collinear collision dynamics, model for classroom use 4−73954
- collinear model for reactive collisions, energy disposition 4−80185
- cuprous halide-pyridine compounds, fluorescence thermochromism *(German)* 4−57615
- curvature of Arrhenius plot as predicted by Absolute Rate Theory 4−50123
- cyclic ketones, photolysis, biradical form. investig. by CIDNP in ^{13}C n.m.r. spectra 4−50187
- cyclopentane, energetic T atom reaction, absence of low energy ring-opening process 4−57877
- dissociative vaporisation, terrace-ledge-kink model 4−75624
- dynamic nuclear polarization, chemically induced, flow system for n.m.r. studies 4−42846
- electron spin polarisation in rot. triplet mol., chemically quenched intersystem crossing 4−61603
- electron transfer reaction, within donor-acceptor ion pair, investig., nonradiative transitions theory 4−80173
- electronically non-adiabatic, collinear quantum-mech. model 4−80172
- energies, even-tempered atomic orbital calcs. 4−52034
- energy partitioning, mass spectra obs., elimination reactions in chloroalkanes and chloroalkenes 4−76594
- enthalpy-entropy compensation, in water, macroscopic source, simple model 4−76575
- entropy production in chem. reacting systems 4−83011
- ethyl radical, prod. by Hg photosensitized reacts., optical absorpt. spectrum 4−47971
- ethylene, gas phase bromination, electron diffr. obs. of reaction intermediates 4−57833
- exothermic, in condensed medium, steady state propag. problem *(Russian)* 4−80187
- exothermic adiabatic reaction, steady state multiplicity and stability stirred tank 4−70598
- far-from-equilibrium phenomena at local sites of reaction 4−57886
- fast, boundary value multidimensional problem 4−53956
- fast, kinetics low temperature stopped flow method 4−59012
- flame, turbulent chemically reacting flow, two-dimensional analysis 4−44170
- flow of gases hypersonic boundary layer eqn. soln. for chemical nonequilibrium *(German)* 4−63560
- fluctuations and transitions at chemical instabilities, phase transition analogy 4−80215
- fluid mixture, binary reacting, light scatt. due to spontaneous fluctuations 4−45285
- fluoroalkyl cyclopropanes, failure of intramolecular energy relax. on decomp. 4−57826
- fluorobenzyl halides + sodium naphthalene, reaction, ^{19}F nuclear spin polarisation, Overhauser mechanism 4−64705
- formation of interstellar radicals and molecules, react. mechanism investig. 4−50696
- formic acid, decomposition, kinetic isotope effect in react. kinetics calcs. 4−61586
- free radical reactions, insertion and abstraction, selection rule, Heisenberg model 4−80171
- free radical reactions, react. surfaces calc. using SCF and CI methods 4−50126
- freon 12, in $SF_6 + Ar$, photolysis using CO_2 laser 4−54054
- gas absorption in liquid phase with chemical reaction, enhancement factor 4−50136
- gas flow around reactive body, non-equilib. chem. reactions, heat-mass transfer *(Russian)* 4−60264
- gas-liquid slug flow in helical coils, chemical mass transfer 4−60242
- $2\,Ge(g) + 0.5\,N_2(g) = Ge_2N(g)$, mass spectrometric determ. of heat of form., atomisation energy of Ge_2N 4−61579
- glycolic vinyl and isopropenylacetylene series, specific hydrogen bonds, i.r. spectroscopy *(Russian)* 4−70604
- graphitization of free C precipitating through reaction of UC or UC_2 with N_2 4−51882
- halogen atom recombination in rare gas diluents, mechanism 4−80170
- halogen incandescent lamps, thermodiffusion influence on chemical transport processes *(German)* 4−50168
- halophosphate luminophors, formation reaction of chlor- and fluorchlorapatites *(Russian)* 4−73415
- h.f. magnetic field effects on radical recombination 4−80169
- in turbulent flow, heat and mass transfer calcs. *(Russian)* 4−44169
- interconversion of three species, kinetics investig. using microscopic stochastic model 4−61584
- interstellar CH formation by H_2 reactions with CH^+ and H_2 4−50690
- isobutene, rearrangement reactions in electron impact fragmentation 4−60102
- isotope separation in reactions under thermodynamically nonequil. conditions *(Russian)* 4−70605
- kinetic isotope effect calcs. involving hydrogen isotopes, anharmonicity correction 4−54006

chemical reactions continued
  - kinetic isotope effects, computed using at. force constants, applic. to mechanism investig. 4−45902
  - laminar boundary layer, analysis during hybrid combustion 4−48384
  - lanthanides, spontaneous ignition in air, student demonstration 4−58702
  - laser applications, review 4−45933
  - laser induced chemical effects, review 4−45931
  - laser induced selective reactions, review 4−45932
  - liquid, nearly nonpolar reactions, void and expansion vol. contribs. to reaction and activation vols. 4−57840
  - $M + X_2 \rightarrow MX + X$ reaction, mechanism investig., e.s.r. investig. of radicals trapped in solid Ar matrix 4−50131
  - mass transfer with instantaneous chemical reaction, moving boundary problem, numerical soln. 4−53968
  - methane, ethane, and deuterated derivs., dissoc.-recombination reacts., rate consts. calc. 4−57816
  - methane + $OH \rightarrow CH_3 + H_2O$, kinetics investig., flash photolysis-reson. fluoresc. method 4−83016
  - methane reaction with OH, stratospheric destruction rates 4−83077
  - methyl radical ion, react. with H_2, D_2 using crossed beams, prod. investig. rel. to collision energy 4−50128
  - methyl radicals, combination, rate const. determ. by flash photolysis-kinetic spectroscopy, error anal. 4−50133
  - molecular complex, electron transfer reactions *(German)* 4−57842
  - multicomponent gaseous mixture, absorpt. in presence of instantaneous reaction 4−53960
  - networks, analysis techniques 4−70600
  - nitride, complex, of subgroup IIIB elements, thermal stability 4−50150
  - nonequilibrium, laser induced, review 4−45935
  - nonlinear with multiple steady states, stochastic approach 4−61598
  - organic crystals, O...C=O interactions, correlations between struct. and chem. react. 4−57813
  - ortho-naphthquinondiazides, photoresists, photolysis and thermolysis investigations *(Russian)* 4−57874
  - orthophosphate luminophors, Sn activated ageing activation valency state changes *(Russian)* 4−73441
  - oscillatory, limit cycle model 4−45900
  - PBLG polypeptide, interaction with acidic mols. in mag. field rel. to orientation, ordering 4−44463
  - perfect gas reactive flow, reverse case of Laval's nozzle theory *(Russian)* 4−60265
  - phenomenological rate constants, formula derived in Bodenstein approx. 4−83014
  - plasma, heterogeneous reaction, thermodynamics and kinetics 4−50151
  - plasma jet interaction with chem. active ionised gas target, instability development *(Russian)* 4−72373
  - plasmochemical reactor, heat exchange problem 4−48453
  - polyatomic species, unstable energy-rich intermediates, form., decay, review 4−50125
  - polymerisation, mol. wt. distrib. calcs. in competitive growth of different end groups *(German)* 4−68006
  - potential energy surface rel. to react. probability investig. 4−64707
  - precipitation, periodic spatial, mechanism of chem. instability of autocatalytic reacts. coupled with diffusion 4−61583
  - product distribution entropy and temp. parameters 4−61602
  - protonation of carbonyl group, ab initio calc. of effect of substituents 4−57818
  - pyrolysis, generation of dilute mixtures of formaldehyde, acetaldehyde and acrolein, air pollution 4−76983
  - pyrolysis, in flow-reactors at high temp., energy balance investig. using models *(German)* 4−50137
  - quantum ergodicity and vib. relax. in isolated molecules 4−78528
  - rare earth hydroxychlorides, hydrothermal synthesis, X-ray diffr., thermogravimetric obs. 4−82150
  - reaction kinetics, quantum scattering theory, classical limits investig., rate expressions derived 4−80168
  - reaction probability matrix using classical trajectory methods, calc. for $A + BC \rightarrow AB + C$ system 4−76579
  - reaction-diffusion equations, plane wave solns. 4−61609
  - reactive flow, adiabatic stirred flow reactor, thermodynamic stability, entropy prod. 4−44164
  - reactive flow through porous solid, intragrain diffusion effect 4−52530
  - reactive solutions, gas permeability 4−44163
  - reactive turublent flow, isochoric mixing of two reactants, exothermic reaction 4−44168
  - reactor, gas flow, particularly suited to air pollution studies 4−55148
  - rearrangement channel T operators, general reln. betw. solns. of alternative sets of eqns. 4−80179
  - resonance tunnelling reaction, time-delay matrix 4−73432
  - shocktube technique, shockwave and i.r. data computer acquisition and anal. 4−61577
  - silicate-fluoropatities, $M_4Ln_6[SiO_4]_6F_2$, M=Ca, Sr, Ln=Nd, Y, Yb, synthesis and comp. 4−53797
  - simultaneous absorption of two gases reacting between themselves in liq. medium 4−53961
  - small-angle scattering, quantum correction factors by inverse potentials 4−55312
  - sodalite synthesis, photochromic and cathodochromic 4−61597
  - solids, Derivatograph, combined thermal methods 4−65394
  - solution, conductivity amplifier for chem. kinetics 4−61599
  - solvation of molecules and ions from n.m.r. and vib. spectroscopy 4−43841
  - spatial structures in dissipative systems 4−55406
  - spatial switching in chem. reactions with heterogeneous catalysis 4−53985
  - stability analysis of steady state network by graph theory 4−53997
  - stability analysis of unstable network by graph theory 4−53998
  - statistical theories, distrib. of transition region 4−57821
  - statistical theories, distrib. of transition region 4−57822
  - stochastic reaction model for non-equilibrium phase transition *(German)* 4−76602
  - substituent-induced proton chem. shifts in aromatic derivatives, correlation with reactivity parameters 4−48085
  - supersonic flow of gas mixtures with chem. reactions, blunt body analysis 4−52428

chemical reactions continued
  - surface, microbalance study 4−65580
  - symmetry breaking instabilities in illuminated systems 4−57866
  - tetrabromomethane, decomposition, radical products struct. 4−56056
  - theory, reaction product vel. distribs. 4−53994
  - thermal decomposition, mass spectrometer for fast processes 4−42915
  - thienothiophenes, isomeric, reactivity in electrophilic substitution reactions, quantum chem. analysis 4−50143
  - three dimensional cross sections from planar scatt. data 4−61605
  - three phase coexistence, chemical reaction model 4−75619
  - transfer, quantum mechanics 4−50154
  - tribochemical reactions, on solid bodies in gas phase, adsorpt., kinetics investig. *(German)* 4−50206
  - turbulent diffusion rapidly reacting chem. species 4−60261
  - turbulent shear flow mixing, probability density functions 4−56460
  - two component isothermal system, time dependent soln. of Boltzmann eqn. 4−64726
  - unimolecular, failure of intramolecular energy relax. 4−57826
  - vibration transitions induced by chemical reaction, quantum model for strong coupling region 4−70601
  - wave phenomena investig. 4−76581
  - $Ar_2^+ + e \rightarrow 2Ar$, reacting flow, pulsation characteristics in distant wake behind body *(Russian)* 4−52533
  - Au-Ti melt/Al_2O_3, intermediate phase formation on adhesion and wetting 4−67930
  - $Ba{:}TiO_2.P_2O_5 + Ba_2P_2O_7$ luminophor, interactions with phosphoric and perchloric acids *(Russian)* 4−73417
  - $Ba + LiCl \rightarrow BaCl + Li$, crossed beam react., internal stages investig., laser fluoresc. method 4−83020
  - $Ba + N_2O$, gas phase chemiluminescence obs. of excited state BaO prod. efficiency 4−68000
  - $Ba + N_2O$, gas phase chemiluminescence, BaO excited state vibr. to electronic energy transfer 4−68001
  - $Ba + X_2(Cl_2,Br_2,I_2) = BaX_2^*$, chemiluminescence 4−73413
  - $BaTi_2Fe_4O_{11}$, (R block), synthesis, cryst. struct. determ. *(German)* 4−56665
  - Br_2, isotope separation, laser selective photochemistry of $Br_2 + HI$ system 4−68020
  - CN formation and excitation in active nitrogen 4−53988
  - CNBr, pyrolysis and oxidation, loss to 2000 to 3200K 4−73434
  - CO in turbojet plume, turbulent flow 4−60262
  - $CO + OH \rightarrow H + CO_2$, kinetics investig., flash photolysis-reson. fluoresc. method 4−83016
  - CO_2-N_2-He low press. discharge, mass spectroscopy study chem. reactions *(German)* 4−80175
  - $CO_2 + CO_3^{2-} + H_2O$, catalysis in turbulent liq., mass transfer coeff. calc. 4−44166
  - $CS_2 + 4O_2$ spontaneous ignition reaction SO + O, anomalous ultraviolet emission 4−50159
  - $CS_2 + O_2$, chemical pump for CO_2 laser 4−74487
  - $CaMoO_4$, diffusion mass transfer in solid-state synthesis 4−45898
  - $Ca_3(PO_4)_2CaX_2$(X=halogen) formation chemism *(Russian)* 4−73416
  - CdS thermal decomposition during fusion, protective props. of B_2O_3 flux 4−45448
  - CdS with gaseous SeO_2, rel. to CdSe synthesis 4−50149
  - CeO_2 and CeO_2:ZnO, effects of heating in vacuum, CO, and H_2, e.s.r. determ. 4−57353
  - $Cl + H_2(D_2)$ reactive collision, exact quantum mech. anal. 4−45908
  - Cl_2 + Na(K)(Rb)(Cs) reactive collisions, cross section obs. 4−76590
  - Cs + trifluorobromomethane reaction, anion production, evidence for stripping 4−64704
  - Cs + trifluorochloromethane reaction, anion production, evidence for stripping 4−64704
  - Cs + trifluoroiodomethane reaction, anion production, evidence for stripping 4−64704
  - $Cs_2 + Cl_2(Br_2)(I_2)(IBr)(ICl)(ClF)$, chemiluminescence spectra 4−61596
  - $CsFe(WO_4)_2$, single crysts., synthesis growth and phys. props. 4−45416
  - Cu-Ti melt Al_2O_3, intermediate phase formation on adhesion and wetting 4−67930
  - CuI, single cryst. growth from soln. and nonlinear optical props. investigation 4−49554
  - Cu_3LnS_3(Ln=Sm, Gd, Dy, Yb, Y, Sc), synthesis, determ. from recorded thermograms 4−44520
  - Cu_2Te film formation, Te vapour reacting with Cu sheet, elec. props. 4−45443
  - $D + ClF_3$, mol. beam kinetics, scatt. angles 4−50157
  - $D + ClF_3$, mol. beam kinetics scatt. angles, comment 4−50158
  - $D + ClI \rightarrow DI + Cl$, trajectory calcs. using LEPS pot. surfaces 4−52293
  - $D + H_2 \rightarrow HD + H$, collinear reactive scatt., integral eq. approach, scatt. matrices calc. 4−83015
  - $D + I_2$ reaction, classical trajectory calcs. of ang. distrib. 4−50153
  - F atoms with unsaturated hydrocarbons, using crossed mol. beams, radical decomp. investig. 4−50127
  - $F + CF_3I \rightarrow IF + CF_3$, CF_3 radical focusing, identification of paramag. component of beam 4−80178
  - $F + H_2$(alkane) → HF + products, continuous chem. laser, kinetics investig. *(French)* 4−57839
  - $F + H_2 \rightarrow HF + H$, collinear reactive scatt., integral eq. approach, scatt. matrices calc. 4−83015
  - $F + H_2 \rightarrow HF + H$, mol. rot. excitation effect on react. rate investig. 4−83021
  - $F + HR \rightarrow FH + R$, R=substituted methanes, trajectory calcs. using LEPS pot. surfaces 4−52293
  - $F^+ + H_2(D_2)$ reaction cross section, isotope effect 4−76589
  - $F_2 + H \rightarrow HF + F$ saddle point, geometry, barrier height, SCF-CI calcs. 4−61590
  - $F_2 + NO_2 \rightarrow ONOF$, product matrix isolated i.r. spectra 4−56219
  - ^{18}F atoms, thermal, react. with π-bonded species, radical form., decomp., detection 4−53957
  - $FeCl_3$ frozen hydrolysed soln., Mossbauer effect, polymerization study β-FeOOH presence *(German)* 4−79648
  - β-Ga_2O_3, Ga^{3+} substitution by Fe^{3+}, Cr^{3+} ions, e.s.r investig. of kinetics *(German)* 4−57843
  - $GaP + NH_3$, form. of GaN or GaP:N, kinetic curves 4−45444

chemical reactions continued
GaSb dissociation, $\Delta H_0°$, $D_0°$ determ. 4–80177
$Ge(^3P) + N_2O = GeO + N_2$, product emission spectroscopy 4–76574
H atom recombination at walls, kinetic effects investig. 4–73427
$H + CH_4 \rightarrow H_2 + CH_3$, kinetics meas., low press. flame technique 4–73425
$H + H_2$, atomic exchange, semiclassical multichannel expansion 4–53995
$H + H_2$ collision reaction, modified classical S-matrix for tunnelling 4–73426
$H + H_2$ reaction, classical S-matrix theory 4–50145
$H + H + H_2 \rightarrow 2H_2$, termol. recombination react., kinetics investig. using S matrix formalism 4–76599
$H + H + M \rightarrow H_2 + M$, $M = H, H_2, He, Ar$, recombination classical mechanics via resonance complex mechanism 4–61587
H + negative ion reactions, gas phase, rates, mechanism determ. effect of hydration investig. 4–76580
$H^- + O_2$, form. in water, charge transfer react. investig., cross section determ. 4–83022
H_2 + air, flame, numerical predictions *(German)* 4–64708
$H_2 + F = H + HF$, transition state and quantum mechanical reaction probabilities, comparison 4–54001
H_2 + H reactive scattering, adiabatic distorted wave calcs. 4–83019
$H_2 + H(D)(F) \rightarrow H + HH(D)(F)$, collinear reactive scatt., integral eq. approach, scatt. matrices calc. 4–83015
$H_2 + I_2 \rightarrow HI + HI$, classical trajectory study on kinetics, react. probabilities determ. 4–61592
HBr + H(Br) systems, Monte Carlo quasi classical trajectory study, energy transfer, kinetics 4–73423
$HBrO_2$, autocatalytic prod., velocity of spatial wave propag. 4–57837
$H(D) + Cl_2$, isotopic collinear reactive system, quantum mech. treatment 4–53989
$H(D)O_2$ from $H(D) + O_2$ reaction, Ar matrix i.r. spectra and vib. analysis 4–53975
HF, rotational chem. laser operating via elimination reactions 4–77654
HO_2, form., decay, in $Hg/H_2/O_2/CO$ mixtures, spectral investig., decay rate const. 4–54053
$HO_2 + NO(NO_2)$ reactions, kinetics investig. 4–76596
H_2SO_4-H_2O vapour, hydrate formation, free energy surfaces 4–76622
$He^* + H(D) \rightarrow HeH(D)^+ + e$, merging beam reacts. investig., effective cross sections determ. 4–61580
HfO, gaseous isomolecular O-exchange reaction, thermodynamic props. 4–57819
$HfSi_x$, diffusion layer form., 1150-1300°C, kinetics, microstruct. and microhardness 4–44784
HgH, form., decay, in $Hg/H_2/O_2/CO$ mixtures, spectral investig., decay rate const. 4–54053
I + I + M and I + wall recombinations, kinetics, mechanisms investig. 4–80184
ignition of CS_2,$4O_2$, anomalous ultraviolet emission 4–50159
InAs-GaAs solid soln., iodide transfer, effect of source comp. 4–53610
$K + CH_3I$, detailed diff. reactive cross section and energy disposal, mol. beam expts. 4–57823
$K + CH_3I = KI + CH_3$, reaction cross-section postmaximum energy depend. 4–53990
$K + HCl \rightarrow KCl + H$, mol. beam reactions, effect of translation extension of reagents 4–57835
$K + I_2$(IBr)(halomethanes) reactive scatt., supersonic K beam 4–73431
$K_2 + Cl_2(Br_2)(I_2)(IBr)(ICl)(ClF)$, chemiluminescence spectra 4–61596
$K_2 + I_2$ (halomethanes) reactive scattering 4–73430
$LaMnO_3$, synthesis and formation kinetics in solid phase 4–66873
La_2Te_3-La_2Se_3 system, synthesis and X-ray phase anal. 4–48735
Li liquid + heavy metal oxides 4–83027
$LiNbO_3$, solid-soln. range rel. to stability of congruent composition 4–56856
$MX_2 + K$, M = group IIb metal, X = halide, crossed mol. beam reacts., mechanism, complex intermediate investig. 4–50152
$MgHPO_4.3H_2O$, dehydration products composition 4–69889
Mn_2SiO_4 high-pressure decompositions rel. to mantle transformations 4–68088
Mo compounds, conf. Reading, Berks., England (Sep. 1973) 4–61601
N atom recombination, surface catalytic efficiency of sputtered Mo on quartz and pyrex 4–50209
$N_2 + O^+$, crossed beam reaction kinetics 4–50155
NF_3, $H_2 + NF_3$ or N_2F_4 mixtures, thermal decomp., reacts., shock wave and spectrochem. anal. investig. 4–45903
NH_4ClO_4, struct. and decomposition 4–52722
NH_4ClO_4 crystals, cond. proton mobility rel. to charge transfer, thermal decomposition 4–72588
$NO + HO_2$ reaction, kinetics investig. 4–76596
$NO + O_3$, laser induced vibr. excited O_3 reactive energy transfer, NO_2 chemiluminescence obs. 4–73418
NO^+ electron recombination total cross section meas. using ion storage techniques 4–61600
NO_2, dissoc.-recombination reacts., rate consts. calc. by statistical model 4–57816
$NO_2 + HO_2$ reaction, kinetics investig. 4–76596
$NO_2 + H(D)$ reactive scattering, isotope effect on angular distrib. investig., mechanism 4–80174
$NO_2 + O_3 \rightarrow NO_3 + O_2$, gas phase reaction, kinetics 4–68002
$2NO_2 \rightleftharpoons NO + O_2$, laminar flow heat and mass transfer in flat tube *(Russian)* 4–63630
$N_2O_4 \rightleftharpoons 2NO_2 \rightleftharpoons 2NO + O_2$, coolant for nuclear reactor, calcs. for gas-counterflow single-pass heat exchanger *(Russian)* 4–43653
^{13}N hot atom recoil reactions in gas phase 4–73444
Na_2O-SiO_2 glasses, ammonium ion diffusion *(Japanese)* 4–49916
$Nb_2O_5 + 7C \rightarrow 2NbC + 5CO$, in Ar plasma arc, NbC characterization 4–61484
NiO-ZnO(CuO) solid solns., struct. and antiferromag. props., influence on reactivity 4–72969
O atom reactions with halomethanes, i.r. chemiluminescence 4–50134

chemical reactions continued
O atom recombination, rate consts. calc. rel. to temp. by 3-d trajectory method 4–50132
O + CS, vibr. distrib. of CO 4–50156
$O + CS_2$ molecular beam reaction, prod. anal., kinetics investig., chem. laser appls. 4–73422
$O + CS \rightarrow CO(V) + S$, CO vibr. levels investig. using intracavity laser technique 4–66408
O + vinyl bromide crossed beam react., mechanism, rates, branching ratios determ. 4–50141
$O^+ + N_2$, low energy ion-neutral reaction, NO^+, N_2^+ formation 4–57838
O_2^+ electron recombination total cross section meas. using ion storage techniques 4–61600
$O_2^+ + H_2 \rightarrow HO_2^+ + H$, photoionisation efficiency curves for HO_2^+ production 4–53991
$OH + CO \rightarrow CO_2 + H$, $OH + CH_4 \rightarrow H_2O + CH_3$, kinetics investig., flash photolysis-reson. fluoresc. method 4–83016
$OH + NH_3(HNO_3)$ reactions, rate consts. meas. rel. to temp. 4–50140
$OH + NO_x + M \rightarrow HNO_{1+x} + M$, a = 1,2, $M = He, Ar, N_2$, gas phase reaction 4–57834
$OH + OH = H_2O + O$, OH conc. profile investig. in $H_2 + O_2$ shock wave reacts., kinetics 4–76582
P and In-P system, phase equilibrium and vapour pressures 4–60593
$P_3N_3(NH_2)_6.H_2O$, struct. and stability 4–63804
Pt, on GaAs, reaction rates for Schottky barrier form. 4–53604
$Rb + CH_3I \rightarrow RbI + CH_3$, react. cross section, translational energy depend. investig. 4–73424
$Rb_2 + Cl_2(Br_2)(I_2)(IBr)(ICl)(ClF)$, chemiluminescence spectra 4–61596
$Rb^* + 2Xe \rightarrow RbXe^* + Xe$, terat. recombination rate determ. from fluoresc. meas. 4–61582
Sb_2Se_3-SbI_3 system, p-T-X phase diagrams by thermal and X-ray anal. 4–44654
Si powder compacts, nitridation mechanism 4–61500
Si powder compacts, nitriding, temp. gradients 4–49915
SiC, epitaxial growth on Si by reaction with C_2H_2 4–57005
Si_3N_4 formation by nitridation of Si, impurity effects 4–80067
SiO_2 + Al, electron and X-ray diffr. obs., activation energy 4–44807
$Si(^3P) + N_2O = SiO + N_2$, product emission spectroscopy 4–76574
$SrMoO_4$, diffusion mass transfer in solid-state synthesis 4–45898
T^* + methane and deuterate, pot. surface reaction cross-section and hot atom yields 4–54078
Te-Se melt system, components thermodynamics activity calc. 4–44681
Tl_xN_y, formed by reactive cathode sputtering, thin film struct. *(Russian)* 4–72651
U-C-N system, energetically active carbon influence on thermodynamics and phase relationships 4–51883
UF_5 formation in molten fluoride salt by reaction of gaseous UF_6 with dissolved UF_4 4–73428
UN, compatibility with Ni, Cr and Fe 4–55920
$U_3O_8(s) + 3Cl_2(g) \rightleftharpoons 3UO_2Cl_2(g) + O_2(g)$ equilibrium reaction 4–73429
V-N-O ternary system, solid state and gas-metal reactions *(French)* 4–56860
$W(CO)_6$, thermal decomposition, carbide phase existence 4–49674
$Y_2O_3(s) = 2YO(g) + O(g)$, vaporisation react., Knudsen effusion and mass spectrometric studies 4–80176
Zn_3As_2-ZnTe system, synthesis, chem. anal., microstruct., and form enthalpies investigations 4–45897
$ZnO.B_2O_3.H_2O$, prep. by NH_3 method 4–45415
ZrO, gaseous isomolecular O-exchange reaction, thermodynamic props. 4–57819

chemical reactivity *see chemical reactions*

chemical shift
see also nuclear magnetic resonance
acetone in chloroform-d, D quadrupole coupling 4–57421
alcohol-$SbCl_3$ system, chemical shifts of protons 4–61050
alkali halide ions in aqueous soln., conc. depend. of chem. shifts and hydration 4–70620
anisotropic parameter calculation for the bonds C-C, C-H, C=C, C=O 4–75015
aromatic carbonyl fluorides, ^1H and ^{19}F n.m.r., CNDO/2 and INDO calcs. 4–67475
aryl-ortho-diketo, CNDO II, chemical shift and charge density *(German)* 4–56287
benzene, free and adsorbed mols., ^{13}C-shielding consts. calc., CNDO method *(German)* 4–81799
benzoic acid, n.m.r. ^{13}C anisotropic chemical shift 4–53320
benzonitrile, isotropic soln., ^1H and ^{13}C n.m.r. 4–81794
benzophenone, n.m.r., ^{13}C anisotropic chemical shift 4–53320
cis-2-butene, free and adsorbed mols. ^{13}C-shielding consts. calc., CNDO method *(German)* 4–81799
α-chloroacrylonitrile in solns., relation between chem. shifts and dielec. consts. 4–57397
chloroethylenes, CNDO/2 calc. of ^{13}C n.m.r. chem. shifts *(French)* 4–56097
copolymer, solid, multiple pulse reduction of proton dipolar broadening 4–82627
core-level binding energy shifts, prediction from CNDO mol. orbitals 4–47935
coumarine, partially orientated in nematic mesophase, coupling consts., config. and orientation parameters 4–45197
1,4-dibromotetrafluorobenzene, temp. dependence 4–43866
diethyl ether in chloroform-d, D quadrupole coupling 4–57421
1,3-dithians, conformational equilibria thermodynamics, p.m.r. obs. 4–48082
ethyl N-substituted carbamates, in d-chloroform or d-DMSO solvents, n.m.r. studies, isomerism, substituent effects 4–69516
ethylpentaborane, n.m.r., ^{13}C chemical shift 4–57409
fluorinated hydrocarbons, core-level binding energy shifts, X-ray photoemission obs. and electrostatic models 4–52242
furan, diamag. anisotropy, ring currents and chem. shifts 4–52063
groups III, IV and V, X-ray and Mossbauer spectra, chemical shifts *(Russian)* 4–49477
heterocyclic N-oxide complexes with halogenoacetic acids, hydrogen bonding 4–45937
hexafluorobenzene, temp. dependence 4–43866

chemical shift continued
- hydrocarbon π radical, ^{1}H and ^{13}C n.m.r. shift 4−43868
- isothiazole and alkyl derivatives, shifts of ring and methyl protons 4−52210
- isoxazole and alkyl derivatives, shifts of ring and methyl protons 4−52210
- lanthanide shift reagents, effect on n.m.r. spectra of molecules partially oriented in nematic phase 4−57407
- maleic acid, proton mag. resonance spectra determ., proton shielding, hydrogen bonding 4−64277
- mesitylene in chloroform-d, D quadrupole coupling 4−57421
- metal oxide surfaces, chemical shifts in photo-excited Auger spectra 4−53574
- methyl fluoride-^{13}C, structural parameters and ^{13}C and ^{19}F mag. shielding anisotropies from nematic phase meas. 4−66481
- methylpentaborane, n.m.r., ^{13}C chemical shift 4−57409
- Mossbauer line, nonuniform chem. shift, compensation *(Russian)* 4−73063
- oxadiazoles, diamag. anisotropy, ring currents and chem. shifts 4−52063
- α-oxalic acid, anhydrous, proton chemical shielding from multiple pulse n.m.r. 4−53321
- oxygen, calculation of shift due to solvent solute interactions 4−67473
- paramagnetic materials, isotropic shifts, in n.m.r. 4−76176
- peptides, in soln., conformational anal. using n.m.r. techniques 4−52222
- perfluorocyclohexane, solid, temp. depend. of line-narrowed ^{19}F n.m.r. spectrum 4−49237
- phosphazo derivatives, P=N bond order determ. by ^{31}P n.m.r. 4−56285
- photoelectron spectra, chem. shift of K level 4−45403
- polyalkylbenzenes, ^{13}C chem. shielding tensors 4−79616
- polybutadienes, ^{13}C n.m.r. *(German)* 4−81818
- L-proline, p.m.r., computer simulation analysis 4−75017
- purine nucleosides and nucleotides in soln., relative chem. shifts between 5′-methylene hydrogens 4−52206
- pyridine, effect of lanthanide shift reagents on n.m.r. spectra of molecules partially oriented in nematic phase 4−57407
- pyridine, in soln., interactions, ^{13}C n.m.r. 4−70226
- pyridines, monosubstituted, ^{14}N n.m.r. obs., mol. motion and electronic struct. 4−48080
- pyrimidine nucleosides and nucleotides in soln., relative chem. shifts between 5′-methylene hydrogens 4−52206
- review of literature, including appls. to systems, n.m.r. techniques instrumentation 4−82621
- Schiff base metal complex, binding energies for complexes of Ni(II) and Cu(II) 4−66499
- steroids, ^{13}C chem. shifts compared to extended Huckel mol. orbital calcs. 4−69544
- substituent-induced proton chem. shifts in aromatic derivatives, correlation with reactivity parameters 4−48085
- sugars, D isotope effect on chem. shifts of ^{13}C n.m.r. signals, use for signal assignments 4−52208
- terpenes, aliphatic, ^{13}C n.m.r. signal assignments 4−63461
- tetra-4-tert-butylphthalocyanine, and its Zn complex, proton mag. reson. spectra *(Russian)* 4−43870
- tetraalkylammonium tetraalkylborides, solvent effects on proton chem. shifts 4−78496
- tetramethylsilane, temp. dependence 4−43866
- thiobenzophenone, n.m.r., ^{13}C anisotropic chemical shift 4−53320
- tolune, free and adsorbed mols., ^{13}C-shielding consts. calc., CNDO method *(German)* 4−81799
- transition metal borides, nucl. elec. quad. and shift parameters 4−57390
- transition metal complex, octahedral, spin, bonding, spectra, multiple scatt. $\chi\alpha$ calcs. 4−52076
- triethylamine dihydrochloride, p.m.r. in crystal and soln. 4−45190
- trifluoro-oxirane derivatives, F n.m.r. spectra, chem. shifts, coupling consts. calc. 4−69525
- water, proton chem. shift temp. and press. depend. 4−79617
- water-dimethyl sulphoxide liquid system, struct. determ., spin-lattice relax., chem. shift investigs. 4−82098
- α-Al_2O_3-Fe_2O_3, Mossbauer spectrum, temp. depend., 78 to 300K 4−57444
- CO, n.m.r. spectroscopy, temp. depend. 4−69519
- Cd(II) complex, ^{113}Cd n.m.r. studies of ligand bonds, effect on chemical shift 4−67474
- CdTe, Zeeman splitting and chemical shifts for the shallow donor states 4−64038
- Ce, electron mechanism of isostructural phase transitions, chemical shift of X-ray lines 4−76327
- CoB, nucl. elec. quad. and shift parameters 4−57390
- Co(II) and Co(III) complexes, X-ray photoelectron spectra, electronic struct. 4−61271
- $Co(NH_3)_6Cl$, anisotropic shift of ^{59}Co, reorientation axes determ. 4−70227
- Cr complexes with olefins and arenes, coordination shifts in ^{13}C n.m.r. spectra 4−52218
- Cs_2SnF_6, Mossbauer ^{119}Sn chem. shifts 4−79646
- $CuSnF_6.4H_2O$, Mossbauer ^{119}Sn chem. shifts 4−79646
- $Fe(CO)_4$, ^{13}C chem. shift tensor rel. to π-back bonding 4−81789
- $Fe(CO)_{5-x}(PF_3)_x$, x=0-4, ^{13}C n.m.r. and i.r. obs. 4−56281
- Fe(III) complex, halogeno bis (N,N′ diethyldithiocarbamato) Fe(III), p.m.r., halide effect on proton contact shifts 4−48092
- GeO_2, GeS_2, $GeSe_2$, K absorpt. edge obs. of bonding 4−82764
- H_2O and $(H_2O)_2$, proton mag. shielding consts., SCF-MO-LCGO calcs. 4−56286
- KF, atomic orbitals calc., overlap integrals *(Russian)* 4−57405
- KH_2PO_4, single crystal, ^{1}H chemical shift tensor anisotropy meas. by n.m.r. pulse spectrometer 4−82628
- $K_2SnF_6.H_2O$, Mossbauer ^{119}Sn chem. shifts 4−79646
- Na^- in ethylamine, ^{23}Na n.m.r. 4−78498
- NaF, atomic orbitals calc., overlap integrals *(Russian)* 4−57405
- NbB, nucl. elec. quad. and shift parameters 4−57390
- $Ni(CO)_4$, ^{13}C chem. shift tensor rel. to π-back bonding 4−81789
- P compounds in liquid HCl, ^{31}P n.m.r. 4−61613
- $P_3N_3Cl_6$, ^{31}P chem. shift anisotropies from n.m.r. spectra in nematic phase 4−57408

chemical shift continued
- $P_4N_4Cl_8$, ^{31}P chem. shift anisotropies from n.m.r. spectra in nematic phase 4−57408
- $P_3N_3F_6$ ^{31}P chem. shift anisotropies from n.m.r. spectra in nematic phase 4−57408
- POF_3, ^{19}F and ^{31}P mag. shielding anisotropies 4−60100
- P_4S_3, nematic phase, ^{31}P n.m.r., chemical shielding anisotropy and sign of J_{pp} 4−57387
- P_4S_3, solid, n.m.r. obs. of mol. motion 4−79630
- $PbCl_4$, liquid, field-dependent relax. and absolute nuclear shielding of ^{207}Pb 4−53329
- $Pb(ClO_4)_2$ aq. soln., ^{207}Pb relax. field depend. rel. to hydration sphere penetrability 4−53332
- Se, trigonal, local electronic config. from n.m.r. chem. shift anisotropy *(French)* 4−82626
- Si, K-X-ray spectra on H, He and O_2 bombardment 4−76329
- SiO_2, K-X-ray spectra on H, He and O_2 bombardment 4−76329
- SmS, electron mechanism of isostructural phase transitions, chemical shift of X-ray lines 4−76327
- Sn supercond. film evaporated with etioporphyrin complex, Mossbauer parameters *(Russian)* 4−73060
- SnX_4, X=Cl, Br, I, n.m.r. relax. of ^{119}Sn, field depend. 4−53330
- ^{119}Sn Mossbauer spectra, electron capture decay of ^{119}Sb and compounds 4−61070
- Te, trigonal, local electronic config. from n.m.r. chem. shift anisotropy *(French)* 4−82626
- $TlAsSe_2$, n.m.r. of ^{205}Tl, glass-cryst. phase transition obs 4−70225
- $TlAsSe_2$, n.m.r. spectra characts., and Tl^{205} paramag. screening investigation 4−45195
- TlSe, n.m.r. spectra characts., and Tl^{205} paramag. screening investigation 4−45195
- Tl_2Se_3, n.m.r. spectra characts., and Tl^{205} paramag. screening investigation 4−45195
- VB, nucl. elec. quad. and shift parameters 4−57390
- Zn compounds, chem. shifts of core electron binding energies determ. 4−67686
- Zn compounds, K-absorption edge chemical shift 4−73210

chemical structure
- *see also bonds (chemical); crystal atomic structure; crystal chemistry; molecular configurations and dimensions*
- alkali borosilicate glasses, determ. by n.m.r., Mossbauer spectra, and positron annihilation 4−45214
- choline chloride, irrad., solid-state chemistry 4−80692
- diammonium vanadyl oxalate dihydrate, cryst. struct. determ. by X-ray anal. 4−60489
- ESCA approach to structure and bonding 4−72141
- Fourier maps maxima characterization using topological method *(Italian)* 4−78859
- inert gases, solid layers, density and refr. index 4−70378
- polymer, structure/property relationships 4−52699
- polymers, F containing, viscoelastic properties meas., 4.2-240K, chemical structure effects *(Russian)* 4−82987
- polyurethane fibres with varying hard segment conc., chem. struct. influence on rheological props. 4−50012
- $FeOCl(C_5H_5N)_{1/3}$, intercalated compound, electrical properties rel. to struct. 4−72762
- SF_6, solid layers, density and refr. index 4−70378
- $SbCl_5$, cryst., Raman spectral studies, low temp. struct. conversion investig. *(German)* 4−73117
- $Zn(NCS)_4^{2-}$ solns., Raman spectra 4−56217

chemical technology
- *see also chemical industry; chemical variables control; chemical variables measurement*
- acid digestion of combustible nuclear waste, scale-up studies 4−78309
- catalytic liquid membrane reactor, concept., applics., oxidation of ethylene to acetaldehyde 4−45894
- gas mixture of uniform composition, preparation using controlled diffusion across membrane 4−71285
- gaseous system, stirrer power determ. rel. to gas flow, power input etc. *(German)* 4−44123
- nuclear heat source, for chem. processes, synthetic fuel production 4−55903
- polymerisation, development prospects, review *(Dutch)* 4−64643
- purification of organic substances by thermal diffusion 4−79174
- pyrolysis, in flow-reactors at high temp., energy balance investig. using models *(German)* 4−50137
- reactor processes, Boltzmann transform. appl. to dispersion model with locus-depend. process const. *(German)* 4−60634
- stack parameters, guide book for nuclear and ancillary chemical installations 4−78312

chemical vapour deposition *see vapour deposition*

chemical variables control
- *see also moisture control*
- exothermic adiabatic reaction, steady state multiplicity and stability stirred tank 4−70598
- hydrocarbon emission, roofing products manufacture 4−50904
- seawater pollution by toxic materials *(Norwegian)* 4−50280
- Tokamak confinement, heating and impurity control expts. 4−74810
- SO_2 air pollution, conversion to H_2SO_4 *(Norwegian)* 4−50310

chemical variables measurement
- *see also chemical analysis; moisture measurement*
- air, hydrocarbon conc. meas. by ionised-flame detector *(Croatian)* 4−46500
- air pollutants, sampling reciprocity 4−50905
- clinical, laboratory automation, review *(German)* 4−81073
- electrochemical trace analysis, instrumentation 4−46968
- exhaust analyser for internal combustion engines 4−71132
- laboratory course of chemical measurement for undergraduates 4−58672
- soil composition, Cl, Ca and S contents X-radiometric analysis *(Russian)* 4−50392
- sub-ppm air monitoring, using portable i.r. analyser 4−81081
- wastewater conductivity measurement limitations 4−71133
- water pollution instrumentation review 4−65288
- O_2, sensor, multicathode, fabricated using IC techniques 4−81094
- O_2 detector, magnetomechanical 4−46955

chemiluminescence
active N_2, form. of $N_2(a^1\pi_g, v \leqslant 6)$ mols. investig. by chemiluminesc. emission, mechanism 4−48137
air pollution monitors 4−76986
alkaline earth metal $+F_2$, photon yields 4−57825
alkyl-M, where M = Al, Zn, Sn, oxidation in flames, photon yields 4−61591
9,10-diphenylanthracene, chemiluminesc. electron transfer react. between anion and cation radicals investig. 4−80173
electrochemiluminescent liquid laser development 4−51584
electrogenerated chemiluminescence pumped dye laser cavity 4−51587
energy-deficient electrogenerated chemiluminescence in mixed systems, potential scan method of analysis 4−53487
fluorescence quantum efficiency increase by selective vibr. level population, optical excitation and chemilum. comparison 4−56264
gases, rel. to laser develop. *(Russian)* 4−57841
lasers, chemical, in visible region, general review 4−55469
Luminol, method for detection of radiation defects *(Russian)* 4−82722
organic systems, electrogenerated chemiluminesc. and delayed fluoresc., excimer and exciplex states 4−64710
poly(ethylene 2,6-naphthalene dicarboxylate), photo-oxidized, thermally stimulated chemilum. 4−54059
rubrene systems, electrogenerated chemiluminesc., solvent and mag. field effects 4−57845
spectral photochemiluminescence, struct. changes in erythrocyte membranes 4−83292
Al, chemisorption of O_2, spontaneous photon emission 4−53001
$Ba+Cl_2(NOCl)(N_2O)$, photon yields 4−57825
$Ba+N_2O$, gas phase chemiluminescence obs. of excited state BaO prod. efficiency 4−68000
$Ba+N_2O$, gas phase chemiluminescence, BaO excited state vibr. to electronic energy transfer 4−68001
$Ba+O_3(NO_2)$ chemiluminescent spectra 4−76586
$Ba+X_2(Cl_2,Br_2,I_2)=BaX_2^*$, chemiluminescence 4−73413
$Ba(g)+N_2O(NO_2)$, $A(^1\Sigma)\rightarrow X(^1\Sigma)$ photon yield 4−76585
CN*, form. from active N_2 and C_2N_2 in flame, mechanism, rate, investig. 4−53958
ClF, dissoc. energies from chemiluminesc. obs. of $F+Cl_2$ 4−78505
$Cs_2+Cl_2(Br_2)(I_2)(IBr)(ICl)(ClF)$, chemiluminescence spectra 4−61596
F atoms + monosubstituted ethylene reactions i.r. chemiluminesc. meas., product vibr. energy distrib. investig. 4−76583
H_2-O_2 flames, lean, OH chemiluminescent radiation 4−76595
HF, i.r. chemiluminescence, energy partitioning and $D(H\text{-}GeH_3)$ from $F+GeH_4$ reaction 4−45899
HNO $O_2(^1\Delta_g)$ sensitised chemiluminesc. investig. in flow reaction systems 4−76572
$K_2+Cl_2(Br_2)(I_2)(IBr)(ICl)(ClF)$, chemiluminescence spectra 4−61596
KI, chemiluminescence in diffusion flames, excited state potential 4−61595
Mg, chemisorption of O_2, spontaneous photon emission 4−53001
NH_3, Hg-photosensitized luminescence 4−73412
NO, apparatus for in situ stratospheric conc. meas. from chemiluminescence 4−70839
NO_2, spectral distrib., laser induced O_3 reactive energy transfer anal. 4−73418
Na, during Cl_2 chemisorption, photon yield 4−67111
$Ni(CO)_4$, oxidation in flame, chemiluminesc. investig. 4−61591
O atom reactions with halomethanes, i.r. chemiluminescence 4−50134
O + chloroethylenes reaction, i.r. chemilum. 4−83012
$O_3^+ + NO$ reaction, laser enhanced, use in O_3^+ deactivation by diluent gases investig. 4−75044
$Rb_2+Cl_2(Br_2)(I_2)(IBr)(ICl)(ClF)$, chemiluminescence spectra 4−61596
$SO+O\rightarrow SO_2+\omega$, and laser *(Russian)* 4−57841
$V(CO)_6$, oxidation in flame, chemiluminesc. investig. 4−61591

chemisorption
Anderson model, theory of density of states associated with adatom 4−75713
ferro-alloy surfaces, exam. using AES with proton-excited X-ray emission 4−73224
gas, mixed in aqueous electrolyte, interfacial area and mass transfer simultaneous meas. 4−68853
graphite, orbital symmetry rules 4−48854
group orbitals 4−56993
Hartree-Fock approximation extended to larger atomic clusters 4−72634
i.r. spectra, small-volume cell for study 4−62578
metal, adatom density of states 4−48857
metal, of H, role of collective many body effects 4−67110
metal, of many valence electron atoms, energy determ. *(French)* 4−44783
metal, theory review 4−60690
metal powder, porous, diffusional retardation of chemisorption 4−60691
metal surface, ang. distrib. of electrons photoemitted from chemisorbed atoms 4−76364
metal surface, chemisorption band geometry determ. by photoemission 4−72638
metal surface, of H atoms, Hartree-Fock calc. method, overcompleteness basis 4−63992
metal surfaces, of metal atoms, excess binding energy rel. to work function difference 4−56995
metal-vacuum and metal-electrolyte interfaces, binding energies and sites, quantum-chemical calc. 4−53000
microscopic theory, role of steric, overlap and correlation effects 4−72635
orbital symmetry rules 4−48854
phonon field of adatom pairs, indirect interaction 4−44775
self-consistent field molecular orbital theory, atomic clusters 4−73448
semiconductor, chemogalvanic effect, theory *(Russian)* 4−79388
semiconductor, of O_2, narrow energy gap, self consistent calc. 4−72639
solid-vacuum interface electron states, meas. technique and obs. 4−53134

chemisorption continued
surface molecule treatment 4−44779
transition metal, of alkali metal, work function variation, atomic viewpoint 4−69963
transition metal, of alkali metal atoms, energy and work function calc. 4−44782
transition metal, of CO, theory 4−48859
transition metal oxides, of O_2, e.p.r. obs. 4−48851
u.v. photoemission spectroscopy appl. to surface studies 4−76361
Ag, surface self-diffusion in presence of chemisorbed iodine 4−75714
Ag(111), of O_2 4−48860
Al of O_2, chemiluminesc. 4−53001
Al_2O_3 film, of phenol and hydroquinone, obs. using inelastic electron tunnelling spectroscopy 4−72636
Au, (111) and (110) faces, adsorpt. and surface alloying of Pb monolayers 4−52992
C, of O_2, influence on valence band shape, XPS obs. 4−75776
CdS film, effect on thermoelec. and photothermoelec. effects 4−53161
CdS film, photocond. changes resulting from SO_2 chemisorpt. 4−75985
CoO_{1+x}, Co_3O_4 and $Li_xCo_{1-x}O$, oxygen chemisorption effect on photoemission 4−57671
Cr, soft X-ray appearance potential spectroscopy of chemisorbed O 4−75715
Er, of O_2, CO, evaporated film, elec. resist. and surface area meas. 4−44780
Fe, soft X-ray appearance potential spectroscopy of chemisorbed O 4−75715
GaP(110), ellipsometric study 4−48858
H_2O vapour, in ion-getter pumped system 4−50999
Mg of O_2, chemiluminesc. 4−53001
Mo, of NH_3, K-LL Auger spectra 4−73225
Na, of Cl_2, spontaneous photon and electron emission 4−67111
Ni, of ethylene, electronic struct. of complex 4−48853
Ni, of H_2, absolute desorption rate meas. 4−48855
Ni, of H_2 and D_2, magnetocatalytic effects, expt. evidence 4−57883
Ni, of hydrocarbons, π-d bonding and surface reactions, photoemission obs. 4−52994
Ni, of O_2, soft X-ray appearance spectroscopy 4−71268
Ni, soft X-ray appearance potential spectroscopy of chemisorbed O 4−75715
Ni, with chemisorbed S, on (001), (110), and (111) surfaces, LEED study of locations 4−48852
Ni:N_2O, adsorpt.-dissoc. at Ni foil, secondary ion mass spectra 4−57885
NiO_{1+x} and $Li_xNi_{1-x}O$, oxygen chemisorption effect on photoemission 4−57671
Ni(100), interaction with O_2, kinetics 4−48869
Ni(111), interaction with O_2, kinetics 4−48870
PF_3, metal surface interaction 4−44762
Pt, correlation between catalytic activity and surface structure 4−73450
Pt, of hydrocarbons, on single cryst. surfaces, field ion mass spectroscopy 4−44781
Pt, of substituted alkenes, dissociative chemisorption 4−73446
Pt surface, of O_2, rel. to press., LEED, Auger spectroscopy, work funct. investigs. *(French)* 4−56988
Si, (111) and (100) surfaces, electron orbital energies of adsorbed O_2 4−79239
SiO_2-supported Pt, of N_2, i.r. absorption spectral investig. 4−80211
Si(111), of In, flash desorpt. obs. 4−56992
Si(111), of In, mass spectra obs. 4−56991
Ta(100), LEED and Auger spectroscopy 4−48856
Ti, of O_2, CO, evaporated film, elec. resist. and surface area meas. 4−44780
Ti, soft X-ray appearance potential spectroscopy of chemisorbed O 4−75715
W, {100} plane, kinetic model for nitrogen adsorption 4−56989
W, of CO and O_2, ESCA investigation 4−75711
W, of CO and O_2, ESCA study 4−48861
W, of H_2 and D_2, relative sticking coeffs. 4−56990
W, of hydrocarbons, on single cryst. surfaces, field ion mass spectroscopy 4−44781
W, of N_2 and NO, X-ray photoelectron spectra 4−56980
W(100), with chemisorbed CO or O field emission total energy 4−45412
W(100) surface reflectance spectroscopy studies of chemisorption 4−72637
W(110), of O_2, LEED determ. of surface structure 4−75710
W(111), of O_2, X-ray photoelectron spectroscopic study 4−75704
W(211), of H_2, work function, sticking probabilities 4−75712
ZnO, epitaxial film, N or O atoms and mols., effect on elec. cond. *(Russian)* 4−82497
ZnO, of CO, i.r. investig. *(German)* 4−56984
ZnO, sensitisation of photocond. by chemical modification of surface states 4−67247
ZnS-CdS phosphors, of H^+, effect on radical recomb. luminesc. *(Russian)* 4−61204
ZnS-CdS:Cl phosphor, of H_2O, effect on luminesc. *(Russian)* 4−72633
ZrO_2, of water vapour, mechanism 4−56969

chemistry
card catalogue for chemical reagents in an organic laboratory 4−58721
computer instruction to students, evaluation using record of use 4−58723
insulin, chemistry and biochemistry, 1972 Bakerian Lecture 4−50163
questionnaire rel. to help for the underprepared student of college chemistry 4−58669

chemistry, physical *see physical chemistry*

Cherenkov counters
composite Cherenkov total-absorption electron spectrometer for 30 to 40 GeV 4−81025
cosmic ray electrons exceeding 10^8 Ev, instrument using scintillation and Cherenkov counters 4−54596
directional for gamma-ray astronomy 4−77180
energy calorimeter for cosmic gamma-ray detector 4−46854

Cherenkov counters continued
timing props. of large fast water counter 4−65520
Pb-glass, for high-energy electron and photon detection 4−55047
Cherenkov detectors *see Cherenkov counters*
Cherenkov radiation
see also Cherenkov counters; electron radiation
dipole oscillator, due to irregularities in medium *(Russian)* 4−74361
EAS, reln. between number of particles at sea level and primary particle energy *(Russian)* 4−65015
EAS particles, summed ionisation losses *(Russian)* 4−46140
electron evanescent wave, interaction with matter, appl. to Cherenkov effect *(French)* 4−74478
eternal field induced changes in radiation spectrum *(Russian)* 4−69169
gravitational in extended relativity theory, tachyon behaviour 4−47178
induced, use in v.h.f. generator *(Russian)* 4−42833
ionospheric, emission in v.l.f. and e.l.f. bands during disturbed conditions 4−54265
nonlinear optical difference frequencies excitation and Cherenkov radiation conditions *(Russian)* 4−71586
optical bremsstrahlung of relativistic electrons, effect of multiple scatt. on coherent radiation 4−77766
quasars, optical flux two-stage model 4−71018
in scintillations using CsI(Tl) crystals 4−42889
silica aerogels, use on Cherenkov radiators 4−55054
solar type IV dm radiobursts, coherent radiation mechanism 4−80494
super-light ondulator, arbitrary velocity *(Russian)* 4−81229
chilling *see cooling*
chirality
see also SU$_n$ theory
(3,3)⊕(3,3)⊕(8,8) chiral-symmetry breaking, algebraic approach 4−51701
Adler zero, conditions for existence, chiral Lagrangian models 4−71613
chiral (8,8) symmetry breaking, tadpole term 4−71668
chiral symmetry breaking, η-η' mixing and C_k/C_π ratio 4−65998
chiral symmetry breaking, meson-nucleon σ commutators, review 4−77778
chiral symmetry breaking, quark scheme and soft pion theorems 4−71632
chiral symmetry breaking model, pion phase transition 4−62904
chiral symmetry relationship to non-Abelian gauge group, Weibberg sum rule considerations 4−69146
configuration mixing in chiral algebra, kinematical origin 4−74582
dual resonance model and chiral symmetry, investigation of soft meson zeros 4−59586
light chiral algebra investigation of hadron resonances 4−66001
meson-meson scattering, symmetry breaking, exotic σ commutators 4−71732
mesons, $0^\pm$, broken chiral symmetry model, mass formulas in SU_3 sigma model 4−55645
neutral current, isotopic and chiral structure *(Russian)* 4−71651
nonlinear chiral dispersive waves 4−47412
nonlinear chiral models, equality of $f_k = f_\pi$ 4−59518
physical consequences of theories of chiral symmetry 4−47459
realization of chiral symmetry, linear σ model, anomalous thresholds 4−71638
Regge residues and chiral symmetry algebra 4−47552
$SU_2 \times SU_2$, chiral, hidden symm. K_{l3} form factors, strong interactions 4−77775
$SU_3 \times SU_3$ breaking, struct. and exptl. consequences in nonlinear Lagrangian model 4−55584
$SU_3 \times SU_3$ chiral-representation mixing, group-theoretic structure rel. to single-particle hadronic states 4−43421
SU(2) × SU(2) gauge model, meson mass problems 4−47496
SU(2)⊗SU(2) spectral function and saturation charge algebra sum rules, modification for ρ' 4−66012
SU(3), (3,3)-broken, in dual M-models 4−47543
SU(3) × SU(3) chiral symmetry, algebraic realisation with non zero π, K, η, κ masses 4−65999
SU(3) × SU(3) configuration mixing, prediction as relativistic effect in naive quark model 4−62976
SU(3) × SU(3) symmetry breaking, bounds from K_{l3} decay parameters 4−74589
SU(3) × SU(3) symmetry breaking 4−47549
SU(4) × SU(4), spontaneous symmetry breakdown and scale invariance 4−71642
SU(4) × SU(4) gauge theory of weak and e.m. interaction 4−47462
sum rules for spectral functions, Hamiltonian density behaviour under chiral transformations *(Russian)* 4−47469
symmetry breaking, spectral function sum rules 4−69144
symmetry breaking in stringlike model of hadrons, similarity to ferromagnetism 4−47463
symmetry breaking in threshold dominant framework 4−71719
symmetry breaking model, pion phase transition and phonon excitation spectrum 4−51678
tachyons, free, propagation across space-like intervals, quantized spin-1/2 theory 4−59260
η-X mixing angle in chiral symmetry breaking model 4−62905
chlorine
atom, electronegativity from microwave spectra 4−74953
atom, monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
atom, photoelectric cross section of valence level 4−72058
atom, X-ray emission from foil-excited beam 4−47859
atomic Cl_2, recombination rates investig. rel. to press. by flash photolysis, mechanism investig. 4−50183
atomic electron impact ionization cross-section for L shell meas. by Auger spectroscopy 4−63368
chemisorption on Na, spontaneous photon and electron emission 4−67111
crystalline, spontaneous and stimulated Raman scatt. obs. 4−67581
diffusion in inert gases 4−52333
impurities, CdS and ZnSe single cryst., thermal neutron activation 4−73264
interstellar molecular clouds, Cl bearing molecules 4−62200
chlorine continued
kaonic atomic, intensities and strong interaction attenuation of X-rays 4−47914
molecule, binding energy, exchange parameter effects in SCF Xα scatt. wave method 4−74920
molecule, Hartree-Fock polarisability and quadrupole moment estimation, vibr. spectra interpretation 4−63415
molecule, long-range interaction consts. determ. using [1, 0] Pade approximant 4−63499
molecule + alkali metal atom (50-350 eV), ionising collisions 4−78527
molecule in solution, mag. circular dichroism, overlapping $0_u^+(^3\Pi)$ and $^1\Pi$ bands 4−67599
production through electrolysis using thyristor *(French)* 4−70608
recovery from HCl, theory and cell design 4−54019
solid, intermol. pots. and lattice dynamics 4−79119
u.s. wave propagation, force parameters and energy produced calcs. 4−60145
X-radiometric analysis of soil *(Russian)* 4−50392
X-ray state, from diatomic mol. in liquid state 4−56599
$Ba + Cl_2 = BaCl_2^*$, chemiluminescence 4−73413
CdS:Cl, high temp. green luminesc. 4−76307
CdTe:Cl, self-compensation, time of flight technique 4−72761
CdTe:Cl transport characterisation for γ detectors 4−46816
Cl II, spectrum, 500-11000 Å, energy level anal. 4−43719
Cl VI, Cl VII, lifetime meas., beam foil spectra 4−51969
Cl + Ar, L X-ray prod. cross-section, 4fσ electron promotion 4−51985
$Cl + Cl_2$, vibr. relaxation, atom exchange reaction, Monte Carlo classical trajectory method 4−66520
$Cl + H_2(D_2)$ reactive collision, exact quantum mech. anal. 4−45908
Cl + HX (X = Br,I), laser photolysis, total absolute reaction rate consts. 4−64719
Cl + H(He)(C)(N)(O)(Ne), K-shell ionisation, projectile depend. 4−74873
Cl + Si, noncharacteristic Si X-ray end-point variations, projectile Z depend. 4−57641
Cl^- ion, in molten $KNO_3 + Ca(NO_3)_2$, diffusion coeff. meas., transport props. investig. 4−52920
$Cl^- + Cr(CO)_5^-$, nonreactive ion-molecule collision rate consts., ion cyclotron resonance 4−78516
Cl^- + dichloroethylene (difluorobenzene), polar and nonpolar isomers, momentum transfer rate consts. 4−75046
$Cl^- + H_3O^+$ reaction, gas phase rate consts. 4−50139
$Cl^+ \rightarrow Cl^-$, change exchange in Mg and Zn vapour 4−52010
$Cl^+ + H_2 = HCl^+ + H$, rate constant determ. 4−76587
Cl^{13+} + Ne collisions, followed by metastable Ne X-ray emission 4−81726
Cl_2 recovery from waste gas, pilot expt. 4−54020
Cl_2 + H(D), isotopic collinear reactive system, quantum mech. treatment 4−53989
Cl_2 + Na(K)(Rb)(Cs) reactive collisions, cross section obs. 4−76590
Cl_3, geometry, LCAO MO SCAF theory 4−72118
Cl^{n+} + Ne, n = 5-15, factor 20 increase in atomic X-ray cross-section 4−47905
$Cl^{q+} + Ne(SF_6)$, K X-ray prod., projectile charge-state depend. 4−59964
F_2-Cl_2, in (He and He-Ar) inert gas shields, spectral lines investig., anal. 4−68837
$H_2(D_2) + Cl = HCl(D) + H(D)$, collinear reaction, kinetic isotope effects, exact quantum mech. calc. 4−53977
KI:Cl−, far i.r. absorption spectrum, pair mode 4−61163
KI:Na^+, $Cl^-(Br^-)$, far i.r. spectra, localised pair modes investig. 4−70333
$Li + Cl_2 \rightarrow Li^+$, dynamics of electron transfer collisions, up to 14 eV 4−78372
NaI:Cl^-, defect-induced reson. modes, zero-freq. limit, isotope effects and amplitude patterns 4−79128
Na_2SO_4:Cl, X-irrad., defect obs., e.s.r. 4−79599
Se:Cl, dielectric constant dispersion *(German)* 4−73065
ZnS:Cl phosphor, photoluminescence, u.v. activated 4−57598
ZnS:Cu, Cl, ZnS:Cu, Cl, Nd, thin film, excitation spectra of electrolum., photolum. 4−64440
ZnS-CdS:Cl phosphor, chemisorption of H_2O, effect on luminesc. *(Russian)* 4−72633
chlorine compounds
alkali perchlorates, i.r. and permittivity obs. during transform. 4−69906
hexachlorophosphates, ^{31}P n.m.r. and ^{35}Cl n.q.r., PCl_6^- ion obs. 4−61063
perchlorate-methanol(ethylenediamine) solutions, OH(NH) band splitting in vib. spectra 4−48005
X-ray spectral study of role of 3d-orbitals in chemical bonding *(Russian)* 4−43817
Cl_2^- in crystals and solutions, electron populations from nuclear shielding and quadrupole coupling 4−66383
ClCN, mol. photodissoc., predissoc. investig., quantum mech. mode 4−75021
ClCN, vacuum u.v. photolysis, energy partitioning in photodissociation and photosensitization 4−61633
ClF, charge distribution from core electron binding energies 4−47948
ClF, ClF_3, ClF_5, ClF_2^+, ClF_2^-, ClF_4^+ and ClF_4^-, ab initio SCF-MO calc. of geometries 4−43768
ClF, dissoc. energies from chemiluminesc. obs. of $F + Cl_2$ 4−78505
ClF_2, geometry, LCAO MO SCAF theory 4−72118
$ClF_2^\pm$, geometrical and elec. struct., SCF MO LCAO calcs. in CNDO approx. 4−69445
ClF_3 + D, mol. beam kinetics, scatt. angles 4−50157
ClF_3 + D, mol. beam kinetics scatt. angles, comment 4−50158
ClF_4, radical, SCF-MO calcs. of mol. symmetry 4−59999
ClF_5, electronic structure calc. using NDDO approximation of SCF LCAO MO method 4−66395
ClF_5, rot. spectra obs. at 70 and 140 GHz *(French)* 4−66448
$ClH^+ + H_2 = ClH_2^+ + H$, rate constant determ. 4−76587
$Cl^-(H_2O)_n$, configuration, Hartree-Fock potential, pairwise additivity approx. 4−74928
$ClNSOF_2$, gas electron diffraction mol. struct. determ. *(German)* 4−56071

chlorine compounds continued
ClO$_2$, resonance Raman and fluorescence spectra in Ag, Kr, Xe, N$_2$ matrices 4-67574
ClO$_2^-$, matrix-isolation i.r. spectrum, vib. pot. function determ. 4-60068
ClO$_3^-$, X-ray fluorescence in perchlorates, symmetry depend. *(Russian)* 4-45378
ClO$_3^{x-}$, ClO$_4^{x-}$, X-ray electron spectra, valency levels *(Russian)* 4-45371
ClO$_4^-$, SCF LCAO MO calcs. for ground states 4-56112
ClO$_4^-$ anion, X-ray spectral meas. of electronic structure 4-78436
^{35}ClO$_3^-$, ^{37}ClO$_3^-$, normal coord. analysis, mean vibr. amplitudes 4-52106
HCl, gas phase etching of Si, temp. depend. 4-44788
LiCl, absolute hygrometer applic., precautions against pollutants *(Dutch)* 4-83142

cholesteric phase *see liquid crystals*

chondrites *see meteorites*

chopping *see cutting*

chromatic aberration *see aberrations*

chromatography
see also adsorption; chemical adsorption analysis
analysis application of operational research to optimization of procedures 4-42947
applicator, cheap, for thin layer chromatography 4-58997
atmospheric pollutant sampling and analysis methods *(French)* 4-71128
charcoal effectivness obs., impregnated with flourides of alkaline metals, for Kr and Xe retention *(Czech)* 4-55902
chromathermograph, gas-logging system, characteristics 4-55161
collector for preparative gas chromatography 4-58996
colour test apparatus, automated 4-74177
column, photoelectric drop counter 4-65584
extraction, preparation of ^{237}U and ^{239}Np tracers 4-57879
gas, catharometer studies, thermal cond., viscosity of H$_2$, He rel. to organic mols. 4-66542
gas, combustion gas analysis 4-46931
gas, digital based 4-65587
gas, for air pollution control, systems 4-55153
gas, improved technique, separation of complex mixtures, naphtha applic. 4-74185
gas, integration of temp. programmer with automatic sample injector using relay circuit 4-42950
gas chromatograph-mass spectrometer with on-line computer, catalysis studies 4-46898
gas chromatography mass spectrometry, state of the art review, instrumentation, appls., computerised systems 4-71272
gas chromatography-mass spectrometry, computer-assisted retention indices assignment, applic. to biological samples 4-55134
GC/MS data system 4-46960
gel chromatography of ^{99m}Tc radiopharmaceuticals 4-55142
gel permeation, column packing particle size and distrib. effects on efficiency 4-55138
gel-permeation, polystyrene gel packed columns 4-42958
hydrodynamic chromatography, colloidal particle size analysis 4-67957
inert gas purification and meas. of low residual impurity levels 4-74175
insulating oil, partial discharge detection, soln. *(Russian)* 4-55140
myosin, localization of light meromyosin and fractions, column chromatography 4-83274
organic manufacturing wastes, computerized environmental control 4-74184
peak recording electronic potentiometer slew rate calc. 4-46954
pollutant chemical analysis using computerized gas chromatograph and quadrupole mass spectrometry 4-62646
polyester, POLA, dil. soln. characteriz. 4-53875
polymer film, gas transfer coeffs. determ. by chromatography *(Russian)* 4-57888
polystyrene, precipitation chromatography, mol. wt. distrib. 4-55143
pyroelectric thermal conductivity sensor, for miniature gas chromatography system 4-62652
spectrochromatographic determ. of microimpurities in gases 4-58985
thin layer, exposure cabinet for autoradiography 4-74178
thin layer, review of previous, present and future techniques and applics. 4-42952
thin-layer, automatic evaluation using computers 4-62580
trace metals, in water and air, review of instrumental anal. techniques 4-62572
trinitrotoluene, detection in air 4-68846
C black, specific surface measurement, thermal desorption method 4-46563
MgHPO$_4$.3H$_2$O, dehydration products composition 4-69889

chromium
antiferromagnet, itinerant electron, impurity effect on transition temp. 4-60957
antiferromagnetic-paramagnetic transition, first order, role of harmonics 4-72968
antiferromagnetic-paramagnetic transition, spin density wave harmonics 4-64207
antiferromagnetism, rare earth metal additions influence *(Russian)* 4-79515
atom, internal partition function, 0-15000K 4-47820
atom, photoelectric cross section of valence level 4-72058
atomic vibration amplitudes, b.c.c. metals low temps. 4-75603
chemisorption of O, soft X-ray appearance potential spectroscopy obs. 4-75715
compatibility with UN 4-55920
Compton profile, anisotropy curves obs. 4-82771
Compton profile determ. using 59.54 keV gamma-rays 4-66933
Debye-Waller factor calcs. 4-56828
deformability, rare earth metal additions effect *(Russian)* 4-53741
deformed iodised, mech. props. *(Russian)* 4-80016
determination in oil ashes using modulated internal standard method 4-68835
electron momentum distribution, Compton profile calc. 4-44829
e.p.r. in ZnWO$_4$, conc. depend. of lineshape *(Russian)* 4-76158

chromium continued
e.p.r. of trivalent ions in fluoperovskites of cadmium *(French)* 4-79582
film, adhesion to soda lime glass, investigating using film peeling technique 4-75734
film, damage mechanism with focused N$_2$ laser irradiation 4-51622
film, electrodeposited, durability assessment method 4-50102
film, light refl. and transmittance, interferometric meas. 4-73215
film, optical props., thickness depend. *(Russian)* 4-53553
film, struct. and phase comp., carbide form. on interaction with carbon substrate *(Russian)* 4-79244
film, visible light transmission and elec. cond., changes during oxidation 4-70380
film electron energy loss spectra and optical consts., 2 to 120 eV 4-69837
fine particles, cryst. habit and struct. 4-75482
guanidine aluminium sulphate hexahydrate, Cr^{3+} ion spin-lattice relax. meas. 4-79594
heat capacity, high pressure, nr. Neel transition 4-49171
lattice dynamical properties, lattice thermodynamics 4-72538
mass absorption coefficients for CK$_\alpha$ line *(Japanese)* 4-45382
mechanical properties, carbide forming elements influence *(Russian)* 4-80015
metal-oxide tunnel junction, effective barrier height and thickness 4-60858
neutron microscopy, spin density wave domains, single crystals 4-70170
optical constants, meas. on evaporated film, 0.5-6.5 eV 4-73095
optical properties, 0.8-4eV, comparison with nondirect transitions calc. 4-53464
oxidation, 900-1000°C, effect of S on Cr transport across Cr$_2$O$_3$ scales 4-48864
oxidation, (110) face symmetry influence on orientation of oxide layer *(French)* 4-44794
oxidative vaporisation, enhanced by O atoms, 200 to 1250°C 4-70617
pure, static strain wave, simple itinerant electron model 4-79486
recrystallised, rare earth metals effect on struct. and mech. characts. 4-80025
ruby:Cr^{2+}, zero field splittings from spin-lattice relaxation times 4-53307
ruby:Cr^{3+}, e.p.r., ang. depend., fine struct. const. at V-band region 4-49220
ruby:Cr^{3+}, fluorescence, energy transport via microwave-optical double resonance spectroscopy 4-49450
sediments at bottom of eastern tropical Atlantic, spatial distrib. of Fe, Ni, Co, Mn, Ti, and Cr trace elements *(Russian)* 4-80305
thermal diffusivity and specific heat, simultaneous meas. nr. SDW-paramag. transition 4-48770
tracer diffusion in austenitic stainless steel 4-48798
triglycine-sulphate: Cr^{3+} single crystal, ferroelec. polarization reversal, e.p.r. study 4-70259
X-ray Debye temp. investig., diffr. line intensities meas. rel. to temp. 4-57269
X-ray spectra, fine structure in K$_\alpha$ lines obs. using three cryst. spectrometer 4-79807
AgCl(Br):Cr^{3+}, e.p.r. spectrum, crystal field calc. 4-67438
Al$_2$O$_3$:Cr,$^{3+}$ effect on optical properties *(Russian)* 4-70316
Al$_2$O$_3$:Cr^{3+}, ruby, first nearest neighbour Cr^{3+} pairs, absorpt. and emission spectra obs. 4-57585
CdIn$_2$S$_4$:Cr^{3+}, impurity effect on thermal cond., phonon scatt. 4-56922
Cr:N thin film, struct. and elec. props., 15 to 30 keV N ion implantation *(Russian)* 4-72876
Cr-SiO$_2$-Si structure, tunnelling, energy depend. 4-72868
Cr^{2+} in II-VI lattice e.p.r. obs., Jahn-Teller coupling coeffs., ligand-field model 4-49226
Cr^{3+}, aq. soln., dynamic nuclear polarisation, electronic spin-lattice relaxation 4-73021
Cr^{3+}, in $Y_3Fe_{5-x}Dr_xO_{12}$ and $Ca_{2.7}Bi_{0.3}Fe_{3.65-x}Cr_xV_{1.35}O_{12}$, ferrimag. resonance 4-64267
Cr^{3+} in ruby, e.s.r. experiment for students 4-54776
Cr^{3+} ions, substitution of Ga^{3+} ions in β-Ga$_2$O$_3$, e.s.r. investig. of kinetics *(German)* 4-57843
GaAs:Cr, excited levels of Cr centre in reson. with cond. band., optical absorpt. and photocond. obs. 4-48932
GaAs:Cr, high resistivity, optically induced modulation of absorption 4-76287
n-GaAs:Cr, optical absorpt. meas., extrinsic transitions localised levels investig. 4-64413
GaAs:Cr, semi-insulating, with mixed cond., Hall and magnetoresist. meas. of carrier mobility 4-53108
GaP:Cr, excited levels of G centre in reson. with cond. band, optical absorpt. and photocond. obs. 4-48932
GeO$_2$:Cr^{3+}, e.s.r. meas. at 295K and 92K, spin-Hamiltonian parameters 4-49225
In-GaAs:Cr-In, recomb. radiation, high-freq. instability in strong elec. fields *(Russian)* 4-73198
KAl(SO$_4$)$_2$.12H$_2$O:Cr, electric field induced optical activity and circular dichroism 4-82687
LiIO$_3$:Cr^{3+}, e.s.r. obs. 4-49222
Lu$_3$Al$_5$O$_{12}$:Cr^{3+}, e.s.r. of Cr^{3+}, isomorphic substitution *(Russian)* 4-82609
MgO:Cr^{2+}, dynamic Jahn-Teller effect, acoustic attenuation 4-44858
MgO:Cr^{2+}, far i.r. spectra, ion conc., phonon scatt. 4-61148
MgO:Cr^{3+}, e.p.r. of ^{17}O superhyperfine struct. 4-45182
Ni/Cr powder mixtures, dispersion strengthened, pressing behaviour 4-70532
Si:Cr, diffusion and solid solubility 4-73266
TiO$_2$:Cr^{3+}, rutile, temp. depend. of spin Hamiltonian parameters, e.p.r. obs. 4-45172
VO$_2$:Cr^{3+}, e.s.r., charge compensation mechanisms, insulating phase 4-70210
V$_2$O$_3$:Cr, high and low temperature rhombohedral form, crystal struct. 4-72458
WO$_3$:Cr^{3+}, e.s.r. obs., phase transforms. 4-64257
YAG:Cr^{3+}, luminesc. nature, high temp. radiative efficiency 4-61211
YAlO$_3$:Cr^{3+}, absorpt. and fluoresc. spectra, 77-300K 4-53495

chromium continued
ZnSe:Cr, discrete photoionization bands, photocond. and e.p.r. obs. *(German)* 4−48928

chromium alloys
see also chromium compounds
dilute, with rare earth metals, mech. props., carbide forming elements influence *(Russian)* 4−80015
dispersion strengthened with TaB(TaC), comp. and thermomech. condition effects on mech. props. 4−80010
Hastelloy X, base and weld metals, elevated temp. fracture and fracture surfaces *(Japanese)* 4−70503
Incoloy 800, irrad. influence on creep/fatigue behaviour at 700°C 4−43678
Incoloy 901, TEM specimen prep. techniques 4−64554
Inconel, X-750, creep fracture at 700°C 4−64584
Inconel 713C, modified, directional coupled growth, cryst. morphology 4−80076
nichrome, thoria dispersed, interfacial energetics 4−79929
Nichrome V, insert in mass spectrometer ion source, exposed to atomic O beam 4−48112
Nichrome/Mo(W) wire reinforced, recrystn. phenomena *(Russian)* 4−53828
Nimonic, PE16 alloy, ageing, resistometric study, use in nuclear reactors 4−70497
steel, high Cr, containing distributed TiC plasma hardening 4−76472
Udimet 520, ageing effect on microstruct. and tensile props. 4−45704
Al-Cr(0.5 wt.%), precip. during recrystn. 4−79968
Co-Cr, thermodynamic props., equil. phase boundaries 4−45529
Co-Cr and Co-Cr-Fe, high temp. hardness and heat resist. *(Russian)* 4−49794
Co-Cr-TaC eutectic, directionally solidified, strengths and failure mechanisms 4−80009
Co-Ni-Cr-Nb, niobium phases precip. 4−79952
Co-Ni-Cr-Ti, coarsening behaviour of γ' particles 4−45547
Cr-Co, nonferromag. dil., Invar and Elinvar characts. *(Japanese)* 4−61012
Cr-Fe, magnetic ordering, pressure effects 4−70151
Cr-Gd, dil., annealing, struct. changes deformed *(Russian)* 4−67773
Cr-HfC, quenched and annealed, phase diagrams *(Russian)* 4−82833
Cr-N(0.01 wt.%), nitrogen precip. evolution *(French)* 4−45545
Cr-Ni, thermocouple wire, thermopower in transverse mag. field, Cr-Ni/Au-Fe couple 4−82393
Cr-Ni steel, effect of prior plastic deformation on mech. and struct. props. *(Russian)* 4−70484
Cr-Ni-O system, 900-1100°C, O and metal activities 4−44791
Cr-Ni-W steel, amplitude dependent internal friction, effect of surface treatment 4−82949
Cr-rare earth (0.5-5%), influence of alloying element on struct. and props. *(Russian)* 4−80022
Cr-Sm, dil., deformed, annealing, struct. changes *(Russian)* 4−67773
Cr-Sm phase diagrams investigation 4−79917
Cr-Y, dil., annealing, struct. changes deformed *(Russian)* 4−67773
Cr-Yb, phase diagrams investigation 4−79917
Cr-ZrC, quenched and annealed, phase diagram *(Russian)* 4−82833
$CrAl_7$, n.m.r., mag. susceptibility and sp. ht. obs., antiferromag. to paramag. transition 4−64278
Cr_3Ge-$V_{3.04}Ge_{0.96}$, binary and ternary alloys, struct. anal., mutual solubility 4−48761
Cu-Cr, dil., transport props. in mag. field 4−53082
Cu-Cr, electron spin obs. of spin lattice relax., 0.32-20K 4−61054
Cu-Cr, precip. of Cr 4−45561
Cu-Cr eutectic alloy, unidirectionally solidified, crystallography of phase interfaces 4−82858
Cu-Ni-Cr, precip. of Cr 4−45561
Cu-Sn-Cr bronze, crystn. parameters effects on struct. form. *(Russian)* 4−45577
Fe-Cr, α-γ transform. thermodynamics 4−82831
α-Fe-Cr, bulk and intercryst. diffusion of Fe, rel. to $\alpha \leftrightharpoons (\alpha+\gamma)$ transforms. *(French)* 4−49667
Fe-Cr, superplasticity in ferrite + austenite region *(Japanese)* 4−67848
Fe-Cr, Young's modulus, conc. depend. 4−67879
Fe-Cr and Fe-Cr-Co, phase decomp. and 475°C embrittlement *(Japanese)* 4−45501
Fe-Cr cast irons, abrasive wear resist. 4−76481
Fe-Cr solid solns., b.c.c., Zener relax. rel. to solute diffusion 4−53691
Fe-Cr system, Cr activity meas. 4−45516
Fe-Cr-Mn system, ferrite/austenite equil., optimisation of thermodynamic parameters 4−61327
Fe-Cr-Mo, microstruct. and corrosion resist. 4−64544
Fe-Cr-Mo, pitting resistant, development 4−61410
Fe-Cr-Ni, carbon thermodynamics 4−49660
Fe-Cr-Ni, high-purity, stress corrosion, additive effects *(French)* 4−45693
Fe-Cr-Ni, stress corrosion cracking 4−45616
Fe-Cr-Ni, TRIP phenomenon of predeformed austenite *(Japanese)* 4−82888
Fe-Cr-Ni (16 wt.%, 12 wt.%), transformation cycling 4−82900
Fe-Cr-Ni-C-Mo, influence of thermal treatments on ferrite contents *(Italian)* 4−45532
Fe-Ni-Cr, 36 NKhTYu alloy, precip. of γ' and η phases, tensile strength *(Russian)* 4−73318
Fe-Ni-Cr, deformed, precip. of excess phases 4−61387
Fe-Ni-Cr, high field susceptibility meas. up to 300 kOe, rigid band model 4−76060
Fe-Ni-Cr system, Cr activity meas. 4−45516
FeCr, single crystals, Bridgman method of growth, techniques for alignment and cutting 4−53601
InSb-CrSb eutectic alloys, directonal solidification, struct. changes *(Japanese)* 4−45499
Mn_2Sb, Cr modified, first order phase transition, magnetic domain obs. 4−64237
Ni-Co-Cr-Mo system, phase diagram, σ phase behaviour in superrefractory alloys *(French)* 4−45530
Ni-Cr, coating with Ta and Nb 4−82927

chromium alloys continued
Ni-Cr, Cr ion effective charge and diffusion coeff., temp. depend. *(Russian)* 4−73298
Ni-Cr, elec. resist. recovery, excess defect conc. and short-range order form. *(Russian)* 4−73290
Ni-Cr, f.c.c., plastic deform. mechanism *(French)* 4−49751
Ni-Cr, ferromagnetic reson. determ. of magnetisation, g-value and anisotropy const. 4−61038
Ni-Cr, hardened by Ni_3Nb phase, Al influence on struct. and mech. props. *(Russian)* 4−45713
Ni-Cr, light absorpt. characts., 1.2-17 μm *(Russian)* 4−79739
Ni-Cr, prepared by powder metallurgy methods, degasification *(Russian)* 4−45730
Ni-Cr, produced by high rate vapour deposition, struct. and tensile props. 4−76471
Ni-Cr, stacking fault energies and deformation mechanisms, electron microscope and tensile deformation meas. *(French)* 4−82863
Ni-Cr, superplastic aggregates, activated state obs. *(Russian)* 4−53676
Ni-Cr, work hardening obs., short range order *(Russian)* 4−61414
Ni-Cr lamellar eutectic composite, low-cycle fatigue behaviour, 300-760°C 4−82966
Ni-Cr solid solns., internal friction, conc. depend. and solubility boundaries *(Russian)* 4−49792
Ni-Cr steel alloys, transport properties 4−64599
Ni-Cr system, Cr activity meas. 4−45516
Ni-Cr-Al, coarsening of γ' precipitates at large vol. fractions 4−61358
Ni-Cr-Al system, metallographic analysis of γ' phase *(German)* 4−49717
Ni-Cr-C system, carbon activity in solubility zone *(French)* 4−79906
Ni-Cr-Fe, corrosion behaviour in nuclear once-through steam generator service 4−81660
Ni-Cr-Ti-Al, brazed in vacuo with Pd-Ni, microstruct. obs. with hot stage microscope *(German, English)* 4−64561
Ni-Cr(2%), catalyst, decomp. of formic acid, magnetocatalytic effects, expt. evidence 4−57883
Ni-Cr(20 wt.%) single-phase and precip. hardened alloys, high temp. ductility 4−80033
Ni-Cr(20 wt.%)(−Co(35 wt.%))-Al(4 wt.%) alloy, containing γ' particles, high temp. steady state creep, mech. *(Japanese)* 4−45627
Ni-Fe-Cr, tertiary fluorescence effect in elec. probe microanalysis, contrib. of Cr 4−71280
NiCr, single crystals, Bridgman method of growth, techniques for alignment and cutting 4−53601
NiCr coating, heat resistant, temp. depend. of adhesion strength and elasticity 4−49914
NiCr:rare-earth, X-ray spectra, strong reson. in SXAPS due to rare earth 4f states 4−64447
PtCr electrical resistivity, temp. depend., 1.4 to 300K 4−72745
Ti-Al-Cr-Fe, heat treatment and mech. props. 4−73331
β-Ti-Cr, $TiCr_2$ phase form. and crystallographic characts. 4−49725
U-Cr, grain size control by double-stage heat treatment 4−43644
U-Cr, grain size determ. by u.s. attenuation 4−47803
V-Cr-Ti, He implantation effects on ductility and void swelling, obs. 4−55941
(V-Cr)Fe, resist. min., obs. of negative temp. coeff. 4−60768
$(V_{1-x}Cr_x)Be_{12}$, mag. susceptibility and n.m.r. of ^9Be and ^{51}V, Knight shift meas. 4−60946
W-Cr-Ni, sintered, high temp. mech. characteriz. *(German)* 4−61476
Zn-Cr, crystal field splitting parameters, exchange const. 4−79474
Zn-Cr, magnetic anisotropy in single crystals, low mag. field, low temp. 4−79473
Zr-Cr-Fe, β-quenched, effect of microstructure and lattice strain on corrosion resistance and mechanical props. 4−64594
Zr-Cr-Fe, in-reactor oxidation, oxide electrical characteristics 4−70495
Zr-Cr-Fe, irrad. effects on work hardening and ductility 4−66261

chromium compounds
see also chromium alloys
bis(arene) and related complexes, high energy photoelectron spectroscopy 4−66503
Cr_2O_3 PbN_6 treatment sensitization of photolysis by inorganic semiconductors 4−76617
EDTA-Cr complexes, electrode glow 4−68010
$[Cr\ urea_6]X_3$ complex single crysts., emission and absorpt. spectra, emission lifetimes, temp. depend. *(German)* 4−57631
Al_2O_3-Cr_2O_3-P_2O_5 system, subsolidus phase diagram 4−61488
Al_2O_3-MgO-Cr_2O_3, alumina substrate, surface props. 4−57757
CaO-MgO-Cr_2O_3-SiO_2 system, compatibility relations of periclase 4−64614
$CdCr_2Se_4$, prep. by chem. transport reaction *(German)* 4−49617
CdS, PbN_6 treatment sensitization of photolysis by inorganic semiconductors 4−76617
Ce-Cr-B system, phase diagram 4−69888
CoO-MgO-Cr_2O_3-TiO_2-SnO_2 system, spinel solid soln. form. and colour *(Japanese)* 4−49919
Cr complex, hexaminechromium (III) chlorocuprates (I,II), mixed valence complex, e.p.r. 4−53296
Cr complexes with olefins and arenes, coordination shifts in ^{13}C n.m.r. spectra 4−52218
Cr^{3+} complex, e.s.r. spectra in soln., dynamic freq. shift 4−45175
$Cr_{5-x}\,V_xGe_3$, solid soln., mag. susceptibility elec. resistance, thermo-e.m.f. and Hall coeff. 4−53215
Cr_2AlB_2, new ternary compound of Mn_2AlB_2 type 4−69892
Cr_3AlB_4, new ternary compound, unique structure 4−69892
Cr_xAs_y, e.s.r. and static mag. susceptibility obs. 4−57359
$CrAs_{1-x}Sb_x$, helimagnetism investigation, neutron diffraction meas. 4−64221
$Cr_3B_7O_{13}Cl$, ferroelectric, optical absorpt., 2000-30000 cm^{-1}, 77-450K 4−76271
$Cr_3B_7O_{13}Cl$, improper ferroelec., optical absorpt. edge in transition region 4−45257
Cr_2BeO_4:^9Be, n.m.r. and long-range superexchange interactions via Cr-O-Be-O-Cr linkages 4−57401
$CrBr_3$, e.p.r. line-width meas., temp. depend. near Curie point 4−49218

chromium compounds continued
- $Cr(CN)_6^{3-}$, polarised luminesc. spectrum in $K_3Co(CN)_6$ cryst., internal and lattice modes 4−67642
- $Cr(CO)_5^- + Cl^-$, nonreactive ion-molecule collision rate consts., ion cyclotron resonance 4−78516
- $CrCl_3.6H_2O$, effect on growth of {101} faces of $NH_4H_2PO_4$ from aq. soln. 4−75467
- $(Cr_{1-x}Co_x)_2As$ solid solns., cryst. struct. and mag. props. *(French)* 4−48563
- Cr(III) complex, $Cr(CN)_6^{3-}$, intersystem crossing efficiency investig., $Ru(dipy)_3^{2+}$ sensitised phosphoresc. method 4−72220
- Cr(III) complex, diaquo-μ-triethylenetetraminehexaacetatodichromium(III) hexahydrate, cryst., mol. struct. determ. 4−66868
- Cr(III) complex, magnetic behaviour with different ligands 4−79493
- Cr(III) ion, absorpt. and mag. circular dichroism spectra 4−49401
- $CrMo_2S_4$, mag. props., elec. props., rel. to struct. *(French)* 4−67352
- Cr_2N, non-stoichiometric, statistical model, bonding 4−76523
- $Cr(NCS)_6^{3-}$ ion, electronic absorption, luminescence, infra-red and Raman spectra 4−72187
- $(Cr_{1-x}Ni_x)_2As$ solid solns., cryst. struct. and mag. props. *(French)* 4−48563
- CrO_3, in glacial acetic acid, etch-pit shape of Bi 4−72641
- CrO^{3+} complexes, hyperfine anisotropy, off-diagonal contribution 4−82605
- CrO_4^{3-}, unrestricted CNDO-MO calcs. 4−56110
- Cr_2O_3, antiferromag., $^4A_2 \rightarrow {}^2E$ optical exciton absorpt. spectrum, spin-rotation effect 4−49385
- Cr_2O_3, antiferromag. domain switching, magnetoelec. effect as simple obs. method 4−76108
- Cr_2O_3, antiferromag. transition, positron annihilation meas. 4−67365
- Cr_2O_3, enhanced oxidative vaporisation by O atoms, 200 to 1250°C 4−70617
- Cr_2O_3, ferromagnetoelectric switching 4−73084
- Cr_2O_3, formed by oxidation of Cr(110), symmetry influence on orientation *(French)* 4−44794
- Cr_2O_3, Gibbs free energy, calc. using e.m.f. results from standard cells 4−57891
- Cr_2O_3, magnetoelec. props. 4−82539
- Cr_2O_3, oxidative vaporisation kinetics in O_2, 1000 to 1300°C 4−70616
- Cr_2O_3, PbN_6 treatment sensitization of photolysis by inorganic semiconductors 4−76617
- Cr_2O_3, R-line intensity, temp. depend., calc. 4−64374
- Cr_2O_3, wetting by Fe-C melt, 1300°C *(Russian)* 4−44753
- Cr_2O_3 antiferro-paramagnetic transition, h.f. ultrasonic study *(French)* 4−53228
- Cr_2O_3 scales formed during Cr oxidation, 900-1000°C, effect of S on Cr transport 4−48864
- α-Cr_2O_3 surface, catalysis of p- to o-H_2 conversion 4−57882
- Cr_2O_3:$^{121}Sb^{5+}$, mag. hyperfine fields, Mossbauer effect *(French)* 4−73058
- Cr_2O_3-MgO(NiO) obs. on aliovalent cation diffusion 4−48788
- CrO_2Cl_2, emission and absorption spectra, Ar matrix, 4K 4−66468
- CrO_3X^-, $(X^- = F^-, cl^-, Br^-, IO_3^-)$, electronic spectra 4−69483
- CrSi, elastic consts., lattice dynamics 4−60534
- $CrSi_2$, X-ray K-line fine struct., massive and thin film effects *(Russian)* 4−53543
- CrTe, ferromagnetic, non-collinear struct. change in 4.2 to 450K range *(Russian)* 4−53246
- Cr_2Te_3, mag. props. investigation, 80 to 800K 4−45108
- $Cr_2Te_2S_x$, mag. props. investigation, 80 to 800K 4−45108
- $Cr_2Te_2Se_x$, mag. props. investigation, 80 to 800K 4−45108
- $CrTiNdO_5$, magnetoelec. new materials 4−82539
- $(Cr_{0.01}V_{0.99})_2O_3$ high-temp. resistivity anomaly, 200° to 900°K 4−53114
- $Cu_yCr_2Se_{4-z}Br_x$ spinels, prep., stoichiometry, rel. to Curie temp. 4−64214
- KH_2PO_4:CrO_4^{2-}, electronic spectra obs. 4−70331
- $K_3[Cr(C_2O_4)_3].3H_2O$ in $K_3[Al(C_2O_4)_3].3H_2O$, e.p.r. and photochemistry 4−57363
- La-Cr-B system, phase diagram 4−69888
- $LaCrO_3$-Cr cermets, monochromatic emittance, 300-1900K, oxidation effects 4−61485
- $MgO.Cr_2O_3$, prep. and sintering 4−82961
- $Mn_3G_xFe_{2-x}Ge_3O_{12}$, i.r. spectra 4−49366
- $NdCrTiO_5$, magnetoelectric cpd. with 2 sets of mag. sublattices, mag. props. 4−67378
- TiO_2-Cr_2O_3, phase analysis of oxides derived from rutile by crystallog. shear 4−67048
- $UCrO_4$, magnetoelectric cpd. with 2 sets of mag. sunlattices, mag. props. 4−67378

chromosphere
- activity assoc. with moving photospheric magnetic fields 4−65069
- atomic spectra, highly ionised atoms 4−43743
- corona transition region, dynamical homogeneous model 4−54384
- corona transition region, electron density from Be-like ion line ratios 4−73614
- corona transition region, high n emission and absorption lines 4−80485
- D-28 satellite, remote u.v. solar experiment *(French)* 4−54614
- empirical models, comparison with spectral obs. *(Polish)* 4−58227
- filament differential rotation from full disc cinematograms 4−80483
- fine structure at 1.3 cm 4−58232
- flare, Aug. 2nd 1972, spatial distrib. of soft X-ray and e.u.v. emission 4−62011
- flare, rel. to low energy solar cosmic rays *(Russian)* 4−70887
- flare filament with electric field, thermal balance charged particle kinetics 4−65082
- flare spectra, hydrogen equil. for Brown's models for heating by nonthermal electrons 4−62010
- heating above mag. regions by nonlinear Alfven waves 4−70918
- heating time in upper layers 4−76788
- kinematic flare-shock model, H equilibrium 4−54386
- oscillating velocity fields and acoustic-gravity waves 4−65071
- quiescent prominences theoretical He I emission line intensities 4−80461

chromosphere continued
- spectral line broadening, nonthermal, interpret. w.r.t. acoustic waves 4−62023
- spicule structure and motion 4−70903
- sunspot penumbra, mag. field vertical distrib. in bright region *(Russian)* 4−68334
- surface brightness of visual continuum during 1970, March 7 eclipse 4−80484
- surges and sprays, formation mechanism 4−76789
- temperature and density determ. above sunspot *(Russian)* 4−70885
- time variations of chromospheric network using K_{232} spectroheliograms *(Russian)* 4−73615
- u.v. spectrum lines, brightness distrib. in spectroheliograms *(Russian)* 4−68338
- X-ray emission at low activity, 1.8-5.3 A 4−54385
- C III 977 and 1176 Å emission and chromosphere-corona transition region 4−76786
- Ca II K-line spectrograms, intensity perturbations 4−50454
- Fe II 3969.4 Å disc emission line 4−73612
- Hα bright mottles vertical vels. from high-resolution photography 4−65070
- Hα intensity, spatial variations, source sink control diagram 4−46159
- He I 10830 and 20581 A emission line obs. during 1973 June 30 eclipse 4−70875
- Mg II 2795 and 2803 Å solar resonance line profiles, centre-to-limb analysis *(French)* 4−83176

chronographs *see chronometers*

chronometers
- No entries

CIDEP *see chemical reactions; paramagnetic resonance*

CIDNP *see chemical reactions; nuclear polarisation; Overhauser effect; proton magnetic resonance*

cinefilming *see cinematography*

cinematography
- *see also cameras; telefilming*
- cavitation induced by a ruby laser *(German)* 4−72341
- colour cinephotographic materials, granularity rel. to optical density *(Russian)* 4−68724
- decreasing electric resistivity of motion picture and photographic film *(Russian)* 4−77115
- dual image device to photograph physical process and instrument reading on same film 4−54968
- film loop laboratory system, for physics experiments 4−73968
- film printing, 8 mm, small-size detail reproduction *(Russian)* 4−46728
- high speed, laser beam applic., equipment 4−77111
- high-speed, obs. of tubrulent boundary layer wall pressure structure *(German)* 4−68861
- image details, contrast transformation, TV method *(Russian)* 4−50193
- kineholography, high-speed holography *(Russian)* 4−46691
- measuring instrument dynamic parameter determ. by high-speed cine camera 4−77112
- radiography, control of granularity or quantum mottle 4−42829
- surface moisture removal from films in developing machines, methods and devices *(Russian)* 4−77119
- vignetting in cineradiography 4−42830
- welding arc discharge temp. meas. by high-speed cinematography 4−46601

circuit analysis *see network analysis*

circuit breakers
- *see also circuit breaking arcs*
- capacitor bank current pulse prolongation using magnetically stored energy 4−56504
- fusion reactor inductive energy storage circuit analysis and choice of circuit-breaker 4−59864
- lightning incidence in UK, faulty lockouts poss. 4−58058
- mechanical opening, high current, performance *(French)* 4−51113
- solid-state, for plasma heating, rectifier/d.c. static breaker 4−56503

circuit-breaking arcs
- *see also circuit breakers; sparks*
- contact-breaking current, post-arc column and cathode sheath recovery strength effects 4−60375
- magnetically driven, sudden vel. transitions 4−82069
- plasma flows, different electrode materials *(Russian)* 4−60371

circuit diagrams
- holographic screen for stereo colour TV system, functional diagram *(Russian)* 4−77105

circuit oscillations
- *see also circuit resonance*
- cyclotron beam scanning 1 Hz pendulum device circuit 4−80971
- exploding foil, increasing circuit damping 4−54992

circuit resonance
- *see also circuit oscillations*
- Q-meter, using damped oscill. of reson. cct. excited by keyed signal *(German)* 4−80952

circuit topology *see network topology*

circuits
- *see also amplifiers; analogue computer circuits; detector circuits; equivalent circuits; integrated circuits; magnetic circuits; modulators; oscillators; power supply circuits; printed circuits; pulse circuits; switching circuits*
- emission balancing, of inhomogeneously radiating surfaces *(German)* 4−68966
- gating circuit for Auger electron spectroscopy 4−58954
- magnetic field stabilization circuits, 4-21 kG, for n.m.r. spectrometer 4−42847

circular polarisation *see polarisation*

circular waveguides
- dielectric meas. by H_{11} mode circular waveguide, radial gap effects 4−65488
- e.m. field, in stratified anisotropic plasma *(Russian)* 4−75224
- sheet material permittivity meas., evanescent circular waveguide technique 4−65495

civil engineering
see also architecture; building; dams
catenary eqn., parametric soln. by computer 4—47025
chimney stacks in high wind, model tests with roughened surfaces *(French)* 4—75133
cultural refuse site delineation, induced polarisation, geophysical detection method 4—68270
elasticity, solid resting on a stratified medium 4—59172
heat conduction problems, with reference to phase change, finite element analysis 4—62756
hybrid plate elements with assumed stress 4—62683
instruments for sediment density, silt analysis, air entrainment in water 4—55115
marine nuclear logging methods, review 4—61897
oil installations, North Sea, positioning 4—70817
plasticity, limit analysis applic. 4—59200
plate bending, use of bicubic fundamental splines 4—62682
plate buckling problem, irregular mesh finite difference approx. 4—59202
plates theory soln. 4—59175
porous materials, nearly incompressible, finite element stress analysis, applic. to excess pore pressure calc. 4—62678
post-buckling behaviour of thin plates and shells 4—59201
prestressed concrete reactor vessels, finite element analysis 4—78169
seismic forces in building structure, effect of sliding 4—54285
structural analysis, mathematical programming applic. 4—59108
structural mechanics, finite difference discretisation procedures, applic. 4—59184
structural mechanics, finite element discretization, stiffness props. and stresses 4—78170
structural mechanics constitutive modelling, numerical solns., field problems 4—74784
structures, nonlinear, analysis, by Newton's method 4—59181
classical algebra *see algebra*
classical field theory
see also classical mechanics; electromagnetic field theory; gravitation; special relativity
bound four-momentum of classical charge, direct calc. method 4—47179
electron interacting with parallel aligned classical and quantized plane waves *(Russian)* 4—71621
equations of motion from quantum theory *(Russian)* 4—81226
Eulerian coordinates, fluids and solids, general relativistic variation principle *(German)* 4—62680
external differential Cartan forms *(Russian)* 4—65718
geometric invariance groups, resulting conservation laws 4—59220
Lie symmetry groups for classical fields 4—51250
multipole current expansion, static current moments *(Russian)* 4—77515
radiation reaction problem solution for uniform magnetic field 4—71351
random fields, hydrodynamic approx., probability description *(Russian)* 4—77556
relativistic interacting massive spin-1 and spin 3/2 fields, constraints, causality, Lorentz invariance 4—55554
spinless charged particle motion, Klein-Gordon, Hamilton-Jacobi eqns. *(Russian)* 4—55553
SU(3) gauge field eqns., static solns. 4—43399
unpolarized radiation, density operator 4—65721
variable mass particles theory, binding energy, decay red shift is classically decaying systems 4—47142
vector fields, two interacting, having static solution 4—62707
classical mechanics
see also classical mechanics of continuous media; classical mechanics of discrete systems; classical theories of fluid structure; harmonic oscillators
bending of axisymmetric circular plates, variable stiffness 4—62699
cylindrical shell subjected to concentrated radial force, Vlasov variational method 4—47065
duality of observables and generators in classical and quantum mechanics 4—59027
dynamical symmetries, groups, review 4—77519
Hamiltonian dynamics, generalised phase space formulation, appl. to classical dynamics 4—81212
intermediate problems for eigenvalues, brief historical review 4—77358
Newton's first and second laws of motion, fundamental force measurement 4—50945
nonlinear mechanical system eqns. of motion, general integrals *(Russian)* 4—74258
nonlinear oscillations, conference, Poznan, Poland (Aug-Sept. 1972) 4—74234
pottery, mechanics, explains casting on the potter's wheel 4—54767
ship, structural dynamics, modal anal. 4—77487
unification with geometrical optics, applications 4—74200
vibrating discs with blades, natural vibr. freq. 4—62700
classical mechanics of continuous media
anelastic bodies, material uniformity and inhomogeneity 4—63855
anisotropic media, phenomenological theory of fracture 4—45816
axisymmetric solids, nonlinear dynamic analysis by finite element methods 4—81184
boundary-integral equation method, applic. 4—59109
cable dynamics for large deflections *(German)* 4—65677
composite thermomechanical materials, three-continuum theory 4—70559
conference, applied mechanics, ASME (Sept. 1973) 4—74283
conference, ASME Winter Annual Meeting, (11-15 Nov. 1973) 4—66553
constrained material continua, nonlinear mechanics 4—59096
convected stretching motions, general solns. 4—43037
cylinder, solid, non-isothermal loading, flow theory anal. *(Russian)* 4—77400
cylindrical shell, limiting equilib. taking shear stresses into account *(Russian)* 4—77401
deformation, nonlinear theory, displacement vector determ. *(Russian)* 4—77399
deformation laws of model structure systems, thermodynamic analysis *(German)* 4—77441
discrete dislocations in micropolar elasticity 4—59111
classical mechanics of continuous media continued
dislocations under stress reversals, continuum model 4—56744
dynamic contact problem, approx. solns. of integral eqns. 4—74226
eigenvalue and eigenfunction variations 4—81147
elastic nonconservative stability problems, variational techniques applic. 4—59168
elastodynamics, generalized variational theorem, shell theory applic. 4—62685
Eulerian coordinates, fluids and solids, general relativistic variation principle *(German)* 4—62680
fading memory materials, restricted nonisothermal theory 4—65668
fibre-reinforced materials, anal. of loading props. *(German)* 4—65673
finite element analysis, by variational principles with relaxed continuity requirement 4—59104
finite element methods, survey 4—59105
flexible plates, determ. of axisymmetric post critical states *(Russian)* 4—77460
fluid-solid interface, response to moving disturbance 4—77403
frame invariance of matter eqns. in special relativity *(German)* 4—65758
Gibbs equation derivation for class of rheological bodies 4—68977
incomplete constitutive information use in thermoelasticity 4—62679
insensitivity of materials to deform. path changes, insensitivity semigroups 4—59097
insensitivity of materials to deform. path changes, inviscosity semigroups 4—59098
laminated orthotropic plates, refined structural theory 4—74284
lateral strains effect and modelling *(Russian)* 4—55235
linear structure with large stiffness parameter, dynamic response 4—77402
loose medium, nonlinear description of space oscillations of displacements 4—74277
magnetised deformable media with mag. spin, dynamic classical theory *(French)* 4—70192
mechanical and thermodynamical basis 4—81148
membranes, anal. of large deflections 4—74278
motion of solid composed of two elastic materials 4—77410
natural vibrations, eigenvalue theory *(German)* 4—62705
Noether's theorem, generalised, transformations 4—59099
nonconservative systems, variational principle applic. 4—59149
nonlinear continuum mechanics, variational principles applic. 4—59103
nonlinear structural dynamics, solution schemes 4—81183
one dimensional, Ritz method, iteration method combination *(German)* 4—81151
orthotropic elastic slab, thermal stresses due to prescribed surface temps. 4—65687
plate calcs. using fundamental spline functions *(German)* 4—68889
plate potential problem, two-dimensional, soln. using integral transforms 4—74281
polar fluids, frame-dependence of stress and heat flux 4—43222
quasistatic and dynamic fracture, interaction of inertia effects 4—48689
sandwich shell, large deflection, stiffness matrix generation 4—68896
Schur's lemma on irreducible sets of matrices, application 4—43034
shell elements, curved rotational, by constraint method 4—59171
shell of rotation, volume minimisation for rigid plastic material *(Russian)* 4—77461
shell theory, optimal basic eqns. and efficiency *(German)* 4—77442
shell theory, role of convergence 4—43049
shell theory derivation, direct approach 4—74307
shell theory derivation from principle of virtual work *(German)* 4—65676
shells, cylindrical, optimising thermal stresses, comment on previous paper 4—74280
shells, existence theorems in linear theory 4—74282
steel, two-phase system in plastic deformation theory 4—73328
structural analysis, mathematical programming applic., review 4—59108
structural mechanics, incremental formulation of the generalised variational approach 4—59107
suspension, dilute, of rigid ellipsoidal particles, structural-continuum theory 4—78700
suspension, dilute, of rigid freely permeable chain macromols., rheological eqn. of state 4—78702
suspensions, monodispersive, of spherical dipoles in external field, conservation eqns., rheological parameters *(Russian)* 4—53919
thin plate flexure, influence of moment stresses *(German)* 4—65674
time harmonic wave propagation normal to layers of multilayered periodic media 4—74340
transverse axisymmetric waves in circular cylindrical shells, dynamic stability 4—74338
unsteady homothermal motions of fluids and isotropic solids 4—62676
variational methods, applic. 4—59102
variational methods, improvement on Galerkin's 4—59106
variational methods in engineering, conf., Southampton, Hants., England, (25 Sep. 1972) 4—59101
variational problems, axisymmetric, classical and natural conduction and deformation modes 4—59110
wedge entry into incompressible fluid 4—77396
classical mechanics of discrete systems
see also N-body problems
air track gliders, tricks for demonstrating momentum conservation 4—62388
angular momentum w.r.t. moving points, teaching method 4—58688
anholonomic, with friction, extremal reaction values, real and possible movements *(Polish)* 4—68884
ballistics, launching problem, oscillatory motion of object in planetary atmosphere *(Russian)* 4—51310
canonical equations, perturbed integrable, nonexistence of analytical integrals *(Russian)* 4—59082
car crash experiment using high speed film for the undergraduate laboratory 4—62373
colliding elastic bodies, interaction force, impact time and coeff. of restitution 4—77384

classical mechanics of discrete systems continued
conservative dynamic system, autonomous second order point mapping, stochastic soln. 4−74259
elastic body collisions deviation and non-Newtonian coeff. of restitution *(Russian)* 4−51312
elastic mechanical structure, synthesis of vibrations by their spectral density *(Russian)* 4−77392
Euler-Poisson kinematic equations, errors in orientation determ., ang. vel. sensor, digital differential analyser *(Russian)* 4−81137
globally stable dynamical systems, trajectories 4−77394
gyroscope, dynamically unbalanced asynchronous, in cardan suspension, drift speed *(Russian)* 4−47064
gyroscope unbalanced, contactless suspension, motion in uniform gravit. field *(Russian)* 4−81138
gyrostat, moment of momentum modulus constancy *(Russian)* 4−47055
gyrostat, precessional motion in central Newtonian field of force *(Russian)* 4−43031
gyrostat motion in Newtonian field of force, linear invariant relations *(Russian)* 4−47060
gyrostat motion in Newtonian field of force, linear invariant relations in eqns. of motion *(Russian)* 4−47061
gyrostat with fixed point, eqns. of motion soln. *(Russian)* 4−47054
harmonic oscillator kinetic energy, minimisation of integral estimate by impulse control *(Russian)* 4−74265
heavy rigid body with fixed point, particular solns. of motion *(Russian)* 4−74275
helicoptor with two blade lifting rotor, oscillation and stability *(Russian)* 4−77390
impact in Chetajev-Przeborski systems, principle of minimum constraints, displacements *(Polish)* 4−68883
inertia characteristic *(French)* 4−81136
linear Lagrange equations generalizing rotation 4−71322
linear system frictional oscillation suppression 4−68885
linear systems, multidegree-of-freedom, transient response to forcing functions, inequality constraints 4−77386
lumped parameter vibrating systems synthesis, mode shape determ. 4−81192
mass points, method of unilateral eqns. in relativistic mechanics 4−47177
mechanical systems with variable parameters, differential eqns. of motion *(Russian)* 4−77391
motorcycle turning a corner 4−62383
non-autonomous systems with piecewise linear characteristics 4−77504
non-linear hysteresis, stability of periodic solns. of forced system 4−74263
noncoplanar plate folded structure, appl. of finite element method *(French)* 4−81145
nonlinear damping of two mass system with spring, effect on dynamic compliance matrix 4−77503
nonlinear differential eqn. set, effect of disregarding nonlinear couplings 4−74276
numerical method for solutions of equations of motion 4−74264
pendulum, distrib. of judder effect in pivot excitation *(German)* 4−68887
periodical vibrations of one degree of freedom mechanical systems, dependence on initial conditions 4−74349
perturbation equations, space vehicle containing mobile element, circular orbit *(Russian)* 4−81194
precession motions relative to vertical of heavy solid body with one fixed point *(Russian)* 4−74266
resonant non-autonomic many-dimensional systems, nearly conservative, Ruasher solns. *(Russian)* 4−74267
rigid body dynamics, invariant relations of differential eqn. system *(Russian)* 4−47056
rigid body in central Newton field, periodic motions *(Russian)* 4−51405
rigid body motion about fixed point, algebraic integrals of Euler-Poisson eqns., Liouville's theorem *(Russian)* 4−43030
rigid body rotation about fixed point, fourth integral of Euler-Poisson eqns. *(Russian)* 4−47059
rigid body with fixed point, eqns. of motion, algebraically invariant relations *(Russian)* 4−47057
rigid body with fixed point, integrability of motion problems, mass distrib. conditions *(Russian)* 4−47062
rigid body with fixed point, linear invariant relation for eqns. of motion *(Russian)* 4−47058
rigid body with liquid filled ellipsoidal cavity, stability of stationary solns. of eqns. of motion *(Russian)* 4−47063
rolling of disc with variable mass on horizontal plane 4−55231
solid with liquid filled cavity, stability in circular orbit *(Russian)* 4−74274
space vehicle entry into planetary atmosphere for min. heat absorpt. *(German)* 4−59083
spring mass system under harmonic excitation, effect of rotation 4−77387
spring-mass system, two degree-of-freedom nonlinear, free vibr., periodic solns. 4−47123
stability of generalised steady motion of non-autonomous holonomic dissipative systems 4−77393
stability theory sign determ. in higher order forms *(Russian)* 4−74268
three-body, periodic solns. of relativistic restricted circular prob. 4−81144
two-strut hinged structure, distrib. of judder effect *(German)* 4−68887
tyre load for plane centrifugal motion *(German)* 4−68886
vibration of nonlinear system, dependence on initial conditions 4−74350

classical theories of fluid structure
see also kinetic theory
binary isotopic fluids, excitations, at. transport 4−69929
binary reacting mixture, light scatt. due to spontaneous fluctuations 4−45285
blip function theory of dense fluids comprising linear mols. 4−75435
blip function theory rel. to diffr. from diatomic liqs. 4−78880
convex molecule fluid, statistical thermodynamics, Kihara pot. function 4−43217

classical theories of fluid structure continued
correlation functions of classical fluids, applic. to chem. potential 4−51492
dense fluid, kinetic theory 4−78879
dipolar mixtures, mean spherical model solution 4−77554
dynamical form factor moment, long-range forces contrib. *(Russian)* 4−82097
gas-liquid critical system, depolarised light scatt. mechanism 4−59356
hard sphere fluid, mol. dynamics calcs. of Brownian motion onset, binary collision rates calc. 4−51464
kinetic approach to long-time behaviour in fluids, time-depend. collision operator 4−68946
molecular rotational motion, long time asymptotic of correl. functions *(Russian)* 4−66808
nonhomogeneous, statistical theory, distrib. functions *(Russian)* 4−66807
pair distribution function, hypernetted chain formalism 4−52673
paramagnetic molecules, tumbling in liq. orientation depend. spin density matrix 4−53318
penetrable sphere model, bounds to thermodynamic props. 4−74443
polar fluid, permanent dipoles, free energy, perturbation theories 4−69545
radial distribution function, perturbation technique 4−72416
radial distribution function and thermodynamic props., quantum corrections 4−59318
square well fluid, eqn. of state 4−52857
stability of static configurations appl. to capillarity 4−52670
strong electrolytes, potential theory using BBGY integral eqns. 4−61622
transport coefficients using Van der Waals model 4−71446
uniqueness theorem for fluid pair correlation functions 4−82095
Van der Waals binary mixture, transport props. 4−71442

classification
see also indexing
acquired colour vision deficiencies, exam. methods and classifications 4−58515
phase transitions, syncretist classification 4−63917

clathrates *see molecules; organic compounds*

clay
bentonite-water suspensions, flow behaviour 4−63623
Burtle Beds, Somerset, evidence for estuarine-marine origin 4−73487
consolidation of layer subject to surface loading 4−65660
dielectric properties in 0.1-26 GHz range 4−54121
Egyptian kaolinite, thermal behaviour of normal surface 4−64785
formation of deep-sea chert 4−57932
Japan Sea, clay minerals distrib. in Recent sediments 4−80288
kaolin, sp. ht. , 123-293K *(Russian)* 4−57784
kaolinite, coincidence twist boundaries 4−69817
kaolinite suspensions, rheological and thixotropic behaviour 4−50037
montmorillonite, e.s.r. of adsorbed Cu(II)-ion complexes 4−63976
montmorillonite in open ocean surface water samples 4−54182
swelling detection, by double exposure holography 4−57791
$Al_2O_3.2SiO_2.2H_2O$, kaolinite, adsorpt. of H_2O and organic vapours, elastic moduli determ. 4−67103

cleaning *see surface treatment*

cleanliness *see hygiene*

cleavage, crystal *see crystal cleavage*

Clebsch-Gordan coefficients
see also elementary particle theory; nuclear theory
angular moment coupling coeffs. calc. procedure *(Russian)* 4−65752
coherent spin states, comp. 4−74374
Lorentz group, 3 dimens., continuous basis, O(2,1) group 4−74376
Lorentz group, 3 dimens., continuous basis, SU(1,1) group 4−71377
O(5) Wigner coefficients, explicit form derivation 4−59239
Raman scattering, scatt. matrices in cubic crysts. calc., appl. to Cu_2O 4−70306
Raman scattering, scatt. tensors rel. to cryst. Clebsch-Gordan coeffs. investig. 4−70305
unitary group canonical basis, isoscalar factors, recurrence expressions *(Russian)* 4−74205
Wigner-Eckart theorem, covariant operator matrix element factorisation 4−51684
SL(2,C) group, isoscalar factors *(Russian)* 4−74204

climatology
see also atmospheric humidity; atmospheric precipitation; sunlight; wind
ancient tropical weathering of rocks in Calabria 4−80345
archaeoclimatic forecasts and archaeomagnetism 4−70662
Arctic atmosphere energy balance, year to year variations 4−46032
atmospheric ozone, world wide distribution and seasonal changes 4−61749
atmospheric pollution *(Norwegian)* 4−50305
Baffin Is., northern Cumberland Peninsula, Late Quaternary glacial and climatic history 4−54167
Colorado Front Range, chronology of Holocene cirque glaciation 4−54168
energy output of man, effect on climate 4−58153
evapo-climatonomy 4−68177
Galapagos Is. dry climate 34000-10000 yr BP due to southern trade wind variations 4−70744
geomagnetic field reversals, effect on climate rel. to faunal extinction 4−70661
Holocene, radiocarbon dating of climatic episodes 4−64924
Holocene climate variations in White Mts., California from treeline fluctuations 4−54248
monsoon rainfall conditions and drought causes over western India 4−80328
NCAR global circulation model, ice age boundary conditions 4−70729
net radiation components, climatological computation 4−54213
Northern Hemisphere, 5-year climatic trend, comments and reply 4−54246
Northern Hemisphere energy budget, solar radiation and temp. change 4−64925

climatology continued
palaeoclimatology on Earth and Mars, episodic change in solar luminosity 4−73627
radar echoes around Nagpur, non-monsoon seasons 4−80331
reconstruction of historical climatic patterns 4−50284
response to small changes in independent variables 4−76720
snowfall ratemeter, using neutron moderation technique 4−83144
solar plants, location feasibility, climatic survey 4−80314
solar plants, radiation climate calc. results 4−80315
stratospheric chemistry, climatic effects 4−61757
turbidity factors in urban and rural environment at Toronto 4−80316
USA, annual frequency of freeze-thaw cycles 4−70733
West Europe, dendroclimatology using Cu-Sum plot 4−61819

clipping circuits *see limiters*

clock paradox *see special relativity*

clocks
see also atomic clocks; chronometers; time measurement
electronic clock, portable, for timing grazing occultations 4−62261
frequency, standards, clockface and mean rate estimation by normal regression theory 4−54818
frequency standards, deviation models 4−65358
International Atomic Time, statistical ageing of clocks 4−65359
time, the grand illusion, elementary particle explanation, de Sitter's expanding universe concepts 4−71395

closed loop control systems *see closed loop systems*

closed loop systems
see also feedback
automatic optimal suppression of nuclear reactor Xe oscillation 4−78197
educational TV centre block-diagram *(Russian)* 4−46540
head-eye coordination to continuous and intermittent displaced targets 4−62300

cloud chambers
cooling rate of gas and walls, analogue control system 4−50406
electron pair detection following hot neutron trapping by Ar *(Russian)* 4−46858

cloud physics *see clouds*

clouds
see also atmospheric precipitation; nucleation; sky
aerosol particle in-cloud scavenging, rate-limiting aspects 4−76705
air-sea interface, cloud layer-cloud sublayer mixing 4−54172
altocumulus and altostratus, optical props. at 10-12 μ and 0.694 μ 4−76699
artificially formed, appl. of pulse lasers *(Polish)* 4−64868
atmospheric planetary boundary layer, vertical struct. in undisturbed trade winds 4−58007
atmospheric spectra, equivalent line width, use of Pade approximants 4−46035
backscatter of near i.r. radiation by artificially-formed clouds *(Russian)* 4−54218
base height, relation with meteorological visibility range 4−68201
charged droplets, collision coeff. and coalescence meas. *(French)* 4−66671
cirrus, radiative props. in window region 4−64898
cold air cumulonimbi, thunderstorm potential 4−61788
composition, laser sensing by backscattered polarisation technique 4−65000
cumulonimbus anvils, threshold corona field strengths *(Russian)* 4−46023
cumulonimbus cloud top heights over Deccan Plateau, radar study 4−80330
cumulonimbus tops near Singapore, 10-cm. radar obs. of storms 4−46037
cumulus, size and spacing by hydrodynamic eqn. numerical integration 4−70707
cumulus cloud diam. depend. on entrainment rate 4−76694
cumulus cloud streets near Christmas Is., wind speed and direction 4−64870
cumulus ensemble, interaction with large-scale environment 4−70708
drop freezing processes 4−76706
drop size spectra, differences in condensation growth rate 4−46026
droplet, condensational growth 4−61785
droplet coalescence, collection kernel eval. 4−76696
droplet collection efficiencies in vertical wind tunnel 4−70728
droplet collection eqn. for polynomial kernels 4−76695
droplet growth by condensation and coalescence in strong updraft 4−54238
dynamic cumulus seeding, Florida, seedable cloud radar populations 4−68189
funnel-cloud shape of one- and two-cell structure 4−50303
global cloud cover, statistical model, beta distribution 4−46033
ice, thin oblate spheroid, effect of forced convection on mass transport 4−76697
ice crystal, dimensions and aggregation in natural clouds 4−58039
ice phase initiation, role of contact nucleation 4−70715
intertropical convergence zone, Indian Ocean 4−61815
i.r. radiation transfer through clouds, calcs. 4−46015
Iraq, cloudiness and incoming solar radiation estimation 4−80348
mid-latitude artificial noctilucent clouds from high-altitude rocket exhaust 4−46054
models, cloud phase parameterization using gamma distrib. 4−54230
moisture content and lower level convergence rel. to cloudiness 4−54211
monochromatic optical thickness from 0.65-13.5 μ meas. 4−54235
multiple scattering in cloud layers, models 4−76727
noctilucent, obs. from Voskhod-2 manned spacecraft 4−50469
noctilucent, obs. in western Europe in 1973 4−83108
noctilucent, rel. to mesospheric circulation *(German)* 4−64941
non-precipitating cumulus convection, parameterization 4−76718
nucleation, AgI plume characteristics, over Bridger Mountain Range, Montana 4−61792
nucleation effiency, effects of urban air pollutants 4−80321
orographic cold, snow augmentation 4−70734
photographs and visual obs. from space of Earth's surface with clouds and shadows *(Russian)* 4−61810
photographs from Salyut orbital station 4−61805
photon path length distrib. for two-layer cloud models *(Russian)* 4−73537

clouds continued
precipitation enhancement by cloud modification, statistical evaluation *(Russian)* 4−83094
radiant heat transfer in cloudy atmosphere, book 4−61823
radiative properties at visible and i.r. wavelengths 4−80359
radiative transfer, appl. to global energy balance of Earth 4−68186
radiowave scattering, polarisation characteristics *(Russian)* 4−58051
raindrop interactions and rainfall rates in clouds 4−80352
reflections, solar, geometry for satellite 4−54242
remote sounding of single cloud layer 4−54336
satellite cloud pictures, role in cyclogenesis forecasting 4−61806
sea-salt cloud condensation nuclei formation on seashore 4−68146
secondary ice particle production during riming 4−46039
seeding expts., freezing level over India, seasonal and latit. var. 4−68172
seeding with artificial ice nuclei, temp. window 4−68188
shadow calculations for Earth surface modelling 4−61807
shallow layer clouds, properties of precipitated columnar ice crystals 4−54239
solar radiation, latitudinal variation 4−64914
South Dakota randomized cloud seeding project, Type I statistical error 4−70735
stereo photogrammetry of cumulonimbus clouds 4−76760
stratiform cloud, effect of atmospheric radiation 4−54234
stratoform, gravity wave breaking phenomenon *(French)* 4−68196
stratosphere, lower, high condensation nuclei conc. meas. 4−68194
stratospheric cloud reports (1870-1972) 4−61741
strong electric fields above ordinary rain cloud 4−50306
sulphate cloud condensation nuclei, Aitken particles obs. as precursors 4−68193
thickness-brightness correlation, Nimbus 4 and ATS 3 data 4−68190
thunder, radio emission in cosmic ray shower interaction 4−76767
thundercloud electrification rel. to rain gush 4−64902
trails from Lesser Antilles Archipelago, satellite obs. and analysis *(French)* 4−68192
tropical cyclone convective cell, initial phase from Soyuz 9 photograph 4−61808
tropical nacreous cloud obs. from Achimota, Ghana 4−76723
tropical overcast and cloudy skies, luminance distrib. 4−54243
tropical showers, localized rainfall pattern 4−54233
tropics, contrasting circulation and cloudiness 4−64888
vortices over S-Hemisphere, classification of satellite obs. 4−76711
zenith scanning, remote temp. sounding with cloud layers 4−70831
Ba cloud growth and striation in conducting background 4−61828
H_2O vapour diffusion coeff. in drop growth eqn. 4−70724
^{222}Rn and cloud condensation nucleus concentrations, correlation coeffs. 4−73550

Clusius-Dickel columns *see isotope separation*

cluster model (nuclear) *see nuclear cluster model*

clusters, stellar *see stellar clusters*

clusters of galaxies
heading is a late addition
see also galaxies; intergalactic matter
A2052, association with X-ray source GX8 + 50, OSO-7 X-ray obs. 4−46262
Abell, radiosource detection at 1400 MHz 4−50667
Abell 1314, radio obs. 4−62195
Abell 1413, structure and luminosity function 4−76902
Abell 2199, upper limit on ionized intracluster gas 4−73792
Abell and Shane-Wirtanen catalogues, cross-correlation analysis 4−73784
background X-rays from hot gas in galaxy clusters 4−54553
Cancer, upper limits for 21 cm emission 4−50658
catalogue of peculiar galaxies, interacting pairs groups and clusters south of dec. × 43° 4−58417
catalogues of galaxies and clusters of galaxies, statistical analysis 4−73783
close encounters between galaxies of equal size 4−65209
Coma, galactic motion heating of intergalactic and intracluster medium 4−71049
Coma, magnitude-redshift bands 4−50659
Coma, redshift-magnitude bands 4−46272
Coma, upper limits for 21 cm emission 4−50658
Coma, X-ray obs. from Copernicus 4−71054
compact groups of compact galaxies, four colour photometry 4−58407
compact groups of compact galaxies, second list 4−58406
counts of galaxies and angular diam.-redshift relation in 9 rich clusters 4−58425
counts rel. to red shift and mean cluster radius, cosmology 4−71043
density profiles from published galaxy counts 4−80624
distant clusters and nightsky brightness fluctuations 4−46266
distribution of galaxies, covariance function 4−54544
excess redshifts in groups of galaxies 4−83247
faint envelopes around groups and chains of elliptical galaxies 4−65201
finite isothermal gas spheres, radial pulsations 4−73604
formation from nonlinear gravitational instability theory 4−73800
galaxy counts in seven distant clusters 4−46274
galaxy distrib. in expanding universe, gravitational-instability picture 4−54546
local cluster from peculiar velocities of field galaxies 4−54554
magnetic field and inverse Compton radiation 4−46270
narrow system of blue galaxies, BV colours and magnitudes *(Russian)* 4−73781
NGC 1023 group, dynamical stability 4−71045
NGC 2403-M81 group bright star photometry rel. to Hubble const. 4−80623
NGC 7172-3-4-6 southern chain of galaxies, blue and red photographs 4−80627
NGC 7201-3-4 southern chain of galaxies, blue and red photographs 4−80627
Pegasus I, upper limits for 21 cm emission 4−50658
Perseus, high-energy X-rays and inverse Compton production 4−46271
Perseus, upper limits for 21 cm emission 4−50658
Perseus cluster core and NGC 1275, X-ray obs. in 0.5-3.1 keV range 4−50678

- **clusters of galaxies** continued
  - protoclusters, radio emission and 21 cm line detection 4-46281
  - QSOs in directions of Abell clusters, radio obs. at 962 MHz 4-50628
  - radio emission from brightest members 4-71048
  - radioemission from clusters with and without bright members 4-58408
  - radiogalaxies in clusters, lifetime of radio emission 4-71055
  - radiogalaxies in rich clusters, steep spectra at 408 and 1407 MHz 4-73758
  - redshift interpretation 4-80631
  - rich clusters as extended X-ray sources 4-68451
  - rich regular clusters, association of spiral and irregular galaxies 4-58430
  - second order cluster evidence from Zwicky's and Abell's catalogues 4-73830
  - space distrib., rel. to galactic absorpt. 4-83248
  - Stephan's Quintet, distance limit of NGC 7318B 4-50676
  - Stephan's quintet, NGC 7319 distance determ. anomalies rel. to supernova props. 4-58431
  - Stephan's Quintet region, low freq. radio obs. 4-73789
  - supernova microwave search for prompt emissions, coincidence expt. 4-58476
  - Virgo, X-ray obs. from Copernicus 4-71054
  - Virgo cluster, supernova absolute magnitudes, extragalactic distance indicators 4-58362
  - X-ray emission rel. to radio emission and optical type 4-50677
- **clutches**
  - *see also drives*
  - electromagnetic, design effects of secondary flows between rot. coaxial cylinders 4-81949
- **coal**
  - *see also mining*
  - borehole prospecting, using earth resistance diff. for spherical probe *(Russian)* 4-58127
  - combustion, extinction of diffusion flames, critical particle size 4-76577
  - magnetometry, standard specific permeability tests using nomogram *(Russian)* 4-54324
  - mine fires, remote sensing of thermal activity 4-61916
  - reaction kinetics, high-press. apparatus 4-83026
  - Si minerals, in respirable coal dust, electron-binding energies determ., ESCA method 4-71277
- **coating processes** *see coating techniques*
- **coating techniques**
  - *see also corrosion protection; electrodeposition; electrophoresis; electroplating; metallisation; protective coatings*
  - cathodic sputtering applics. in lab. and industry *(French)* 4-53566
  - ferrite film prod. on alumina substrates by arc plasma spraying process 4-61494
  - ion plating effects on film adhesion, morphology and coverage 4-53596
  - powders, compound, manufacture and electric charging properties *(Japanese)* 4-82996
  - reactive ion plating, appl. to TiC deposition 4-53773
  - science and technology of surface coating 4-79859
  - vacuum deposition rate meas. using ionisation gauge 4-42772
  - Cu, electroless, $SnCl_2/PdCl_2/HCl$ catalyst, electron microscope obs. 4-61620
  - Ni alloys, pack aluminium, coating mechanism, rel. to Al activity, microprobe analysis obs. 4-49769
  - Y_2O_3:Eu red cathodoluminescent layer chemical vapour deposition on particles 4-49470
  - Zn on steel sheets, continuous thickness meas., using radioactive nuclides *(German)* 4-80830
  - Zn_2SiO_4:Mn green cathodoluminescent layer chemical vapour deposition on particles 4-49470
  - ZrC-C alloy, coating alumina microspheres 4-69297
- **coatings, protective** *see protective coatings*
- **cobalt**
  - addition to Li ferrite with rect. hysteresis loop, dynamic unidirectional anisotropy 4-57304
  - atom, internal partition function, 0-15000K 4-47820
  - creep, temp. and stress depend., cryst. struct. effect 4-73321
  - crystal shape effect on nuclear orientation thermometry at <100 mK 4-79656
  - current distribution nonuniformity in neighbourhood of 180° domain wall, 4.2K 4-60979
  - de Haas-van Alphen effect, Fermi surface, ferromag. 4-57028
  - determination in oil ashes using modulated internal standard method 4-68835
  - diffusion in glassy $CdGeAs_2$, temp. depend. and activation energy 4-56913
  - diffusion in Mo-Co system 4-79180
  - diffusion of hydrogen, f.c.c. and h.c.p. forms comparison 4-52941
  - electron characteristic energy loss in thin film *(Russian)* 4-48658
  - electron irradiated at low temp., atomic displacement 4-75544
  - extinction effect on luminescence of ZnS-CdS phosphors *(Russian)* 4-45346
  - Fermi surface of ferromag. metals, review 4-72681
  - ferromagnet, bulk, acoustic reson. and dispersion, magnetoelastic interactions, theory 4-64266
  - ferromagnetism and hyperfine fields, origin 4-57250
  - field ion microscopy, hydrogen cluster form. and slip 4-67805
  - field ion microscopy, influence of small impurity additions *(German)* 4-61397
  - film, electrolyte for electropolishing and revealing struct. 4-67113
  - film, electrolytically deposited, f.c.c.-h.c.p. transition 4-60713
  - film, evaporated, origin of mag. anisotropy 4-57305
  - film, ion plating preparation method 4-45420
  - film, scanning electron diffraction study 4-79247
  - film electron energy loss spectra and optical consts., 2 to 120 eV 4-69837
  - fine particles, oxide layer morphology and growth rate, electron microscope studies 4-63994
  - Hall coefficient and electrical resistivity, temp. depend. meas. 4-53087
  - isotope mass, meas. by mass spectrographic doublet method 4-59891
- **cobalt** continued
  - lattice dynamics, phonon dispersion relations, specific heat 4-56835
  - magnetic bubble domain struct., changes prod. by ion implantation, direct obs. 4-76109
  - magnetic susceptibility, melting effect 4-49157
  - microhardness anisotropy, Vickers and Knoop obs. 4-53752
  - $muon^+$ precession meas. in transverse fields to 1900Oe *(Russian)* 4-66953
  - nuclear spin-spin relax. meas., model comparison 4-45203
  - optical constants, meas. on evaporated film, 0.5-6.5 eV 4-73095
  - phosphate glass: Co(II), Ni(II), fictive temp. effect on absorption 4-76284
  - plant material, determination by atomic absorption spectrophotometry 4-65583
  - positron annihilation rate calc. for valence and core electrons, mechanism for transition metals 4-48897
  - powder, fine-grained, diffusion const. and surface states of positrons 4-75939
  - radioactive corrosion product transfer in LMFBR, computer simulation 4-81570
  - sediments at bottom of eastern tropical Atlantic, spatial distrib. of Fe, Ni, Co, Mn, Ti, and Cr trace elements *(Russian)* 4-80305
  - superparamagnetic particles, β-phase, precip. in Cu-Co(1 wt.%) alloy, relax. time, Mossbauer obs. 4-76195
  - surface diffusion in hydrogen atmosphere, 1388-1621K 4-63973
  - trace metals in crude oil determ. by nonflame atomic absorption spectroscopy 4-77284
  - X-ray photoemission spectra of valence bands 4-45404
  - X-ray spectra, fine structure in K_α lines obs. using three cryst. spectrometer 4-79807
  - $CaF_2:Co^{2+}$, optical absorption spectra pbs. 4-70332
  - $Co:^{44}Sc$, ang. correlation obs. of hyperfine mag. fields 4-61082
  - Co-Ti composite, effect of shock pulse on intermetallic zone, subsequent heat treatment *(Russian)* 4-70561
  - Co(II) ion in LiCl-KCl eutectic melt, diffusion coeff. determ. by chronoamperometry *(French)* 4-44690
  - Cu:Co, electron spin density near Co atoms, n.m.r. meas. 4-57261
  - $Fe:^{60}Co$, spin-lattice relaxation obs. by n.m.r. 4-53335
  - FeSi:Co, n.m.r., preferential site occupation 4-70224
  - friction, sliding against refractory compounds 4-66983
  - $KCl:Co^{2+}$, X-irrad., thermolum. 4-67670
  - $KMgF_3:Co^{2+}$, dynamical Jahn-Teller effect in ground $^4T_{1g}$ and excited $^4T_{2g}$ orbital triplets 4-48920
  - $MgO:Co^{2+}$, dynamical Jahn-Teller effect in ground $^4T_{1g}$ and excited $^4T_{2g}$ orbital triplets 4-48920
  - $MgO:Co^{2+}$, mag. circular dichroism in visible-u.v. region 4-64410
  - Ni ferrite, Co admixture, effect on spin wave props. 4-67387
  - Ni_3Mn, disordered, ^{57}Co doped, ^{57}Fe Mossbauer lineshapes 4-64307
  - NiS_2:Co, semicond-metal phase diagram, antiferromag. transition 4-75933
  - NiZn ferrites:Co^{3+}, mag. relax. process investigation 4-67360
  - NiZn ferrites:Co^{3+}, prep. for mag. relax. meas. 4-67906
  - n-Si:Co, acceptor state, temp. depend. of energy level and capture cross section 4-75812
  - Tl_2O-B_2O_3:Co(II), glass, light absorption, coordination depend., ligand field 4-64396
  - $ZnS:Co^{2+}$, optical absorption and e.s.r. for cubic, hexagonal and 4H polytype specimens 4-64407
  - ZnS:Cu:Co, photoconductor, thermally stimulated current curves investig. 4-79343
- **cobalt alloys**
  - *see also cobalt compounds*
  - Alcomax III with dynamic excitation, mag. props. 4-70179
  - electrodeposition, evaluation of electrolytes and deposit props. 4-67707
  - eutectic, with TaC fibres, struct. and mech. props. 4-45641
  - fatigue, effect of material characteristics, test variables 4-73322
  - ferrous-based, for CTR energy systems, neutron cross sections 4-74754
  - Heusler alloys, Mossbauer spectra, Sb and Sn hyperfine fields 4-64288
  - rare earth Co_5, mag. domain wall pinning by regions of weak exchange or anisotropy 4-67400
  - rare earth Co_5, magnetic anisotropy theory 4-76102
  - rare earth Co_5 permanent magnets, easy domain wall nucleation investigation 4-60984
  - rare earth cobalt intermetallic cpd., prep. by calcium hydride reduction of oxides 4-61475
  - rare earth cobalt intermetallics, $LnCo_5$, eutectoid decomp. 4-64530
  - rare earth cobaltides, R_5Co_{19}, $R=Ce$, Pr, Nd, CeMM, cryst. struct., parameters determ., RT_x ($T=Fe$, Co, Ni) lattice parameters calc. 4-56648
  - rare earth cobaltides, RCo_5, phase stability, influence on permanent magnetic properties 4-70474
  - rare earth intermetallics, $R_2(Co_{1-x}T_x)_{17}$, $R=Sm$, Er, and $T=Fe$, Ni, mag. characts. and lattice consts. 4-53260
  - rare earth-Co_2, ferrimag., paramag. moments, Neel model anal. 4-60947
  - rare earth-Co, permanent magnets, cryst. defects effect on mag. anisotropy 4-57306
  - rare earth-Co, RCo_5, magnetic anisotropy, crystal field theory 4-57307
  - rare earth-cobalt systems, phase diagrams, review 4-61334
  - silicides, ultralong wavelength X-ray spectra of silicon *(Russian)* 4-53542
  - superalloy, directional solidification, struct. and mech. characts. 4-61409
  - Udimet 520, ageing effect on microstruct. and tensile props. 4-45704
  - Al-Co, soft X-ray emission spectra and electronic states 4-64445
  - $Au_{0.6}$-$Pd_{0.4}$:Co, detection of palladium clusters by form. of Pd-Co alloys *(Russian)* 4-73313
  - Ce-Co liquid alloy, mag. susceptibility meas., mag. phase transition in Ce *(German)* 4-79511
  - Co-12-20 at.% P amorphous alloys, magnetisation studies 4-45152
  - Co-(7 wt.%)Fe, Debye-Waller factors, 20 to 250K from γ-ray resonance spectra 4-52892
  - Co-Al(Sn), dil., core and cond. electron polarization fields at impurity ^{57}Fe nucleus, Mossbauer obs. 4-64286

cobalt alloys continued
Co-Co_3Nb, directionally solidified eutectic, thermal cycling, domain struct. 4–82584
Co-Cr, thermodynamic props., equil. phase boundaries 4–45529
Co-Cr and Co-Cr-Fe, high temp. hardness and heat resist. *(Russian)* 4–49794
Co-Cr-TaC eutectic, directionally solidified, strengths and failure mechanisms 4–80009
Co-Fe, cryst. struct. and phase transform. exam., double h.c.p. phase 4–76416
Co-Fe, diffusional growth of (Fe,Co)O scales 4–44790
Co-Fe, oxide scales, metal diffusion props. 4–48866
Co-Fe, sulphidation props. in H_2/H_2S atm. at 700°C 4–70487
Co-Fe film, 80-100% Co, mag. and electric properties 4–49090
Co-Fe-Ni-Al, mag. props., effect of heat treatment and mag. tempering 4–64239
Co-Fe-Ni-Al-Ti, annealed, titanium effect on β and β_2 phase props. 4–61441
Co-Fe-Ru in f.c.c. and h.c.p. phases, magnetisation, Mossbauer and cryst. struct. meas. 4–82588
Co-Mn, electrodeposited, electrolyte parameters influence *(Rumanian)* 4–60987
Co-Ni, equiatomic, phonon dispersion relations, longitudinal and transverse branches 4–82235
Co-Ni ferromagnetic alloys, multiband coherent-potential approximation with orbital degeneracy 4–49148
Co-Ni-Al-Cu-Ti, nonmetallic inclusions influence on solidification behaviour 4–64559
Co-Ni-Cr-Nb, niobium phases precip. 4–79952
Co-Ni-Cr-Ti, coarsening behaviour of γ' particles 4–45547
Co-Ni-Ti, yield point, temp. depend., -196-400°C *(Russian)* 4–61415
Co-P, ferromag., mag. struct. determ. using neutron diffr. 4–64222
Co-P alloys, amorphous, mag. props. 4–60978
Co-P metallic glasses, mech. characts. 4–76453
Co-rare earth, binary alloys, light rare earth X-ray fluoresc. anal. *(German)* 4–71291
Co-Si eutectoids, aligned, discontinuous coarsening obs. 4–53673
Co-Sm system, phase identification using computer-simulated electron diffr. patterns 4–78872
Co-Sn, dil. alloy, hyperfine field interaction 4–57250
Co-Sn, eutectic structures at high undercooling 4–57725
Co-U, phase composition, thermodynamic props. investig. by emf method 4–53666
Co-W, magnetic state due to quenching and annealing *(Russian)* 4–79546
Co-W alloys, electrodeposition mechanism, expt. data *(Russian)* 4–76605
Co_{1-x}, Fe_xSi, low temp. study, magnetic behaviour of Co and Fe nuclei 4–70237
CoAl, ^{27}Al Knight shift and mag. susceptibility 78-1100K *(Russian)* 4–79618
$Co_{1+x}Al_{1-x}$, $x<5\times10^{-3}$, specific heat meas. at $T\simeq10K$, rel. to Kondo effect *(French)* 4–79498
$(Co_{3.5}Cu_{1.5})Pr_{1-x}Y_x$, lattice parameters and coercivity 4–63793
CoFeGe(Sb), $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4–73057
CoFeGe(Sb) alloys, $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4–73057
Co_cGa, ($C=0.85$-1.46), mag. props. rel. to atomic struct. 4–45098
Co_2MnSn ferromagnetic alloy under 14 kbar pressure, Mossbauer effect *(Russian)* 4–82647
$(Co_3Ni_2)Pr_{1-x}Y_x$, lattice parameters and coercivity 4–63793
Co_2Si-Ni_2Si, elec. and mag. props., band struct. *(Russian)* 4–60725
$Co_{1-x}V_x$, depend. of lattice parameters and mag. moments on comp. 4–48540
Cr-Co, nonferromag. dil., Invar and Elinvar characts. *(Japanese)* 4–61012
Cu-Al:Co liquid alloy, impurity susceptibility 4–45094
Cu-Al-Co alloys, influence of vacancies on nucleation of new phase *(Russian)* 4–73297
Cu-Co, dilute, n.m.r. meas., 1.4 to 290K, diamag. deviation of Knight shift 4–82625
Cu-Co, particle size and spacing effect on steady state creep 4–64586
Cu-Co and Cu-Fe-Co, dil., low temp. thermo-e.m.f. *(Russian)* 4–64066
Cu-Co dilute disordered alloys, virtual bound states 4–79267
Cu-Co system, stabilization of equiaxed precipitate array, Ostwald ripening 4–67804
Cu-Co(1 wt.%), relax. time of superparamag. β-Co particles, Mossbauer obs. 4–76195
$(Cu_{0.83}Pd_{0.17})_{1-c}Co_c$, dilute, paramag. Curie temp., influence of order-disorder transitions 4–45115
Fe-Co, dilute, moment distribs. and hyperfine fields at solute atoms 4–53224
Fe-Co, equiatomic, application of moment expansion technique *(French)* 4–53658
Fe-Co, order state and mech. props., non-stoichiometry and V addition influence *(French)* 4–67801
Fe-Co film, plasma surface cleaning, obs. using Auger electron spectroscopy 4–56996
Fe-Co films, vacuum-deposited, atomic ordering, electron diffr. obs. *(Russian)* 4–60429
Fe-Co-Cu-V, semi-hard mag. material characts. *(Japanese)* 4–45139
Fe-Co-Cu-V, semi-hard mag. material characts. and prop. changes on heating *(Japanese)* 4–45140
Fe-Co-Mn, strain gauge factor and elec. props. 4–49837
Fe-Co-Ni, high-coercivity, phosphorus additions effect on mag. characts. 4–82586
Fe-Co-Ta semi-permanent magnet alloys, development *(French)* 4–45694
Fe-Co-V, f.c.c., Mossbauer ^{57}Fe absorption, cluster model 4–64289
Fe-Co-V, heat treatment influence on microstruct. 4–79940
Fe-Co-V, mag. and mech. props. correl. with microstruct. 4–80014
Fe-Co-V, thermal ordered domains and mech. antiphase boundaries 4–49723
Fe-Co-V (2.5 to 3.0 wt.%) alloy, phase equilib., annealing, microstruct. 4–70441

cobalt alloys continued
Fe-Cr-Co, phase decomp. and 475°C embrittlement *(Japanese)* 4–45501
Fe-Ni-Co-Mo, field ion microscopy of aged martensite 4–61395
Fe-Ni-Co-Ta, precip. in austenite influence on martensite morphology 4–49726
FeCo, ordered, 550°C transition, sp. ht. and resist. obs. *(Japanese)* 4–45498
FeCo, ordered and disordered, slip deform., effects of strain, temp. and atomic order 4–82912
Gd-Ca, amorphous film, static bubble domain props. 4–76113
Gd-Co alloy film, amorphous, for bubble domain and magneto-optical applic. 4–57338
Gd-Co compounds, thermal expansion anomalies, room temp. to 700°C 4–75637
GdCo, amorphous bubble domain material anisotropy factor affected by local heating 4–64236
$GdCo_2$, Co hyperfine field, rel. to magnetic structure, temp. depend. 4–70164
$Gd_{1-x}Co_x$ film, amorphous, r.f. sputtered, perpendicular anisotropy 4–57330
Ge-Co, liq., mag. props., conc.-temp. depend., 900-1700°C *(Russian)* 4–45091
Ge-Co system alloy form. kinetics 4–70436
Ho-Co amorphous films, differences in T_c of amorphous, cryst. states, mechanism 4–76128
Mo-Co, dil., anomalous resist., 1.5K-room temp. 4–45093
Mo-Co, interdiffusion and layer growth 4–79180
Nb-Co-Si, equil. at 1200°C, ternary silicide phase parameters *(French)* 4–53647
Ni-Co, effect of mag. transformations on stacking fault energies *(Russian)* 4–79947
Ni-Co, fracture toughness theory development, K_{Ic} prediction from tensile data 4–67815
Ni-Co, grain size influence on mech. props. *(Russian)* 4–45710
Ni-Co, high field susceptibility meas. up to 300 kOe, rigid band model 4–76060
Ni-Co, lattice parameter conc. depend. w.r.t. ordering in Ni_3Co 4–75481
Ni-Co, magnetic form factor analysis, new interpretation of experimental data 4–57288
Ni-Co, oxide scales, metal diffusion props. 4–48866
Ni-Co, shot peened, fatigue stability and residual stress 4–45658
Ni-Co, sp. ht. meas. in temp. range 1.2-8K 4–49180
Ni-Co (25%), ordering in deformation and annealing, transformation characts. *(Russian)* 4–79904
Ni-Co-Cr-Mo system, phase diagram, σ phase behaviour in superrefractory alloys *(French)* 4–45530
Ni-Co-Nb, segregation of elements, influence of silicon *(German)* 4–49700
Ni-Cr(20 wt.%)-Co(35 wt.%)-Al(4 wt.%) alloy, containing γ' particles, high temp. steady state creep, mech. *(Japanese)* 4–45627
NiFeCo film, domain wall motion, coercive force and easy axis bias effects 4–57335
Pd-Co, high press. effect on Curie temp., Mossbauer spectra 4–67371
Pd-Co:Sn, mag. hyperfine interaction at low temp. 4–79509
$Pd_{80-x}Co_xSi_{20}$, amorphous alloys, electrical resistivity, low temp. minimum 4–70009
$Pd_{80-x}Co_xSi_{20}$, amorphous alloys, magnetic properties, effect of Co conc. 4–70182
$Pr_xSm_{1-x}Co_5$ permanent magnet alloys, sintered, prep. 4–61473
Pt-Co, high press. effect on Curie temp., Mossbauer spectra 4–67371
Pt-Co alloy, physical and chemical properties of electroplated layers *(Russian)* 4–53270
Pt_3CO, FIM image interpretation, atom probe investigation, comment 4–63790
Pt_3Co, FIM image interpretation, atom probe investigation, reply 4–63791
Sm-Ce-Co-Fe-Cu, permanent magnet props., cryst. structures 4–79541
Sm-Co compounds, thermal expansion anomalies, room temp. to 700°C 4–75637
Sm-Co system, phase diagram, electron-beam microprobe analysis 4–61341
$Sm_2(Co, Fe)_{17}$, permanent magnet characts. 4–60980
$SmCo_{4.8}$ and $SmCo_5$, metallography, adherence of swarf after fine grinding and polishing *(German, English)* 4–82866
$SmCo_5$, cryst. field anisotropy of Sm^{3+} 4–72987
$SmCo_5$, internal oxidation, microstruct. and growth kinetics of fibrous composite subscale 4–82855
$SmCo_5$, microstruct. changes caused by O_2, sinter-annealing, and thermal ageing 4–64549
$SmCo_5$, permanent mag. props., annealing temp. depend. 4–57318
$SmCo_5$, solid-phase sintering, kinetics, mechanism and effects 4–64576
$SmCo_5$, temp. depend. peculiarities of mag. props., 77-300K 4–67403
$(Sm_{1-x}Pr_x)Co_5$, domain struct. of magnets *(Russian)* 4–67394
$(Sm_{1-x}R_x)Co_{17}$, ($R=Pr$, Gd, Y), mag. characts. and lattice consts. 4–53260
$Th(Co_xFe_{1-x})_5$, intermetallic compounds, cryst. and mag. struct. 4–70167
Ti-Co-Ga, X-ray diffraction and microscopical analysis, phase equilibria *(Russian)* 4–76414
TiC-Co cemented carbides, stat. analysis of behaviour under high press. 4–70553
TiCo, $M_{2,3}(3p)$ X-ray emission band obs. 4–73213
$TmCo_2$ single spherical crystal, magnetic properties, rel. to crystal axes 4–64194
U_2Co_{11}, standard Gibbs energies determ. by solid electrolyte e.m.f. method 4–51878
VCo_3, transformation temp., mag. props., hexagonal order 4–57258
WC-Co, fracture toughness parameters determ. 4–73362
WC-Co, shock hardening *(Russian)* 4–53786
WC-Co alloy, sintering in hydrocarbon-hydrogen mixtures 4–70526
WC-Co alloy, strength increase by vibr. and thermo-vibr. treatment *(Russian)* 4–53733

cobalt alloys continued
WC-Co alloys, sintered, WB effect on phys. and mech. props. 4−70528
WC-Co cemented alloy, SiC addition effect on microstruct. *(Korean)* 4−67911
WC-Co cemented carbides, stat. analysis of behaviour under high press. 4−70553
WC-Co heterogeneous system, anodic polarisation and passivity *(Russian)* 4−53794
Y-Co powder magnet, magnetic properties and heat treatment *(Japanese)* 4−61407
Y-Sm-Co powder magnet, magnetic properties and heat treatment *(Japanese)* 4−61407
$Y_xLa_{1-x}(Co_yFe_{1-y})_5$, cryst. struct. and mag. props., neutron diffraction obs. 4−70166
ZrCo, $N_{2,3}(4p)$, $M_{4,5}(3d)$ and $M_{2,3}$ X-ray emission bands obs. 4−73213
ZrCo and $Zr_{50}Co_{50-x}Ni_x$, struct. and mech. props. 4−64550
ZrMnCo, strong paramagnetism, reciprocal susceptibility 4−72950

cobalt compounds
see also cobalt alloys
acetate, cryst. struct. *(Spanish)* 4−52750
cobaltocene, e.s.r. in rare gas matrices, 4.2K 4−72226
etioporphin Co complex, optical and mag. props., effect of complex form. and metal valency *(Russian)* 4−45329
glass:Pr_2O_3, CoO, colorant effect on light absorpt. 50000 to 5000 cm^{-1} 4−49397
halides, u.v. absorption, transition assignment 4−49372
halides, X-ray photoemission spectra of valence electrons 4−49521
oxalates, dihydrated, stacking fault struct. *(French)* 4−56757
rare earth cobalt borides, RCo_4B, $R_3Co_{11}B_4$ and $R_2Co_7B_3$, cryst. struct. 4−48586
tetraphenylporphin Ca complex, optical and mag. props., effect of complex form. and metal valency *(Russian)* 4−45329
$[CO(NH_3)_6]Cl_3$ hydrated electron formation upon crystal dissolution with F-centres *(Italian)* 4−50217
$[Co(NH_3)_5H_2O]Cl_3$ hydrated electron formation upon crystal dissolution with F-centres *(Italian)* 4−50217
$[Co(NH_3)_6]_2(C_2O_4)_3.4H_2O$, ^{57}Fe Mossbauer emission spectra, oxalate ion effect on second coord. sphere of Fe oxidation state 4−61066
$[Co(NH_3)_6]X_2$ crystal, X=Cl, Br, I, BF_4, ClO_4, PF_6, vibrations, i.r. and Raman spectra 4−64380
$Ba_3Co_2Fe_{24}O_{41}$, microstruct. changes during sintering 4−76522
CO(II) complexes, multiplet splitting in 2p photoelectron peaks 4−49520
Co complex, cis-diaquotetramminecobalt(III)sulphate, molecular motion in solid, n.m.r. determ. 4−53316
Co complex, $Co(CO)_2NOSb(C_6H_5)_3$, cryst., mol. struct., parameters determ. by Patterson and Fourier methods 4−56663
Co complex, $Co(DMSO)_6^{2+}$, n.m.r. obs. 4−48083
Co complex, oxalatobisethylenediaminecobalt(III) ion, photolysis experiment for students 4−58695
Co complex, polyethylenepolyaminecobalt(II), i.r. spectrum and structure 4−48165
Co cupferrate complex, u.v. and visible spectra, spectral line shift, solvent effect 4−49390
Co-Mn-O_2, dispersion, electrokinetics of semiconducting material 4−76607
$CoAl_2O_4$, calc. nucl. quadrupole couplings, dipole polarizability of O ion, spinel struct. 4−82634
$Co_{6.95}As_{3.62}O_{16}$, crystal structure 4−48561
CoB, energy bands, K-spectra 4−53546
CoB, mag. susceptibility and elec. resist., temp. depend. 4−60940
CoB, nucl. elec. quad. and shift parameters 4−57390
$Co_3B_7O_{13}Cl$, improper ferroelec., optical absorpt. edge in transition region 4−45257
$Co_2BaFe_{16}O_{27}$, W-type hexaferrite, influence of Co^{2+} ions on magnetostriction 4−73007
$CoBr_4^{2-}$ ligand field spectra, molecular orbtal based model, derivation and tests 4−49380
$CoBr_2.6H_2O$, antiferromag. susceptibility, spin wave theory, crit. behaviour 4−60965
$CoBr_2.6H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4−61043
$CoBr_2.6H_2O$, specific heat transition rounding, residual stress effects 4−72964
$CoBr_2.6[(1-x)H_2O, xD_2O]$, deuteron quadrupole reson., low temp. antiferromag. struct. *(French)* 4−76184
$(-)_{589}-(Co(C_{11}H_{30}N_6))(Co(CN)_6)$ cryst., mol. struct. configuration, $3H_2O$, conformation determ. 4−56664
$CoCO_3$, mag. birefringence, domain struct. obs. 4−79550
$CoCO_3$, mag. birefringence *(Russian)* 4−79706
$CoCl_2$/graphite laminar cpds., mag. ordered state with easy plane type anisotropy *(Russian)* 4−67406
$CoCl_4^{2-}$ ligand field spectra, molecular orbital based model, derivation and tests 4−49380
$CoCl_3((CH_3)_3NH).2H_2O$, metamagnetism, spin arrangements and magnetisation state, n.m.r. obs. 4−57291
$CoCl_2.2H_2O$, linear Ising system, far i.r. laser spectroscopy meas. 4−57540
$CoCl_2.2H_2O$, metamagnetic behaviour determ. by neutron diffraction 4−53244
$CoCl_2.6H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4−61043
$CoCl_2.6H_2O$, mag. phase boundaries, spin wave renormalization 4−64205
$CoCr_2O_4$:^{57}Co, ^{57}Fe, Fe^{2+}, Fe^{3+} siting, Mossbauer obs. 4−64311
$CoCr_2S_4$, magneto-optical props., near i.r. 4−57504
$CoCs_3Cl_5(Br_5)$, mag. struct., Luttinger-Tisza calc. 4−45122
CoF_2, antiferromag., circular and mag. circular dichroism meas. 4−57567
CoF_2, antiferromag. reson. freq. depend. on mag. field *(Russian)* 4−67460
CoF_2, electronic Raman transitions, rel. to mag. susceptibility 4−53433
CoF_2, ferromagnetoelastic domains 4−73084
CoF_2, flux growth under reducing conditions 4−57684
CoF_2, Heisenberg antiferromagnet, two-magnon Raman scatt. using model Hamiltonian 4−45290

cobalt compounds continued
CoF_2, optical mode gammas, press. derivatives and elastic and dielectric consts., rigid ion model 4−75592
$CoFe_{2-x}Cr_xO_4$ (x=0.5; 1; 2), magnetic properties in the range 77K to room temperature, fields up to 12 kOe *(Russian)* 4−82589
$CoFe_{2(1-c)}Cr_{2c}O_4$, crystallochemical and mag. props. *(Russian)* 4−67356
$Co_{1-x}Fe_x^{2+}Fe_2^{3+}O_4$, image furnace growth, electrical resistivity, low temps. 4−82808
$CoFe_2O_4$, in high temp. aqueous systems, formation, reduction and oxidation, thermodynamic data 4−45947
$CoFe_2O_4$, kinetics and mech. of form. from $Co(OH)_2$ and Fe(OOH) 4−44496
$CoFe_2O_4$, Sb^5-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion specific props. 4−70235
$Co_xFe_{3-x}O_4$, (x=0 to 0.63), d.c. and a.c. conductivities, 4.2 to 300K 4−44923
$Co_xFe_yO_2$, oxide scales on binary alloys, metal diffusion props. 4−48866
$(Co_xFe_{1-x})_2P$, orthorhombic, magnetocryst. anisotropy 4−82578
Co_5Ge_3, homogeneity region and mag. susceptibility 4−49687
$CoGeO_3$, magnetoelec. new materials 4−82539
Co_2GeO_4, electronic Raman transitions, rel. to mag. susceptibility 4−53433
CoI_2, adsorption of methane and krypton, interaction energies determ. *(French)* 4−44778
Co(II) and Co(III) complexes, X-ray photoelectron spectra, electronic struct. 4−61271
Co(II) complex, $Co(C_{11}ON_2H_{12})_2(NO_3)_2$ *(French)* 4−78965
Co(II) complex, dibromobis-[5-(2-hydroxyethyl)-4-methylthiazole]Co(II), cryst. struct. 4−78973
Co(II) complex, hexaaquocobalt bis(hydrogen-2,2'-dithiobisbenzoate)-hexahydrate-tetrakismethanol, struct. 4−48549
Co(II) complex, magnetic behaviour with different ligands 4−79493
Co(II) complex, pseudotetrahedral, h.p. electronic spectrum 4−53459
Co(II) complex, square pyramidal, strong crystalline field perturbation calc. 4−53049
Co(III) complex, $(+)_{510}$-oxalatobis-(R,S-2,4-diaminopentane) cobalt (III) perchlorate monohydrate, cryst. mol. struct., absolute configuration determ. 4−78967
Co(III) complex, $(+)_{589}$-tris(biguanide)Co(III) trichloride monohydrate, cryst. struct. 4−60443
Co(III) complex, bis(pyridinealdehydethiosemicarbozonato)cobalt chloride, cryst. struct. 4−75517
Co(III) complex, cis-[adeninato-chloro-bis(ethylenediamine)cobalt(III)]bromide monohydrate, cryst., mol. struct., parameters determ., conformation 4−56669
Co(III) complex, mer-triazidodiethylenetriaminecobalt(III), cryst. struct. 4−78976
Co(III) complex $(+)_{589}$-$[Co(R\text{-}pn)_3][Co(Cn)_6].2H_2O$, cryst. struct., complex cation conformation investig. 4−75485
Co(III)-complexes, appl. of hybridization theory 4−72125
$CoI_2.2H_2O$, n.q.r., 69.62 and 138.65 MHz 4−76185
$CoMn_2O_4$:^{57}Co, ^{57}Fe, Fe^{2+}, Fe^{3+} siting, Mossbauer obs. 4−64311
$CoMoO_4$, polymorphic transformations, 25 to 1200°C, high temp. X-ray meas. 4−72569
$CoMo_2S_4$, mag. props., elec. props., rel. to struct. *(French)* 4−67352
trans-$(Co(NH_3)_4Br_2)Br(Cl)$, n.m.r. obs. of mol. motion 4−53334
$Co(NH_3)_6Cl$, anisotropic chemical shift of ^{59}Co 4−70227
$Co(NH_3)_6Cl_3$, nucl. elec. quadrupole splittings of ^{59}Co 4−73032
$Co(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
$Co(NO_3)_2$ thermal conductivity meas. of liquid and solid states *(Russian)* 4−44713
$Co_{1-x}Ni_xAsS$, solid soln. series, prep. and characterization 4−69771
CoO, antiferromag. transition, positron annihilation meas. 4−67365
CoO, antiferromagnetic neutron diffr. with nuclear polarisation from HFS interaction, 0.35-4.2K 4−72975
CoO, CoO-Zn(Mg)O solid solutions, chemisorption of O_2, e.p.r. obs. 4−48851
CoO, elastic constants, Krishnan-Roy theory 4−56794
CoO, exchange interaction between orbitally degenerate Co^{2+} ions 4−49164
CoO, final-stage densification during press.-sintering diffusion model 4−45742
CoO, initial stage sintering kinetics 4−64602
CoO, intermediate stage sintering kinetics 4−64603
CoO, mag. anisotropy from exchange interaction and struct. 4−49188
CoO, optical absorption edge, antiferromag. transition effect 4−79749
CoO, thermal diffusivity and specific heat, simultaneous meas. nr. antiferromag. transition 4−48770
CoO-Fe_2O_3-B_2O_3 system glass-ceramics, mag. characteriz. 4−79545
CoO-MgO-Cr_2O_3-TiO_2SnO_2 system, spinel solid soln. form. and colour *(Japanese)* 4−49919
CoO_{1+x}, Co_3O_4 and $Li_xCo_{1-x}O$, oxygen chemisorption effect on photoemission 4−57671
Co_3O_4, adsorbed NO, X-ray photoelectron spectra 4−56981
Co_3O_4, model substance for coplanar thin film thermistor effect switching 4−44974
Co_3O_4:^{57}Co, ^{57}Fe, Fe^{2+}, Fe^{3+} siting, Mossbauer obs. 4−64311
Co_2P, band struct. calc., spin independent 4−44842
CoP_xS_{2-x}, prep., cryst. struct., mag. props. 4−72965
$CoRh_2O_4$:^{57}Co, ^{57}Fe, Fe^{2+}, Fe^{3+} siting, Mossbauer obs. 4−64311
CoS, sulphur Kβ emission spectra and electronic struct. 4−79809
CoS_2 suspension, catalyst for D_2O enrichment by electrolysis 4−43636
CoS_2-NiS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
$CoSb_2O_6$, antiferromag., susceptibility, 4-1000 K, Neel pt. *(French)* 4−45096
CoSi, elastic consts., lattice dynamics 4−60534
Co_2SiO_4, isothermal compressions of synthetic spinel phase 4−44587
$Co_{21}Sn_2B_6$, induced superfine fields on ^{119}Sn below Curie temp. *(Russian)* 4−53347

cobalt compounds continued
CoV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4−72448
$^{57}CoCl_2$, Mossbauer study by evaporation onto metal oxide surfaces 4−45221
$(Cr_{1-x}Co_x)_2As$ solid solns., cryst. struct. and mag. props. *(French)* 4−48563
$Cs_{x-2}CoCl_x$, x=3-5, vertical Bridgman growth 4−61286
FeS_2-CoS_2, pyrite struct., ferro-, antiferro-and paramag. props., metal and insulator phases 4−76057
LiCoAl ferrite, ferromag. reson., elastic stress depend. *(Russian)* 4−57381
$(Mn_{1-x}Co_x)_2As$ solid solution, mag. transition comp. depend. rel. to struct. obs. *(French)* 4−49173
MnO-CoO-CuO sinters, thermoelec. props. rel. to thermistor applic. *(Polish)* 4−57117
$(NH_4)_2Co(SO_4)_2.6H_2O:Cu^{2+}$, e.s.r., spin-lattice relaxation 4−67443
NiCoCuMn ferrite, piezomagnetic, static mag. props. 4−64252
$Ni_xCo_yO_z$, oxide scales on binary alloys, metal diffusion props. 4−48866
Re-Co-B system, crystal structure of newly established ternary compounds 4−67019
TiO-CoO, solid soln., therm. conductivity meas. over temp. range 100-1100K 4−70006

cochlea *see ear*

Cockcroft Walton rectifiers *see voltage multipliers*

code convertors
see also codes; information theory
GRAY-BCD disc for HELENA neutron diffractometer *(Russian)* 4−48481
optical correlation technique for character reading 4−58838

codes
see also encoding
coded reference holograms property, displacement effect on quality of reconstructed image *(Japanese)* 4−43266

coding *see encoding*

coefficient of thermal expansion *see thermal expansion*

coercive force
see also hysteresis
Alcomax III, prop. variation with size on 50Hz excitation 4−57312
ferro-ferrite lamellar film, exchange coupling effect *(Russian)* 4−61004
ferromagnetic film, rel. to ion plating deposition method 4−45420
glass ceramics containing ferrite phase, suitability as memory material 4−49194
orthoferrite, domain walls, reln. between struct. and defects 4−57321
Permalloy film, cathodically sputtered, mag. props. depend. on deposition parameters *(Russian)* 4−53261
Permalloy film, rel. to nonlinear domain wall velocity 4−57334
Permalloy films, coercivity spectrum and cross tie wall deform. 4−45148
rare earth Co_5, mag. domain wall pinning by regions of weak exchange or anisotropy 4−67400
rare earth cobaltides, RCo_5, phase stability, influence on permanent magnetic properties 4−70474
spinel compounds, hidden antiferroelec. and other phys. props. 4−70270
steel, low-C electric sheet, mag. ageing 4−60986
uniaxial crystals with twinned orientations, mag. reversals *(Russian)* 4−60975
$BaFe_{12}O_{19}$, prep. by wet method *(Japanese)* 4−45414
$BaFe_{12}O_{19}$ powder, milling effect on intrinsic coercivity 4−64245
$Ca_2Nb_2O_7$ single crysts., ferroelec. props. 4−64351
$Cd_{1-x}Cu_xCr_2S_4$, paramag. and ferromag., Cu conc. depend. 4−60945
Co-12-20 at.% P amorphous alloys, measurements showing negligible results 4−45152
Co-Fe-Ni-Al, alloys, effect of heat treatment and mag. tempering 4−64239
Co-Mn alloy, electrodeposited, electrolyte parameters influence *(Rumanian)* 4−60987
Co-P alloys, amorphous, mag. props. 4−60978
Co-W alloy, magnetic state on quenching and annealing *(Russian)* 4−79546
$CoCl_2$/graphite laminar cpds., mag. ordered state with easy plane type anisotropy *(Russian)* 4−67406
$(Co_{3.5}Cu_{1.5})Pr_{1-x}Y_x$, lattice parameters and coercivity 4−63793
$CoFe_{2-x}Cr_xO_4$ (x=0.5; 1; 2), in temperature range 77K to room, fields up to 12 kOe *(Russian)* 4−82589
$(Co_3Ni_2)Pr_{1-x}Y_x$, lattice parameters and coercivity 4−63793
CoO-Fe_2O_3-B_2O_3 system glass-ceramics, mag. characteriz. 4−79545
Cu-Mn-Al alloys, magnetisation and coercive force *(Japanese)* 4−45150
EuYbY garnet films, LEP, charact. 4−49202
Fe, deformed single crystals, mag. obs. on dislocation density at 295K 4−57731
Fe, particle suspension, 4.2-300K 4−60989
Fe, permanent magnet prod. and effect of technological factors on mag. props. 4−70537
Fe-Co-Cu-V alloys, semi-hard mag. material characts. *(Japanese)* 4−45139
Fe-Co-Cu-V alloys, semi-hard mag. material characts. and prop. changes on heating *(Japanese)* 4−45140
Fe-Co-Ni alloy, high-coercivity, phosphorus additions effect on mag. characts. 4−82586
Fe-Co-V alloys, mag. and mech. props. correl. with microstruct. 4−80014
Gd, a.c. susceptibility and hysteresis, domain effects near Curie temp. 4−45141
$Li_{0.5}Fe_{2.5}O_4$:Ru, photomagnetic effects obs. 4−60985
Mn-Bi-Te film, magneto-optical material, temp. depend. 4−57331
MnBi film, component ratio depend. 4−70285
MnBi film, temp. depend., rel. to laser beam addressing 4−57337
MnBi film, temp. depend. 4−53271
MnBi thin films, mag. domain config. 4−76127
$Nd_2Ti_2O_7$, characterization 4−76223
Ni-Co alloy, effect of mag. transform. on stacking fault energies *(Russian)* 4−79947

coercive force continued
Ni-Fe, plastically deform. polycryst. wires, coercive field, temp. depend. 4−72997
Ni-Fe-Nb system, Hardperm high permeability alloys 4−67399
$NiCl_2$/graphite laminar cpds., mag. ordered state with easy plane type anisotropy *(Russian)* 4−67406
$NiCr_xFe_{2-x}O_4$, effect of chem. uniformity on mag. props. 4−49168
NiFeCo film, domain wall motion, coercive force and easy axis bias effects 4−57335
NiZn ferrite, Co substituted, temp. depend. of mag. props. 4−73001
$Pd_{80-x}Co_xSi_{20}$ amorphous alloys, effect of Co conc. 4−70182
Sm-Ce-Co-Fe-Cu, permanent magnet props., cryst. structures 4−79541
$Sm_2(Co, Fe)_{17}$, permanent magnet characts. 4−60980
$SmCo_5$, permanent mag. props., annealing temp. depend. 4−57318
$(Sm_{1-x}Pr_x)Co_5$, domain struct. of magnets *(Russian)* 4−67394
$Sn_2P_2S_6$, ferroelectricity, spontaneous polarisation, coercive force 4−73086
Sr, ferrite powder samples, depend. on packing density 4−45153
WC-Co alloys, sintered, WB effect on phys. and mech. props. 4−70528
$Y_3Fe_{5-x}Ga_xO_{12}$, single crysts., losses during alternating magnetisation *(Russian)* 4−72991

coercivity *see coercive force*

coherence
see also light coherence
cylindrically spreading waves in random medium 4−76991
e.m. wave scattering, random medium, coherent field in terms of coherent Green function 4−78733
pump beams, combined interaction noise combination radiation *(Russian)* 4−74522
radiation field, relation between maximal entropy and degree of coherence 4−51544
spatial coherence of short period infrasonic noise for noise-reducing array 4−77009
surface scatter channel coherent transfer function, ultrasonic scale modelling and impulse probing 4−73932
He-Ne gas lasers, length standards *(French)* 4−42698

cohesive energy *see binding energy*

coils
see also inductors; solenoids; windings
50 kG toroidal field, for high field ORMAK 4−56542
50 kG toroidal field, for high field ORMAK 4−56543
Ayrton-Jones current balance dynamometer modification for standard ampere 4−65343
bias coil system for proton magnetometer for geomag. meas. 4−61905
CLEO stellarator/Tokamak exptl. machine design 4−59871
conductor surface heating by pulsed mag. field, minimization 4−55424
correlation search coil magnetometer for artificial satellite 4−71075
cryogenic, field, toroidal, liquid-cooled, thermal insulation influence 4−56544
Doublet IIA Tokamak field shaping coil design and diagnostic access 4−60331
field, toroidal, for PLT machine, design and manufacture 4−56537
fusion Tokamak reactor torus, superconducting coil elastic stability analysis 4−59873
induction, coaxial with arbitrary number of cylindrical conductors, vector potential and induction characts., calc. 4−51501
magnetic field production, up to 440 kOe, pulsed, unit design 4−51504
mirror coil development, 250-kG, for linear Scyllac experiment 4−56535
plasma application, PLT machine ohmic heating and shaping field, windings design 4−56539
plasma confinement, toroidal field coil, loading and stresses 4−56538
pulse coil design, 2XII-B 4−56536
toroidal, e.m. field analysis *(Russian)* 4−47273
toroidal field, of Princeton Large Torus, support structure 4−56540
Nb_3Sn tape superconducting coil performance in He gas up to 17K, obs. 4−59875

coincidence circuits
see also counters
anticoincidence gate for single channel pulse height selector 4−55090
delayed coincidence determ. of He 2^3p state lifetime with invertron 4−74831
multiple beta-single gamma detector assembly for low-level coincidence spectroscopy 4−55056
neutron coincidence method for accumulated Pu meas. in U boxes of power reactors 4−46803
telescope counter detection system, low-energy ion-beam surface anal. 4−68788

coincidence counters *see coincidence circuits; counters*

cold-cathode tubes
see also counting tubes; photomultipliers; phototubes
camera tube, using GaAsP cold cathode development, electron energy distrib. and applic. 4−64483
diode, correlated IV relationship for prebreakdown region 4−44414
He-Ne laser popular design with cold-cathode tube 4−81299

cold forming *see cold working*

cold reduction *see cold working*

cold shortness *see brittleness*

cold working
see also bending; plastic deformation; slip; work hardening
metal, deformed state, recrystn. nucleation 4−70460
noble metal alloy, cold-worked, lattice thermal cond., 0.5-4K 4−44640
steel, austenitic stainless, Type 1616, effect on elevated temp. stress components 4−53780
steel, cold shortness threshold and impact strength *(Russian)* 4−76461
steel, cold-rolled sheet, residual stresses and flatness defects *(German)* 4−45580
steel, cold-rolled strip, flat and uneven, residual stress meas. *(German)* 4−45581

cold working continued
- steel, deep-drawing type, earing 4−82871
- steel, stainless 18 Cr, in high temp. water, cold working effects on oxide film struct. *(Japanese)* 4−45636
- Ag, cold rolled from annealed state, texture formation, quantitative eval. *(Polish)* 4−64541
- Al, after irradiation, effect on pinning points on dislocations *(French)* 4−52770
- Al alloys, dynamically strain ageable, annealing characteristics 4−73324
- Al and alloys, spectral emission intensity rel. to cold plastic deform. *(French)* 4−64595
- Cu, effect on elevated temp. stress components 4−53780
- Cu-Sb composite, superconducting, metallurgical effects 4−60916
- Cu-Zr(1.07 wt.%), stacking fault generation, precipitation, electron microscope observations 4−67798
- Fe, Armco, cold plastic deform. and subsequent heat treatment effects on mech. props. at −196°C *(Russian)* 4−49762
- Fe, effect of Ce and La on cold-work internal friction peak *(Chinese)* 4−79979
- Fe/Cu composite, fibre reinforced, internal friction changes on cold rolling 4−80088
- Fe-Al(3.25 wt%) grain growth modes obs. with and without dopant S 4−70511
- Fe-Al(40 at.%) alloy, recovery of point defects produced by cold working *(French)* 4−80042
- Fe-C alloys, cold rolling effect on Mossbauer spectra 4−49716
- Fe$_7$Se$_8$, study of spin arrangements from Mossbauer spectra 4−45218
- GaAs, crystal degradation by abrasion and subsequent heat treatment 4−49605
- Mn-Ni-Fe antiferromag. Elinvar-type alloy characts. 4−79567
- Nb, cold rolled, recovery of mech. props. *(French)* 4−49748
- Ni$_3$Al, anomalous recovery effects during isothermal annealing 4−76503
- Ni$_4$Mo, ordering kinetics, cold work effect 4−70443
- Ta, deformed at 4K, resist. recovery, isochronal annealing curves 4−76506
- Ti alloy, β-III, effects of thermal and mechanical processes 4−82901
- Ti alloys, degree of deform. effect on recrystn. 4−76444
- Ti-Nb(35 wt.%) alloy, structural behaviour *(Russian)* 4−61337
- V-Ti-Nb alloy, effect on elevated temp. stress components 4−53780
- Zr, low temp. relax. processes 4−45622

collections of physical data
- alpha-particle energy and intensity values catalogue 4−51804
- atoms, neutral He to No, Hartree-Fock values for coupling constants, polarizabilities, susceptibilities and radii 4−51938
- chloroethanes, ideal gas thermodynamic props., 0-1500K 4−72268
- chloromethanes, ideal gas thermodynamic props., 0-1500K 4−69549
- Coulomb integrals, free-free integrals in Coulombic field, tables and sum rules 4−71309
- designs, partially balanced, 2-associate class, table of 950 4−59036
- diatomic hydrides, first- and second-row AH, AH$^{\pm}$, AH*, Hartree-Fock-Roothaan wavefunctions 4−52060
- elementary particle photoproduction 4−81414
- elementary particle properties, particle data group 4−51743
- exposure rate constants, table for 20 radionucleides *(French)* 4−47813
- fluorides, molten, single and binary, conductance, density, viscosity and surface tension data 4−70019
- fluoromethanes, ideal gas thermodynamic props., 0-1500K 4−69549
- halides and complex halides, crystal structure data 4−60464
- inorganic salts, oxy-halogen metal salts, high temp. props. and decomposition 4−83025
- integral transforms, finite, coded table, non-routine applications for students 4−58686
- JANAF thermochemical tables, 1974 supplement 4−83024
- meson photoproduction and Compton scattering below 1.5 GeV 4−81415
- molecular vibrational frequencies for 49 mols. 4−69491
- neutron total cross sections, MeV region, for twelve normally occurring elements, ^{235,238}U, ^{239}Pu 4−81500
- nuclear optical model parameters, 1969 to 1972 4−74741
- nuclear reactions, charged-particle induced, H to Cf targets, reaction list (July 1972-June 1973) 4−51805
- Parkes 2700 MHz survey, declination zone −30° to −35° 4−54508
- photoproduction above 1.5 GeV 4−81416
- spontaneously fissioning isomers, half-lives, excitation functions and threshold energy 4−51849
- stable probability density functions, tables and graphs 4−43025
- strongly interacting particles, elastic and change exchange scattering 4−74670
- superconducting material properties 4−79450
- thermophysical properties of nitrogen from fusion line to 1944K 4−78557
- KN elastic and charge exchange scatt. 4−74671
- NN scattering above 1 GeV/c, total and differential cross sections 4−74666
- πN two-body scattering, guide to data tape 4−59622
- π^+p, π^+n, π^+d interaction cross section and polarisation data compilation (1968-1972) 4−66083
- $\pi^{\pm}p$ elastic and charge exchange scatt., data compilation 4−74672
- CO, isotopes, microwave spectra of mols. of astrophysical interest 4−69503
- CS, isotopes, microwave spectra of mols. of astrophysical interest 4−69503
- Cu and Cu alloys, diffusion 4−82288
- HCN, isotopes, microwave spectra of mols. of astrophysical interest 4−69502
- H_2O, vapour, isotopes, microwave spectra of mols. of astrophysical interest 4−69501
- ^{4}He, thermodynamic properties 4−69942
- Ir, heat capacity data and thermodynamic props., 0-300K 4−69918
- N_2, thermodynamic properties, liq. and vapour phases, 63 to 2000K 4−69548
- N_2, viscosity, thermal conductivity, 80-2000K 4−69551
- O_2, viscosity, thermal conductivity, 80-2000K 4−69551
- O_3 distribution in Earth's atmosphere, 1957-69, seasonal and latitude effects *(Russian)* 4−80364

collections of physical data continued
- OCS, isotopes, microwave spectra of mols. of astrophysical interest 4−69502
- Os, heat capacity data and thermodynamic props., 0-300K 4−69918
- Pd, heat capacity data and thermodynamic props., 0-300K 4−69918
- Pt, heat capacity data and thermodynamic props., 0-300K 4−69918
- Rh, heat capacity data and thermodynamic props., 0-300K 4−69918
- Ru, heat capacity data and thermodynamic props., 0-300K 4−69918
- SO, isotopes, microwave spectra of mols. of astrophysical interest 4−69504
- SiO, isotopes, microwave spectra of mols. of astrophysical interest 4−69503

collision processes
- *see also atomic collision processes; charge exchange; chemical reactions; elementary particle interactions; intermolecular mechanics; molecular collision processes; particle scattering; plasma collision processes; quantum field theory*
- curve crossing, diabatic decoupling approximation 4−71357
- dipole system, quantum statistical response function calc. 4−47220
- elastic body collisions deviation and non-Newtonian coeff. of restitution *(Russian)* 4−51312
- fluid, long time behaviour, time dependent collision operator 4−63746
- half-collisions, computational viewpoint, boundary conditions 4−68019
- ice plate, with supercooled water drop 4−60251
- inelastic, in-out decoupling calcs., scatt. matrix and approx. methods 4−51448
- interstellar clouds, partial-coalescence model 4−50722
- multichannel collision theory, bounds for transition probabilities 4−72077
- particle + harmonic oscillator, quantum theory 4−78358
- particle-harmonic oscillator, Morse pot. interaction 4−55317
- pressure broadening, adiabatic representation 4−78514
- raindrop, with micron size particles 4−61781
- random processes, and their limiting distribution using the discrimination information 4−77570
- rearrangement scattering, coupled channel operators 4−43747
- regularisation of Boltzmann collision integral for singular potentials *(Russian)* 4−51476
- rigid rotator, three-dimensional, quantum theory from collisional broadening of rotational lines 4−47219
- rigid spheres, semiclassical scatt. investig. 4−81221
- small-angle scattering, quantum correction factors by inverse potentials 4−55312
- spectroscopy, recent developments in optical spectroscopy reviewed *(German)* 4−77084
- supercooled water drop, with ice plate 4−60251
- He + LiF, atom-solid elastic scatt., pot. depend 4−73220
- NH_2 radicals, electron impact form, e.s.r., ion cyclotron resonance, emission spectroscopy investig. 4−52267

collision sequences, focused *see sputtering*

collisions, atomic *see atomic collision processes*

colloid chemistry *see colloids*

colloids
- *see also Brownian motion; electrophoresis; electroviscous effect; emulsions; gels; photophoresis; thixotropy*
- adsorbed polymers, effect on dispersion stability, review 4−80140
- adsorbent, Brunauer's micropore anal. method 4−45839
- anomalous water, composition 4−45841
- aquadag graphite, polydispersiveness, forward light scatt. and magneto-optical effects study 4−50039
- capillary-porous bodies, thermodynamics of moisture retained in models 4−45847
- Coulomb Green's functions at diffuse interfaces 4−61621
- delta potential meas. using electrophoretic cell with electronic attachment 4−58864
- diffuse interface, minimization of mean field free energy 4−53914
- diffusio-birefringence, macromolecules and colloid particle diffusion in optically isotropic liq. 4−67549
- Dow latex 642-6, particle diameter determ. methods 4−64654
- dynamic rheological properties meas. using principle of externally shifted and restored reson. 4−51243
- elastic properties investig. by nucl. γ reson. technique *(Russian)* 4−70243
- ferroliquid, prep. and saturation magnetis. 4−82990
- ferromagnetic, effect of rotating mag. field 4−76555
- ferromagnetic, weak itinerant model, proximity effect 4−64181
- flow instability model, under shear 4−45842
- hydrodynamic chromatography, colloidal particle size analysis 4−67957
- light induced movement of small particles 4−47305
- light scattering intensity, changes in an elec. field *(Bulgarian)* 4−49327
- macroions in solution, Doppler shifts in light scatt. 4−80143
- macromolecular adsorption, simulation, loop form. 4−52989
- micelle solutions, crit. conc. 4−80142
- michelles formed from block copolymer, mol. wt. and hydrodynamic dimens. determ. 4−53920
- osmotic pressure, buoyancy and mag. force effects 4−82994
- particles, arbitrary fixed surface charge distribs., ionic soln. 4−70618
- polymer, homogeneous nucleation 4−57785
- polyoxyethylene, mol. cluster soln., drag reducing mol. cluster size determ. 4−44141
- precipitation, periodic spatial, mechanism of chem. instability of autocatalytic reacts. coupled with diffusion 4−61583
- rheopexy of solid-liquid disperse system *(Japanese)* 4−80145
- scintillation counting under optimal conditions, criteria for radioassays 4−65515
- solubilized liquid scintillator, water beta-active solns. count *(German)* 4−74121
- stability of colloidal dispersions, interaction between particle dispersed in regular mixture 4−67959
- structure and properties, conf. Ottawa, Canada (Jun. 1973) 4−56963
- surfactant micellar systems, containing alkali metal ions, spin-lattice relax. times meas. by n.m.r. 4−45851
- suspended particle potential effect on adsorption kinetics of ions with similar sign charges 4−73384

colloids continued
- van der Waals force between sphere and cylinder, London contrib. 4-53913
- $CuCO_3:Cu(OH)_2$, heat effects in amorphous-crystalline transform. 4-67035
- Fe_2O_3, hydrous, ageing and roasting, effect on adsorption rate of $CO\text{-}O_2$ 4-70581
- KCl, optical extinction bands of K colloids, size distribution, Mie theory calc. 4-82718
- LiF, cryst., electron irrad., colloidal centre generation, kinetics *(Russian)* 4-75541
- 99mTc-S, liver-spleen uptake ratio in liver scanning 4-80735
- ^{99m}Tc-sulphur colloid, lung uptake during liver scanning 4-62322

color *see colour*

colorimeters
- *see also colorimetry*
- fluorescence spectrophotometer for brightened textiles 4-54896
- integrator using spectrophotometer 4-46651
- interference filter anomaloscope design 4-55130
- international comparison using Ceramic Colour Standards 4-54819
- laser pulses meas., automated time and energy parameters 4-51081
- light sensing devices applications, non-scanned 4-71187
- photoelectric single beam colorimeter, colour concn. diff. in solns. 4-54882
- spectrophotometers and colorimeters, comparative performance 4-58793
- statistical study, colour meas. instruments 4-58794
- tristimulus, electronic analogue correction of errors 4-54922

colorimetry
- *see also colorimeters; spectrochemical analysis; spectrophotometry*
- Adams-Nickerson colour difference formula, computerless calc. tables 4-54893
- basic and advanced, review of developments 4-54884
- brightened textiles, use of fluorescence spectrophotometer 4-54896
- brightness definition and meas., psychosensory and photometric aspects *(French)* 4-54910
- brightness perceptual scaling expts., classification of observer types 4-58534
- Ceramic Colour Standards, goniophotometric functions and industrial applications 4-54901
- Ceramic Colour Standards, international comparison of instruments 4-54819
- ceramic industry, colour match prediction and batch control techniques 4-54915
- CIE 1964 $U^*V^*W^*$ colour space, visual uniformity improvement 4-54887
- colour matching by computer 4-54885
- colour-difference eqn. performance tested by perceptibility data 4-58530
- colour-distance formulae, interrelationships 4-54890
- colour-rendering index computation formulae 4-54905
- commercial colour-measuring apparatus, three-range process, error calcs. *(German)* 4-54929
- diagnostic reflectance standards 4-54820
- DIN 6164 system for standard light types C and D65, colorimetry investigations *(German)* 4-54925
- discharge lamp colour-rendering props., dual index determ. 4-54902
- dual-beam, digital-incremental spectrophotometers, automatic scale reference system 4-54900
- dyehouse shade sorting applic. of Adams-Nickerson colour difference eqn. 4-54892
- films, colour-reversal, colorimetric evaluation in developing plant practice *(German)* 4-54976
- flourescent whitened samples, accuracy of spectrophotometric meas. 4-54897
- fluorescent colours, industrial suitability of spectrofluorophotometers 4-54898
- fluorescent evaluation by two-mode method 4-54899
- foods and agricultural products, dualistic conceptual model 4-54924
- general colour-rendering index, meaning and application 4-54904
- glass, faint colour meas., by spectrophotometry 4-46648
- hue and saturation, subjective scaling expt. 4-58532
- industrial, sufficiency of 20 nm intervals in spectrophotometers 4-54919
- International Colour Association 2nd Congress, York (1973) 4-54883
- lamp standardisation, use of reference light sources and colour rendering indices *(German)* 4-46652
- large-field, case for universal additive tetrachromatic system 4-54894
- light source colour rendering meas. and standardisation improvement *(German)* 4-46653
- luminance representation in colour space design 4-54888
- Luscher colour test for personality, objective analysis 4-58538
- mass colour scaling expt., saturation and hue estimates 4-58533
- maximal colours and colour constancy, linear programming algorithm 4-54906
- metal halide lamp, spectroradiometric meas. 4-80888
- metameric theoretical test colours and quality evaluation of beam density adjustment *(German)* 4-54928
- multicomponent fabric dyeing, computer-aided colour matching system 4-54914
- Munsell colour order system step size 4-54886
- neutral axis for assessment of coloured papers, revision 4-54909
- observer adaptation rel. to colour discrimination 4-76971
- petroleum content, residual, of productive beds, estimation from core samplers *(Russian)* 4-58137
- pigment colour matching and blending, instrumental approach 4-54916
- plastic sheets with metallic gloss, colour difference meas. 4-54911
- printing, small and moderate colour difference expts. 4-54889
- saturation and luminance functions, expt. 4-58535
- spectrophotometer design for fading meas. of paintings 4-54923
- surface colour lightness, direct estimation 4-42793
- tetrachromatic colour matching function meas., two-level convergent technique 4-54895
- textile pattern matching assessors' severity and inconsistency 4-54891
- tristimulus, accuracy improvement methods 4-54921

colorimetry continued
- tristimulus and chromaticity determ. of polarising samples 4-54920
- tristimulus computer colour matching, two-constant theory 4-77070
- TV colour boundary threshold sharpness rel. to coding for digital transmission 4-54908
- TV colour differentiation threshold expt. *(French)* 4-54907
- vectorial representation of basic colour perception, use in colour meas. 4-83319
- white pigment undertone meas. 4-54918
- white/colour space boundary establishment for tristimulus weighting functions, expt. 4-54917
- whiteness evaluation of surfaces, tristimulus weighting functions appl. 4-42794
- whiteness standards, $BaSO_4$ and MgO, spectrophotometric invesigations *(German)* 4-54927
- whiteness standards, their achievement and meas. *(German)* 4-54926
- Al coloured surface brightness, visual and tristimulus colorimeter meas. 4-54912
- CO, determ. in air, colorimetric method 4-80770
- Hg vapour lamps, h.p., color-rendering index subjective assessment 4-54903

colour
- *see also colour vision*
- DIN 6164 system for standard light types C and D65, colorimetry investigations *(German)* 4-54925
- fluorescent lamp, chromaticity measurement 4-51014
- glass, faint colour meas., by spectrophotometry 4-46648
- International Colour Association 2nd Congress, York (1973) 4-54883
- liquid crystal, chloresteric mixture, helical pitch and opt. rot. power determ. *(Japanese)* 4-79697
- measuring instruments, comparative performance 4-58793
- metameric theoretical test colours and quality evaluation of beam density adjustment *(German)* 4-54928
- prism taper rel. to lateral colour tolerances 4-54874
- radiation pyrometers, linear current output 4-46593
- rhodamine C in dimethylformamide and dimethylsulphoxide solns., decolorizing, spectroscopic studies *(Russian)* 4-49414
- sea in Sound between Denmark and Sweden *(Japanese)* 4-80308
- statistical study, colour meas. instruments 4-58794
- temperature calibration, pyrometry 4-62439
- two colour, pyrometer, Y-shaped fibre optics 4-62440
- whiteness standards, $BaSO_4$ and MgO, spectrophotometric invesigations *(German)* 4-54927
- whiteness standards, their achievement and meas. *(German)* 4-54926
- $CoO\text{-}MgO\text{-}Cr_2O_3\text{-}TiO_2SnO_2$ system, spinel solid soln. form. and colour *(Japanese)* 4-49919
- $CuAlS_2$, synthesis, elec. and opt. props., doping effects 4-61210
- TiO_2, electrochromism *(Japanese)* 4-73438

colour blindness *see colour vision*

colour centres
- *see also F-centres*
- alkali borate glasses, Cu, Cl effects on colour, absorpt. spectra obs. 4-70335
- alkali halide, extinction technique for optical storage using anisotropic colour centres 4-73097
- alkali halide, photoplastic effect, obs. and mechanism 4-56801
- alkali metal halide, additional hole centres *(Russian)* 4-72464
- alkali metal halide, V_k-centre dissoc., unrelaxed holes *(Russian)* 4-82186
- alkaline earth fluorides, H-centre prod. by electron irrad., e.p.r. obs. 4-66912
- alkaline earth fluorides, radiolysis prod. coloration, perturbed F and compensating V_k, H-centres 4-66911
- diamond, GR1 doublet, effect of uniaxial stress 4-49404
- diamond, H3 cathodolum., decay time reduction rel. to defect interactions 4-53538
- glycine, γ-irrad. single crysts., low temp. photoconversion obs. by e.p.r. *(Russian)* 4-79602
- halogen molecular anion as V_k-centre, optical transition characts. 4-64411
- halophosphate luminophors, u.v. and X-ray excitation, ionizing effect *(Russian)* 4-82757
- hyperfine interactions, core orthogonalization procedures 4-79313
- laser glasses, prevention of form., 180 to 240 nm 4-77678
- light emission bands, polarised luminesc., uniaxial stress effects 4-57592
- photochromic glass, relax. process consts. 4-82684
- α-quartz, effect of Ag electrolysis on spectral props. *(German)* 4-49415
- quartz, Ge doped, heating effects 4-73141
- quartz, natural, e.s.r. of O^- hole centre 4-45186
- radiation, soda zinc borate glasses 4-66932
- ruby, O^- formation depend. on Mg^{2+} presence *(German)* 4-43315
- trypaflavine adsorbed on silica gel, O_2 extinction of recomb. luminesc. *(Russian)* 4-61203
- Al_2O_3, $Al_2O_3:Fe$, paramag. hole centre characterisation, optical and e.p.r. absorpt. meas. 4-70329
- $B\text{-}Al_2O_3\text{-}BaO(La_2O_3, K_2O):Eu, Mn$, fluoresc., quenching 4-61212
- $2Al_2O_3 \times 5B_2O_3 \times 3BaO:Ce$, Ba aluminoborate, irradiation, colour centres, growth and decay 4-69805
- CaF_2, coloration, and luminesc. in oxygenated samples and u.v. absorpt. 4-53520
- CaF_2, e.s.r., hole centre struct. and characts. 4-76162
- CaF_2, γ-irrad., colouring curves, obs. of absorpt. bands 4-53482
- CaF_2, microinclusion light scattering centre formation in crystallization from melt *(Russian)* 4-73247
- CaF_2, ordered lattice defects, transmission electron microscopy obs. 4-66914
- $CaF_2:CeO_2$, spectroscopic investigation of coloration behaviour 4-45342
- $CaF_2:Er^{3+}$, phosphorescence decay obs., probability of recomb. of V_k-hole centres with impurity electrons 4-57628
- $CaF_2:Er^{3+}:TR^{3+}$, (TR=La-Lu), optical spectra, optical centre equilib. 4-53481
- $CaF_2:Eu^{3+}:TR^{3+}$, (TR=La-Lu), optical spectra, optical centre equilib. 4-53481

- **colour centres** continued
  - CaF_2:rare earth, fluorite, V_k-centre tunnel recomb., photostimulated thermolum. obs. 4−49475
  - $Ca_5F(PO_4)_3$:Cd,Sb colour centre growth dynamics and models 4−57580
  - CaO, proton irradiated, isolated V^--centres obs., e.s.r. spectrum 4−67450
  - CaO-SiO_2 system glasses, radiation paramag. centres in liquation phases 4−61034
  - CdO-B_2O_3-SiO_2 glasses, photochromism 4−64408
  - $CdS:N^+$, deep centre luminesc., electronic transition 4−82738
  - CsBr, homologous activators, luminesc. thermal stability *(Russian)* 4−82758
  - CsBr, V_k-centres, autolocalized holes in luminescing cryst. *(Russian)* 4−73204
  - CsCl, effective escape depth of photoemission from colour centres 4−49529
  - KBr, absorption and emission spectra of $Ag^-(Na)_2$ centres 4−64405
  - KBr, additively coloured, effect of photothermal treatment on colour centres conversion *(Russian)* 4−53478
  - KBr, single cryst., charge injection development, necessary contact conditions 4−72782
  - KBr:Na cryst. V_1 band, composite struct. 4−75524
  - KBr:Tl, thermal trap ionisation energy spectrum, charged centre interaction *(Russian)* 4−73205
  - $KBr:Tl^+$, A-band absorpt. spectra 4−53474
  - KCl, absorption and emission spectra of $Ag-(Na)_2$ centres 4−64405
  - KCl, additively coloured, effect of photothermal treatment on colour centres conversion *(Russian)* 4−53478
  - KCl, doped, e.p.r. and optical absorption obs. of $BrCl^-$ and associated centres 4−49229
  - KCl, H- and V_k-centres, macroscopic length changes due to elastic dipole alignment 4−60494
  - KCl, KCl:Ag, V_k centres effect on positron annihilation at 77K 4−56774
  - KCl, light irradiated, positron annihilation obs. 4−44533
  - KCl, molecular model calculations of U centre (H^-H^- and D^-D^-) pairs 4−82245
  - KCl, Stark effect of the U-centre ultraviolet absorption 4−64409
  - KCl, Tl^{2+}, In^{2+}, Ga^{2+} centres, migration with charge transfer *(Russian)* 4−82286
  - KCl, with divalent impurities, X-irrad., rel. to thermolum. 4−67670
  - KCl:Ag, anion substituting activator colour centre model, light absorpt. obs. 4−79038
  - KCl:Eu, photolum., struct. and disintegration of active centres *(Russian)* 4−82749
  - $KCl:Li^+$, H_a-centre geom. struct., uniaxial stress effect, e.p.r. obs. 4−44534
  - KI, molecular model calculations of U centre (Cl^-Cl^- and Na^+Na^+)-induced pair-modes in gap 4−82245
  - KI, probability of electronic transitions in V_k+e centres *(Russian)* 4−82733
  - $KI:OH^-$, obs. of temp. depend. of paraelec. reson. 4−48944
  - KI:Tl, X-irradiated, investigation of 4.66 eV absorpt. band *(Russian)* 4−53479
  - $K_2O.11\beta$-Al_2O_3:Eu, Mn, phosphor depreciation, u.v. irrad. 4−61213
  - LiF, dislocations as sinks for H-centres, internal friction meas. 4−44600
  - LiF, Li X-ray K-absorpt. rel. to electron-hole interaction, colour centre form. 4−79813
  - LiF single crystals, luminesc. meas. rel. to colour centres, X-ray excitation 4−67652
  - LiF:H(D), U band absorption, peak positions meas., 77K, using synchrotron radiation 4−79761
  - $LiNbO_3$, kinetics of colour changes during radiation and annealing *(Russian)* 4−52756
  - MgF_2, mag. susceptibility of gamma-irrad. single crysts. 4−66934
  - MgO, double-hole V^0 centres, e.s.r. and optical absorpt. obs. 4−45185
  - MgO, elec. field induced dichroism of V^--centre 4−73102
  - MgO, form. and stability of V^-, V_{al} centres, ENDOR identification 4−44535
  - MgO, high defect conc. surface, interaction of H_2 investig. 4−76621
  - MgO, low temp. reorientation of V-centres from ELDOR and uniaxial stress expts. 4−67490
  - MgO:Li, ENDOR spectrum of V_{li} centre at 4.2K, nuclear quadrupole coupling meas. 4−70233
  - MgO-SiO_2 system glasses, radiation paramag. centres in liquation phases 4−61034
  - NaCl, coloured, adsorption effect on thermally stimulated exoelectron emission 4−49550
  - NaCl, cryst., conversion, annealing *(Russian)* 4−75523
  - NaCl, polygonization phenomenon after electron bombard. and illumination, temp. influence 4−66913
  - NaCl substrates with colloidal centres, enhancement of UO_2 film epitaxial growth 4−60703
  - NaCl substrates with colloidal centres, enhancement of UO_2 film epitaxial growth 4−60704
  - NaF, additive and electrolytic colouring, absorp. bands obs. 4−56737
  - NaI, probability of electronic transitions in V_k+e centres *(Russian)* 4−82733
  - NaI, V_k+e centre luminesc. kinetics *(Russian)* 4−67658
  - Na_2O-B_2O_3, glass, optical absorption, electron irrad. dose depend. 4−70330
  - $PbBr_2$, $PbCl_2$, luminesc., cation exciton localization, no V_k-centres *(Russian)* 4−73163
  - RbCl, absorption and emission spectra of $Ag^-(Na)_2$ centres 4−64405
  - RbCl, Stark effect of the U-centre ultraviolet absorption 4−64409
  - SiO_2, glassy silica, primary ^{29}Si hyperfine struct. of E'-centre 4−67451
  - SiO_2, r.f. sputtered films, oxygen-deficient defect centres, e.s.r. 4−56738
  - SiO_2, r.f. sputtered films, oxygen-deficient, defect centres, thermoluminescence 4−56739
  - $Sr_{1-x}Ca_xCl_2$, e.p.r. spectrum, perturbation, annealing effect 4−57378
  - $SrCl_2$, optical absorption spectrum of U-centres 4−61195
  - $SrCl_2$ crystals, O^- centre, e.p.r. spectra 4−76159
- **colour centres** continued
  - $SrF_2:CeO_2$, spectroscopic investigation of coloration behaviour 4−45342
  - $SrF_2:CeO_2$, thermodiscoloration 4−73143
  - SrO, proton irradiated, isolated V^--centres obs., e.s.r. spectrum 4−67450
  - Y-type zeolites, γ-irrad., e.s.r. study of trapped H ats., exchanged cation effects 4−79598
  - $YAlO_3$, monocrystals, activated with transition metal ions, spectra 4−45339
  - ZnS-CdS:Cl phosphor, form. due to Zn^{2+} photosorption *(Russian)* 4−72633
- **colour filters** *see optical filters*
- **colour perception** *see colour vision*
- **colour photography**
  - aerial i.r. colour photography, colour gamuts *(Japanese)* 4−51087
  - Autocolour enlarging camera 4−51085
  - cinephotographic materials, granularity rel. to optical density *(Russian)* 4−68724
  - colour reproduction problems, imitation of visual system 4−54973
  - colour separation on multi-layer films and in imbibition process *(Russian)* 4−65476
  - densitometry, film characteristics 4−51086
  - fading in colour negatives 4−65474
  - films, colour-reversal, colorimetric evaluation in developing plant practice *(German)* 4−54976
  - image sharpness, improvement with filter dyes *(Russian)* 4−50201
  - International Colour Association 2nd Congress, York (1973) 4−54883
  - i.r. film, optimum colour balance selection 4−46721
  - multiband colour gamuts *(Japanese)* 4−51087
  - optimum passbands and stopbands for illuminants and devices 4−58540
  - photogrammetric cross sections using colour photography 4−61907
  - prints, inbibition release process in multilayer film development 4−46724
  - rapid access processing of colour negative film 4−65473
  - reproduction distortion evaluation *(Russian)* 4−62482
  - reversible films, sensitivity determination 4−46727
  - silver-dye bleach transparencies, fading resistance 4−65471
  - single-exposure colour reproduction system model 4−54975
  - storage properties of positive film 4−65472
  - subtractive dyes, optimum triple combinations rel. to peak wavelengths and absorption band breadths 4−54974
  - transformations of granularity spectra in colour photographic processes *(Russian)* 4−77116
  - X-ray radiography using X-ray colour photomaterials *(Russian)* 4−68819
- **colour television**
  - colour boundary threshold sharpness rel. to coding for digital transmission 4−54908
  - colour differentiation threshold expt. *(French)* 4−54907
  - colour reproduction problems, imitation of visual system 4−54973
  - electron microscope sequential colour TV display with beam rocking 4−68818
  - high ratio zoom lenses 4−42781
  - holographic screen for stereo colour TV system *(Russian)* 4−77105
  - International Colour Association 2nd Congress, York (1973) 4−54883
  - laser cathode-ray tube application *(Czech)* 4−54953
  - optimum passbands and stopbands for illuminants and devices 4−58540
  - stereo graphics display with mini-computer control 4−62567
- **colour tv** *see colour television*
- **colour vision**
  - *see also eye*
  - acquired colour vision deficiencies, exam. methods and classifications 4−58515
  - amended Walraven model 4−58513
  - binocular fusion of chromatic and white lights, obs. 4−58527
  - brightness and saturation under photic intermittence, effect of retinitis pigmentosa 4−80731
  - brightness definition and meas., psychosensory and photometric aspects *(French)* 4−54910
  - brightness matching, effects of blur and overlap 4−65257
  - brightness perceptual scaling expts., classification of observer types 4−58534
  - chromatic adaptation, subjective estimation method 4−76970
  - chromatic adaptation test of von Kries coefficient law 4−58536
  - chromatic colour contrast sensitivity of human eye, model 4−71103
  - chromatic induction and glare attributed to stray light 4−58518
  - colour circle based on colour perception with subtractive and additive mixing 4−54807
  - colour education for secondary schools and teacher training 4−54808
  - colour reproduction problems, imitation of visual system 4−54973
  - colour-difference eqn. performance tested by perceptibility data 4−58530
  - deuteranomalous with central visual malfunctions 4−62311
  - discrimination, effect of white light adaptation 4−58528
  - discrimination ability, special role of 495 nm and 570 nm wavelengths 4−58529
  - discrimination at blurred border, threshold obs. and model 4−58525
  - effects of simulated prereceptoral changes 4−58517
  - electroretinogram amplitude rel. to peripheral retinal spectral response for pulsed lighting 4−58521
  - form specific colour after effects, in scotopic illumination 4−62310
  - heaviness of colours, apparent 4−62309
  - hue and saturation, subjective scaling expt. 4−58532
  - hue discrimination, luminance contrast influence 4−76972
  - hue discrimination as function of observer adaptation 4−76971
  - increment thresholds across minimally distinct borders 4−73906
  - infant colour perception 4−68511
  - interference filter anomaloscope design 4−55130
  - International Colour Association 2nd Congress, York (1973) 4−54883
  - isolated coloured lights, apparent brightness 4−58523
  - linguistics of colour naming correl. with colour perception expt. 4−58531
  - Luscher colour test for personality, objective analysis 4−58538

colour vision continued
mass colour scaling expt., saturation and hue estimates 4−58533
memory test, Burnham-Clark-Munsell, performance rel. to age 4−58537
neutral axis for assessment of coloured papers, revision 4−54909
optimum passbands and stopbands for illuminants and devices 4−58540
pattern vision, human, electrophysiological evidence for colour channels 4−65258
photopic spectral sensitivity, of the neon tetra, using a dorsal light reaction 4−50812
pigeon cones, selective damage by coloured light 4−58519
pigments, excitonic coupling, supercond. pair form. 4−58512
protanomalous, chrominance-luminance system, colour matches *(German)* 4−46395
protanomalous, colour matches *(German)* 4−46394
protanomaly and deuteranomaly classification, lattice theory *(German)* 4−54669
red and green sensitive cone spectra, microspectrophotometric and psychophysical threshold obs. compared 4−58520
retina model for applic. of digital data processing network theory 4−58522
retinal colour discrimination processes 4−58516
saturation and luminance functions, expt. 4−58535
sensory associations with odour and taste, statistical analysis *(French)* 4−58539
spatio-temporal frequency characteristics 4−80732
spectral sensitivities of the colour mechanisms, photopic saturation method 4−62312
spike responses of cat optic fibre 4−65259
trichromacy under transient retinal adaptation, obs. 4−58526
tristimulus computer colour matching, two-constant theory 4−77070
TV colour boundary threshold sharpness rel. to coding for digital transmission 4−54908
TV colour differentiation threshold expt. *(French)* 4−54907
underwater effects 4−58514
vectorial representation of basic colour perception, use in colour meas. 4−83319
wavelength discrimination improvement by small luminance differences 4−58524
white/colour space boundary establishment for tristimulus weighting functions, expt. 4−54917
Al coloured surface brightness, visual and tristimulus colorimeter meas. 4−54912

columbium *see niobium*

coma *see aberrations*

combinational mathematics *see combinatorial mathematics*

combinatorial mathematics
see also graph theory; sorting
boson algebra, normal-ordering of operators 4−65824
difference eqn. soln. combinatorial recurrence 4−51271
line graphs of general graphs, characterisation 4−59025
q-edge Hamiltonian graphs, sufficient conditions for graph to be q-connected 4−59024
quantum field theory uses, renormalisation, book 4−62899
$U(N) \supset O(N)$ state labelling problem for two rowed representations 4−74202

combustion
see also explosions; flames; heat of combustion; reaction kinetics
acoustic conductivity of combustion surface in condensed medium *(Russian)* 4−76601
adiabatic homogeneous systems, ignition analysis including reactant consumption 4−57814
air-suspension vortex flow incinerator system, fluid dynamic and combustion theory 4−44138
Cauchy problem for nonlinear heat cond. eqn. in combustion theory and gasdynamics 4−47245
composite solid propellants, model for combustion and extinction during depressurization 4−53964
conical wave in supersonic flow, analytical soln. 4−52440
flame, turbulent chemically reacting flow, two-dimensional analysis 4−44170
flame stabilization around an obstacle in high speed shock tube flow 4−72350
gas analysis, chromatographic 4−46931
gas temperature meas., using thermocouple and resistance probe *(Czech)* 4−54847
gaseous suspension of metal particles, ignition *(Russian)* 4−54013
heterogeneous condensed media, autovibr. propag. of burning front *(Russian)* 4−53965
hybrid, chemically reacting laminar boundary layer, analysis 4−48384
hydrocarbon + oxygen mixtures, pressure-temperature ignition profiles, HBr influence 4−50164
hydrocarbon fuel, heat conductivity and viscosity of combustion products *(Russian)* 4−52335
hydrocarbons, gaseous, soot formation rate predictions, appl. to rocket engine 4−50165
inflammability limits criterion using ramified chain reaction theory *(French)* 4−50135
jet engine exhaust noise, rough combustion, nonsteady aerodynamic sources 4−78583
laminar burning velocity and ignition delay relationship 4−57817
laser cutting of metals, combustion theory approach *(Russian)* 4−53711
one-dimensional stability of normal combustion in const. mag. field 4−45905
organic samples, combustion bomb for radiocarbon dating, new safe design 4−50378
pyrotechnic flames, spectral power distribution, visible waveband 4−73433
screen efficiency at burning surface in presence of inert gas blast *(Russian)* 4−54012
star, intermediate mass, C burning, with convective URCA neutrinos 4−58283
thermal wave model *(Russian)* 4−56411
C porous fuels, burning rate calc. 4−50167
CO-air flame, with temp. and comp. distribs., spectral intensities of i.r. radiation 4−61606

combustion continued
$CS_2 + 40_2$ spontaneous ignition reaction SO + O, anomalous ultraviolet emission 4−50159
H_2, energy-carrier of the future *(German)* 4−54007
H_2-methane-air mixtures, inflammability limits at room temp. *(French)* 4−50135
Na/water leak sites in nuclear reactors, chem. of wastage in flame region 4−81622

comets
ageing, brightness decrease, instrumental effects 4−70948
anomalous tails, prediction 4−65132
Araya (1972 XII) precise position for 1974 Sept 12.60836 UT 4−80540
P/ Arend (1967 VI), pre-recovery obs., precise positions 4−73660
asteroid origin collision of small planet with large comet possibilities 4−65116
Bennett (1970 II), CN band spectrum 4−50517
Bennett (1970 II), OH scale length, H and OH production rates 4−76801
Bennett (1970 II-1969i), spectropolarimetry and spectrophotometry 4−54453
P/Borrelly (1973m), extension to ephemeris 4−70952
Bradfield (1974b), fine structure of tail 4−46198
Bradfield (1974b), H_2O detection at 22.23 GHz and photoelectric obs. 4−46199
Bradfield (1974b), i.r. and visual magnitudes and tail obs. 4−50521
Bradfield (1974b), precise position 4−76803
Bradfield (1974b), precise positions, coma and magnitude 4−73656
Bradfield (1974b), precise positions, magnitude and tail obs. 4−50522
Bradfield (1974b), precise positions, magnitudes for 1974 March and April, ephemeris for 1974, Jun. 2-Oct. 20 4−46193
Bradfield (1974b), precise positions, tail structure, magnitudes, 1974 March 31-June 23 4−68394
Bradfield (1974b), precise positions, total visual magnitudes and coma diameter 4−73649
Bradfield (1974b), precise positions 4−54447
Bradfield (1974b), visual magnitude estimates 4−62084
Bradfield (1974b), visual total magnitude estimates and tail length 4−46195
Bradfield (1974b) precise positions 1974 May 26-Jun 17, visual magnitude, 1974 June 12-19 4−62062
Bradfield (197b), precise positions, magnitude estimates and tail obs. 4−50528
brightness and unpredictability of bright nonperiodic objects 4−58280
Cesco (1974e), discovery positions and appearance 4−73651
Cesco (1974e), precise positions, elements and ephemeris 4−70951
Cesco (1974e), precise positions and orbital elements 4−76804
P/ Clark (1973l), precise positions 4−54444
composition rel. to chemistry of primordial solar nebula 4−46308
P/Encke, obs. near perihelion 4−46196
P/Encke, precise position for 1974, July 20.43333 UT 4−68395
P/ Encke, slow flyby mission, 1980, terminal navigation analysis 4−83264
P/Encke, total visual magnitude estimate for 1974 May 28 4−50527
P/Encke, transverse nongravitational parameter from 1786-1971 4−50514
p/ Encke, visible and i.r. magnitudes 4−50518
P/ Encke, visual total magnitude estimates 4−54446
P/Encke, visual total magnitude estimates and coma diameter 4−65117
P/Finlay (1974d), positions and appearance 4−73652
P/Finlay (1974d), recovery, position and appearance 4−65119
P/ Finlay (1974d) precise position for 1974 July 20.32512 4−80541
flybys, mission strategy for combined comet-asteroid flyby 4−80674
P/Forbes (1974a), precise position, total visual magnitude estimates and ephemeris 4−70953
p/ Forbes (1974a), precise position and total visual magnitudes 4−73663
P/Forbes (1974a), precise positions 4−46197
P/Forbes (1974a), total visual magnitude and coma diameter 4−73648
P/Forbes (1974a) precise position for 1974, August 17.05680 4−76807
P/Gehrels 2 (1973n), orbital elements and ephemeris 4−73650
Gehrels (1971 I) precise position, 1973 Jan. 3 4−50526
Gibson (1973o), improved parabolic elements and ephemeris 4−50519
p/Grigg-Skjellerup (1972 II), precise positions 4−54448
p/ Gunn (1969 II), improved orbital elements and ephemeris 4−73661
P/Gunn (1969 II) precise positions, 1973 Dec. 19, 1974 March 13, 28 4−50526
P/Halley (1910 II, 1909c), Japanese obs. *(Japanese)* 4−54456
Heck-Sause (1972 VIII) precise position 1974 Feb. 19 4−50526
Heck-Sause (1973a), positions and orbital elements from photographic obs. 4−80531
P/ Honda-Mrkos-Pajdusakova, elements and ephemeris 4−73658
P/Honda-Mrkos-Pajdusakova, total visual magnitude predictions 4−76805
ice phase transition as energy source for outbursts 4−65131
impact on neutron star or white dwarf, generation of gamma-ray bursts 4−50652
Kohoutek(1973f), indentification of H_2O^+ in tail 4−62060
Kohoutek 1973f, visible obs., Nov.-Dec. 1973 4−58278
Kohoutek (1973e) precise position 1973 May 1 4−50526
Kohoutek (1973f), CH 9 cm. emission after perihelion 4−73646
Kohoutek (1973f), dark streak in tail, shadow cast from head 4−50533
Kohoutek (1973f), i.r. obs. near perihelion 4−58270
Kohoutek (1973f), model of nucleus with clathrate lattice 4−54450
Kohoutek (1973f), observations 4−80543
Kohoutek (1973f), OH detection at 18 cms 4−58269
Kohoutek (1973f), OH obs. at 18 cm 4−73645
Kohoutek (1973f), orbital elements, general description *(Spanish)* 4−68397
Kohoutek (1973f), precise positions 4−54448
Kohoutek (1973f), precise positions 4−73662

comets continued
Kohoutek (1973f), precise positions and photographic magnitude 4−50523
Kohoutek (1973f), rel. to nature of comets 4−58279
Kohoutek (1973f), spectral obs. 3070-8750 Å *(French)* 4−46190
Kohoutek (1973f) orbital elements, ephemerides for 1974 Aug. 21-1975 Feb. 17 period 4−62064
P/Kopff, nongravitational motion 4−54451
Lovas (1974c), improved elements 4−80539
Lovas (1974c), precise positions 4−50531
Lovas (1974c), precise positions 4−73653
Lovas (1974c), precise positions 1974, April 13-29 4−50524
Lovas (1974c), precise positions for 1974 April 14, 19, and improved elements for 1974 May 13-Aug 21 4−46194
Lovas (1974c), precise positions for 1974 May 24-27 period 4−62063
Lovas (1974c) precise positions for 1974 May 17 and June 9 4−58275
motion, orbit determ., review 4−61974
Mrkos (1957V-d), Na tail rel. to u.v. optical thickness 4−46201
Object Helin, fast-moving object as possible comet 4−73654
Sandage (1973k), improved parabolic elements and ephemeris 4−76802
Sandage (1973k), precise position 4−65118
Sandage (1973k), precise positions 4−50529
Sandage (1973k), precise positions for 1974 May 24-27 period 4−62063
p/Schwassmann-Wachmann 1, magnitude, appearance and positions 4−80538
P/Schwassmann-Wachmann 1, precise position 1973 Sept. 27 4−50526
P/ Schwassmann-Wachmann 1, visual magnitude estimates for 1974 Sept. 20.67 and 22.71 UT 4−83195
P/Schwassmann-Wachmann 1 total mag. 1974 Sept. 21-23 4−76806
P/Schwassmann-Wachmann 2 (1973l), precise positions 4−54445
P/Schwassmann-Wachmann 2 (1973l) ephemeris for 1974 Sept−1975 Sept. period 4−68393
P/Schwassmann-Wachmann 3 (1930 VI), predicted meteor shower for 1974 June 1 4−50525
p/Schwassmann-Wachmann 3 (1930 VI) meteor shower 4−50530
solar wind bulk velocity from comet tail deviation angles *(Russian)* 4−80463
structure, composition, size, optical properties and origin theories reviewed *(Hungarian)* 4−68391
Tungus event evidence against black hole theories 4−70956
P Tuttle-Giacobini-Kresak (1973b), spectrographic obs. after brightness jump in July 1973 *(French)* 4−54443
u.v. fluorescent pumping of OH 18 cm radiation 4−80532
Venus, volatile element influx from cometary impacts 4−58240
P/Wirtanen (1967 XIV), precise positions for 1967 Oct 5-29 period 4−62063
p/Wolf-Harrington (1971 VI), precise position 4−54448
OI line strength rel. to H_2O composition 4−50535

communication networks
CAMAC data links for nuclear physics laboratory 4−46771

communication theory *see information theory*

communications applications of computers
see also television
optical waveguide beam transmission, simulation 4−55533
S-band dual mode horn development, for telemetry reception, by the 100 m Effelsburg radiotelescope 4−71077

community planning *see town and country planning*

compacting *see densification*

comparators (circuits)
see also phase comparators
cryogenic voltage comparator system for 2e/h meas. 4−65363
d.c., low temp., superconducting with resolution of 1.5 nA. turn 4−54987
differential temperature comparator having unmatched diodes 4−62430
standard cell intercomparison automation 4−65336
time base generator, logarithmic, using two voltage ramps, two counters and a comparator 4−58866
tunnel-diode comparator with controlled hysteresis 4−51164

compasses
see also navigation
No entries

compensation
electrometer, temperature-compensated for environmental measurements 4−51108
ellipsometer, fast, self-compensating 4−68691
input capacity, f.e.t. input amplifier, for microelectrodes 4−51198
lamp intensity, transmission meas., circuit 4−46647
for magnetic flux in air, in an induction transducer 4−46764
magnetic traps, stellarator-type, toroidal system electrodynamic force compensation 4−60310
self-compensating differential electrometer 4−80946
temperature-compensated conductometric hygrometer *(Russian)* 4−80848
thermoelectrical instrument, measuring thermal fluxes 4−77043
wideband amplifier for nerves and muscles measurement *(German)* 4−68824
Ta low density thin films, strain and temp sensitivity 4−75971

complementarity
No entries

complete computer programs
see also subroutines
acoustic loudness, program for computer time-sharing terminal 4−73935
optimal data transformations minimising skew 4−68876
DISCUS, for neutron scatt. expts. in FORTRAN 4−74773
LEED, in Fortran 4−72623
matrix inversion, FORTRAN programs comparison 4−65615
multiple integrals evaluation routine in BASIC 4−51308
surface flatness, least-squares approach, in ALGOL-60 4−60677
UNICS II crystallographic computation program system *(Japanese)* 4−78861

complex angular momentum plane
see also angular momentum theory; Pomeranchuk poles and trajectories; Regge poles and trajectories
CDD poles in strong interaction models *(German)* 4−77879
dual vertex, connection between photon constituent and Neumann function forms 4−71707
duality and asymptotic crossing-even pion-nucleon forward scattering 4−81432
e.m. scattering rainbow region, new theory 4−81284
factorization of dual loop amplitudes, unitary planar corrections to leading trajectory 4−55640
factorization of dual loop amplitudes by functional methods 4−55639
J=0 singularity in forward virtual Compton amplitude 4−66033
multichannel unitarity equations, solns., reson. and background addition, appl. to pole model of photoprod. 4−77787
pole regularised spinor theory of NN scatt. 4−62896
pole regularised spinor theory with dressed propagator eigenvalue eqns. 4−62897
resonance width, t-channel exchange effect, high energy 4−47557
scattering amplitudes, polarisation phenomena as test for models of cuts generation 4−51725
t-channel partial-wave amplitude with Regge cuts, s-dependence, sign of cut, factorisation 4−74645
Wilson approach to renormalisation group and Reggeon calculus 4−69177
$\gamma\gamma$ forward elastic scattering, fixed pole sum rule 4−77824
pp forward scatt. slope parameter anal. 4−66089
πN 3-3 resonance pole, explanation of residue 4−47584
$\pi V \rightarrow \pi V$ scattering, field theoretic analysis, fixed J-plane poles and compositeness 4−59578

composite insulating materials
glass fabric-reinforced, effect of silane coupling agents 4−49930
$Fe(CO)_5$-epoxy resin, s.h.f. absorbers *(Russian)* 4−53364

composite materials
see also cermets; composite insulating materials; fibres
adhesion strength, testing 4−50060
adhesive joint bonding composite to metallic substrate, linear elastic analysis 4−53822
alloy, directionally solidified eutectic, axial extension during cyclic torsion 4−45594
aluminium borosilicate glass fibre, contact angle of wetting by polyethylene 4−49928
anisotropic, three-dimens. mech. characteris. 4−76534
anisotropic annular samples, test procedure 4−80165
anisotropic fracture test specimens, stress intensity factors 4−80078
anisotropic materials, transforms. for elliptical holes applied to finite element analysis 4−59122
anisotropic plates, viscoelastic consts., u.s. meas. method *(French)* 4−42729
anisotropic ring with circumferentially varying modulus, state of stress 4−53842
antiplane shear crack at bimaterial interface 4−65665
antisymmetrically laminated angle-ply rectangular plates, buckling and vibr. 4−43130
binder strength at high temps. 4−61527
bony tissue, tensile fracture resistance 4−50813
borosilicate E glass fibre strand tensile failure in resins and waves 4−49927
Borsic reinforced Al, delamination process, crack length and bond strength effect 4−61519
Borsic reinforced Al, elastic-plastic Poisson's ratio 4−61516
Borsic/Al, dynamic fracture behaviour 4−49961
brittle matrix type, with metal inclusions, thermal shock and wear resist. *(German)* 4−53839
cast surface composites with Al matrix, microstruct. and wear test data 4−57765
chopped-fibre reinforcement, elastic moduli dependence on modulus ratio and fibre length 4−45792
coordinate stretching, interface location, general relaxation method, application to composite polytropes 4−76531
crack extension and arrest in residual localised stress fields assoc. with second phase particles 4−73352
crack interaction with rigid inclusions, longit. shear deformation 4−67926
cross-ply rectangular plates, unsymmetrically laminated, buckling and vibr. 4−53821
curved anisotropic plates, transverse vibrs. rel. to stability 4−53823
damping characteristics 4−80081
debonding of rigid curvilinear inclusions in longit. shear deform. 4−67925
design, fourth rank tensor invariants derivation 4−61515
discontinuous fibre materials, mech. damping *(German)* 4−57762
discontinuous fibre reinforced, creep strength 4−61512
elastic constants by vibration method *(French)* 4−76570
elastic interaction between inclusions and cracks 4−64621
elastic laminated composite, wave propag., continuum theory with microstructure 4−65715
elastic solid, motion anal. 4−77410
epoxy resin filled with mica flake, dynamic mech. props. 4−49945
epoxy resin/powder composites, thermal cond. between 2 and 300K 4−53835
epoxy resins, bulk compressibility moduli and Poisson's ratios 4−49982
epoxy resins, filled, strength and fracture toughness 4−61529
eutectic type, thermal stability in temp. gradient 4−49939
eutectoids, aligned, discontinuous coarsening obs. 4−53673
extensible cord-reinforced materials, large deformations 4−59152
fatigue strength eval. criterion 4−61510
fibre reinforced, boundary layers, anisotropic plane elasticity 4−74294
fibre reinforced, failure analysis under combined axial tension and shear 4−70565
fibre reinforced, fracture energy 4−53837
fibre reinforced, fracture mechanics approach to failure 4−64633
fibre reinforced, interaction of elements under cyclic loads 4−49950
fibre reinforced, internal damping meas. 4−76536
fibre reinforced, microbuckling compression failure 4−49953
fibre reinforced, notched unidirectional, approx. analysis method 4−67924
fibre reinforced, time-harmonic elastic wave propag. 4−70566

composite materials continued
fibre reinforced, unidirectional, elastic and viscoelastic parameters, Airy method *(French)* 4—45787
fibre reinforced, unidirectional continuous, damping props. under tension/compression 4—53845
fibre reinforced material, bi-directional, elastic wave propagation 4—64626
fibre reinforced metal-matrix type, one-dimens. press. effect *(Russian)* 4—49936
fibre reinforced metals, strain hardening behaviour, tension test *(German)* 4—50049
fibre reinforced plastic, unidirectional, viscoelastic behaviour, constitutive eqns. 4—49931
fibre reinforced plastics, adhesion effect on tensile props. *(Japanese)* 4—80082
fibre reinforced rigid plastic beams, dynamical behaviour 4—70563
fibre reinforced viscoelastic materials, dynamic investig., model approach 4—76526
fibre reinforcement curvature effect on mech. and thermophys. props. 4—49943
fibre-reinforced, anal. of loading props. *(German)* 4—65673
fibre-reinforced, physically nonlinear elastic shear waves and shock waves 4—80074
fibre-reinforced composite, modulus of elasticity *(Russian)* 4—81161
fibre-reinforced torsion-flexure coupling, reson. obs. 4—53833
fibreglass-plastics, high-modulus fibre reinforced, mech. props. 4—80084
fibrous design appl. of self adjusting interfaces, shear, tensile strength 4—80075
fibrous eutectic type, spheroidization at high temps. 4—61513
filament-reinforced matrix, elastostatic interaction problem for penny-shaped crack 4—51329
filament-reinforced matrix, penny-shaped crack, elastic filament model 4—51328
filamentary, dynamic fracture at high strain rates 4—49960
forced vibrations in cylindrical bending 4—55280
glass fabric reinforced plastic, static and vibr. creep in shear in reinforcement plane 4—45771
glass fibre epoxy laminate, unidirectional, tensile creep 4—49924
glass fibre reinforced plastic composites, acoustic emission rel. to tensile failure mechanism *(Japanese)* 4—45766
glass fibre reinforced plastics, behaviour under bi-axial stress, expt. *(German)* 4—80089
glass fibre reinforced polyethylene, stress relax. *(Japanese)* 4—80083
glass reinforced epoxy resin, deform. characts. 4—49932
glass reinforced epoxy resin, mech. anisotropic optically sensitive, development technology 4—49991
glass reinforced epoxy resin, thermally activated deform. 4—49933
glass reinforced gypsum, strength and stiffness properties 4—67931
glass reinforced plastic, bending of cantilevered plate, transverse shear effect 4—45778
glass reinforced plastic, damage accumulation under cyclic tension/compression 4—45781
glass reinforced plastic, extremal directions determ. 4—45779
glass reinforced plastic, failure caused by stress concentrations 4—61530
glass reinforced plastic, fracture toughness 4—61531
glass reinforced plastic, stress and strain conc. around circular hole 4—80085
glass reinforced plastic, SVAM-type, anisotropy effect on cyclic deform. and heating 4—45782
glass reinforced plastic cylindrical shells, creep buckling 4—45776
glass reinforced plastic cylindrical shells in axial compression, buckling mode and crit. load 4—45784
glass reinforced plastic ring with unidirectional struct., friction and bending effect on perimeter strain distrib. 4—45785
glass reinforced plastic rings, climatic loading effect on residual stresses and carrying capacity 4—53844
glass reinforced plastic rings operating under press., carrying capacity 4—53843
glass reinforced plastic shells, initial imperfections and buckling modes under hydrostatic press. 4—53841
glass reinforced plastics, anisotropy and resist. to interlayer shear and compression perpendicular to fibres 4—49946
glass reinforced plastics, creep characts. rel. to instantaneous stress/strain curves 4—45772
glass reinforced plastics, fracture characts. in cyclic tension-compression 4—45773
glass reinforced plastics, matrix interaction with short reinforcing fibres 4—49942
glass reinforced plastics, oriented, creep and long-time strength in interlaminar shear 4—49941
glass reinforced plastics, oriented, long-term strength criterion in interlayer shear 4—49947
glass reinforced plastics, oxygen etching for supermol. struct. investig. 4—50004
glass reinforced plastics, rheological model 4—49993
glass reinforced plastics, shear moduli determ. using ring specimens 4—50086
glass reinforced plastics, stress relax., model using disc with metal rod 4—49944
glass reinforced plastics, unidirectional hollow fibres, compressive creep relations 4—45780
glass reinforced plastics, wound, residual stress calc. for thickness varying material characts. 4—45775
glass reinforced polyester resin laminates, macroscopic fracture mechanics 4—76532
glass reinforced polyethylene, residual stresses, axial and radial components 4—45777
glass reinforced textolite, thermal effects in uniaxial tension 4—45770
grain and fibre reinforced, simulation of elastic const. and Poisson's ratio *(Japanese)* 4—70567
graphite fibre treatments affecting fibre surface morphology and epoxy bonding characts. 4—53836
graphite-epoxy shells, axisymmetric vibrations 4—71341
graphite/Al, liq. phase hot pressed, mech. props. 4—61517
graphite/epoxy, fibre-matrix interactions 4—64632

composite materials continued
graphite/epoxy prepreg., prestressing effects on laminate strength props. 4—49955
graphite/epoxy shells, unidirectional, axial wave vel. meas. 4—76535
helicon drift instability 4—44956
heterogeneous anisotropic plates, elastic wave surfaces 4—47118
heterogeneous solids, crack tip stress singularity problem soln. 4—64622
hybrid carbon and glass fibre type 4—80072
Inconel 713C modified alloy, directional coupled growth, cryst. morphology 4—80076
interlaminar normal stress calc. 4—61520
laminate, generalised effective stiffness theory 4—81171
laminate, graphical determ. of stiffness and strength 4—80080
laminated, heat conduction, continuum integral theory 4—57764
laminated, one-dimens. acceleration wave propag. 4—45788
laminated composite shells, axilly symmetric dynamic loading 4—80077
laminated fibre, thermal expansion in thickness direction 4—61522
laminated glass-cloth panel, cutting technique *(German)* 4—49926
laminated medium, continuum theory 4—45790
laminated reinforced, specific work of densification in dynamic hot pressing 4—80086
laminated structures, transient stresses 4—57763
layered, stress and continuity conditions *(Russian)* 4—47093
layered elastic composite, harmonic waves, bounds on freqs. 4—77499
l.f. elastic disturbances, propag. in composite material 4—74341
mechanical response, interface model 4—64629
metal matrix type, fibre spacing effect on fatigue behaviour 4—49923
metal matrix type, tensile failure modes 4—70564
metal-matrix, fibre reinforcement as creep strength improvement method *(German)* 4—45698
metal-matrix, mech. props. at ultimate loading 4—45769
metal-matrix type, failure of reinforced sheets under thermal cycling 4—49949
metallic, in-situ type, interfaces effect on morphology and mech. behaviour 4—64634
monoclinic circular plates, natural freq. rel. to fibre orientation 4—51399
multi-layered, interaction between parallel cracks 4—51327
multidirectional laminates, delamination prevention 4—49954
multilayer structures, Van der Waals attraction 4—64628
NDT, strength of by sound-emission technique 4—57802
NDT, u.s. spectral analysis technique 4—64636
nichrome-Mo composite, effect of doping additives on structure of contact zone *(Russian)* 4—70562
Nichrome/Mo(W) wire reinforced, recrystn. phenomena *(Russian)* 4—53828
Nylon 6, glass fibre reinforced, notched specimen, crack propag. by bending fatigue *(Japanese)* 4—49922
one-dimensional wave propag. computation using artificial viscosity 4—80079
optimal reinforcement of material in known stage of stress 4—45783
orthotropic beams, steel and concrete, shear lag effects 4—53832
orthotropic sandwich cylinders, buckling of, analysis 4—74320
oxide diffusion barrier development on refractory filaments 4—61514
particulate type, brittle fracture and failure criteria 4—49959
phenolic and silicone resins, published specifications 4—49925
plastic, glass fibre reinforced, flexural fatigue strength *(Japanese)* 4—57767
plastic, glass-reinforced, crack growth relns. and their appl. to design 4—53834
plastic-mineral composite powders, rheological props. affecting fluidisation and air transport 4—45864
plastics, fibre reinforced, unidirectional, impact behaviour obs. 4—80162
plastics, glass fibre reinforced, elastic modulus change obs., under tensile sinusoidal and impact stresses 4—82964
plastics, glass fibre reinforced, fatigue and change of elastic modulus 4—82965
plates, edge beam supported, fibre reinforced, optimal layout shape 4—81149
plates with holes, material and stacking sequence effects on deform. and failure 4—45763
polyester resin/chopped-strand-mat laminate, fracture toughness meas. 4—82962
polymer, block type, and polyblends, morphology and elastic modulus 4—50013
polymer grafting with electron accelerators, sealed controlled environment chamber 4—46773
polymer matrix, interfacial bonding and environmental stability 4—64630
polystyrene foam/paper composite packing materials, test methods *(German)* 4—45885
prepregs. and moulding materials, British standards 4—80073
prosthetic applications of flame and plasma sprayed ceramics 4—80063
reinforced cutouts and cracks, stress and strain fields, finite element analysis 4—49956
reinforced thin structures, prediction of fatigue crack growth *(French)* 4—67928
sandwich caps, static and dynamic buckling anal. 4—77447
sandwich panels, shallow, imperfection sensitivity to buckling 4—59193
sandwich plates, rectangular, large deflection, derivation of governing eqns. 4—45765
sandwich shell, large deflection, stiffness matrix generation 4—68896
semi-space, transient temp. field resulting from incident heat flux 4—45786
sintered fibre metal type, mech. characts. 4—57766
spatial correlation functions, elastic moduli calc. 4—76529
spatial correlation functions, empirical construction 4—76528
spatial correlation functions, expt. meas. 4—76527
spatial correlation functions, thermal cond. calc. 4—76530

composite materials continued
steel fibre reinforced, chopped stainless, elastic moduli determ. by u.s. pulse technique 4−45792
steel filaments, high-strength, for reinforcing light alloys, tempering parameters depend. 4−61525
steel/Cu layered composite, u.s. shear wave propag., dispersion relations 4−76538
steel/Ni laminated composites, UTS *(Russian)* 4−53829
strain measurement, plane surface, by speckle-pattern interferometry using electronic processing 4−42722
strength ratios in flexure and tension 4−76537
stress wave propag., debonding effect 4−45789
textolite type, fabric reinforced, interlaminar bond strength 4−61528
thermomechanical materials, three-continuum theory 4−70559
thermoplastic, glass fibre or sphere reinforcement, tensile stiffness 4−64625
thermoplastic polymers, mech. fabrication 4−53867
thermostatic inclusion problems, direct approach 4−51344
three phase composite, continuum model, elastic moduli 4−61532
three-phase, glass fibres in glass microsphere-reinforced epoxy resin, mech. props. 4−80070
tool, torsion, variational principle for Laplace operator 4−71323
transversely loaded unidirectional, elastoplastic crack propag. 4−61518
two-phase, finite element analysis of cracks in interfacial region 4−64631
two-phase dispersed particle system, thermal, electrical cond. determ. using elastic moduli theory 4−45764
two-phase isotropic, effective moduli 4−61521
two-phase mixtures, permittivity calcs. 4−64323
unidirectional and angle-ply laminates, nonlinear response analysis 4−49958
unidirectional metal matrix composite, initial yield surfaces 4−80087
unidirectionally reinforced, AMMRC status report on fracture behaviour 4−45762
u.s. inspection of bonds 4−64662
visco-elasto plasticity, dynamical behaviour, three dimensional model 4−81179
viscoelastic layered medium, acoustic wave transmission *(Russian)* 4−54749
wound bodies, pressures determ. method 4−53846
wound reinforced plastic products, thick-walled, temp. residual stresses and strains 4−53840
Al, steel-fibre reinforced, transport props. 4−64624
Al alloy, B/epoxy reinforced, static tensile behaviour 4−80090
Al alloy-steel wire composite, rupture of two-zone intermetallic layer *(Russian)* 4−70560
Al/steel, microprobe analysis of transition zone 4−61524
Al/steel strip, metallographic investigs. of deform. behaviour *(German, English)* 4−82967
Al/steel wire reinforced, explosive-welded, struct. and mech. props. *(Russian)* 4−49938
Al/steel wire reinforced, mech. props. and brittleness *(German)* 4−49935
Al/steel wire reinforced, phase stability *(Russian)* 4−49937
Al-Al$_3$Ni, fracture microrelief examination 4−49929
Al-Al$_3$Ni, impact strength, crystn. rate depend. 4−61523
Al-Al$_3$Ni, unidirectionally solidified eutectic, Bauschinger effect 4−49813
Al-Al$_3$Ni eutectic, directionally solidified, tensile failure 4−49779
Al-Al$_3$Ni eutectic, directionally solidified, impurity effects on anomalous growth 4−53659
Al-Al$_3$Ni eutectic, directional solidification, Al$_2$O$_3$ inclusions role *(Slovak)* 4−79900
Al-Al$_3$Ni eutectic composites, stress partitioning between fibre and matrix during tensile deform. 4−45767
Al-Al$_3$Ni fibrous composite, mechanism of rupture in tension *(Russian)* 4−53827
Al-Al$_3$Ni rod eutectic, fault density and thermal stability, coarsening kinetics 4−76449
Al-Borsic composite, necking of Al matrix 4−82963
Al-CuAl$_2$ aligned lamellar eutectic, Zn diffusion and transform. processes 4−45517
Al-Cu(4%), W wire reinforced, metal-matrix/metal fibre composites, crack propag., strength, toughness 4−73368
Al-Cu(4%), W wire reinforced, metal-matrix/metal fibre composites, crack propag., fatigue behaviour 4−73369
Al$_2$O$_3$, corundum, fibrous mullite single crystal incorporation, thermal shock resist. 4−49906
B fibre reinforced plastics, structural characts. 4−45774
B/Al, crippling strength improvement 4−49957
B/Al, elastic consts. by u.s. vel. meas. 4−61509
B/epoxy, fabrication defects effect on struct. integrity 4−49951
B/epoxy prepreg, prestressing effects on composite strength props. 4−49921
B-Al composite, B-fibre reinforced, uniaxial compression 4−82969
B-Al metal matrix composite, initial yield surfaces 4−80087
C composite, glassy matrix, C-fibre reinforced, strength changes on graphitization and mechanism 4−53831
C fibre composite, notched, deformation obs. 4−64627
C fibre laminates, fracture mechanics 4−76533
C fibre reinforced, in-plane displacement meas., interference technique 4−42724
C fibre reinforced epoxy resin, fatigue strength and failure mechanisms 4−45760
C fibre reinforced epoxy resin, axial fatigue behaviour 4−45761
C fibre reinforced plastic laminate, u.s. wave propagation 4−45791
C fibre reinforced plastics, structural characts. 4−45774
C fibre reinforced plastics, compressive failure modes 4−49952
C fibre reinforced plastics, unidirectional, transverse compressive behaviour 4−53824
C macro fibre manufacturing process 4−61511
CaO.ZrO$_2$-ZrO$_2$ eutectic, directionally solidified, fracture behaviour and microstruct. effects 4−73370
Cd-CuCd$_3$ eutectic struct. obs. by selective sublimation 4−82851
Co alloys, eutectic, with TaC fibres, struct. and mech. props. 4−45641
Co-Cr-TaC eutectic, directionally solidified, strengths and failure mechanisms 4−80009

composite materials continued
Co-Ti composite, effect of shock pulse on intermetallic zone, subsequent heat treatment *(Russian)* 4−70561
Cu/graphite powder composites, resist. meas. during compaction 4−82968
Cu/W, fibre spacing effect on fatigue behaviour 4−49923
Cu/W fibre composites, fracture surfaces *(Czech)* 4−53838
Cu/W fibre reinforced, diffusion bonded, mech. characts. *(Slovak)* 4−49934
Cu-Sb composite, superconducting, metallurgical effects 4−60916
Fe/Cu, fibre reinforced, internal friction changes on cold rolling 4−80088
Fe-Fe$_2$Zr eutectic, unidirectional solidification rate effect on microstruct. and UTS *(Russian)* 4−49684
Mg-Mg$_2$Si eutectic, morphology obs. by selective sublimation technique 4−49691
MgAl$_2$O$_4$-Al$_2$O$_3$ system, liquidus-solidus determ. 4−53816
MgO-NaCl composite, pressure intensification, obs. and model 4−53830
Nb$_3$Sn multifilamentary composites, effects of neutron irradiation on superconducting props. 4−51910
NbTi multifilamentary composites, effects of neutron irradiation on superconducting props. 4−51910
Ni, W reinforced, cylindrical shells, mech. props. 4−67929
Ni alloys, eutectic, directionally solidified, carbide reinforcement 4−45768
Ni-Cr lamellar eutectic composite, low-cycle fatigue behaviour, 300-760°C 4−82966
Ni-Ni$_3$Al-Ni$_3$Ta, ternary eutectic, directionally solidified composites, mechanical props. 4−70568
Ni-Ni$_3$Ta eutectic, unidirectionally solidified, struct. and mech. characts. 4−53660
Ni-Ni$_3$Ti, directionally solidified eutectic, prep., struct., props. *(Russian)* 4−67774
Pb-Ag aligned eutectic composite, thermal stability, temp. gradient effect 4−67927
Sn-Cd, eutectic, coarsening during unidirectional solidification 4−45549
Sn-Pb alloys, off-eutectic, dendrite-composite transition 4−49658
Ti alloy laminated composites, mech. props. after explosive welding and hot rolling *(Russian)* 4−53825
Ti/Be microcomposites, state-of-the-art review 4−80071
Ti/Mo fibre reinforced, creep and long-term strength 4−49948
W filament characterization as reinforcing material for heat resistant composites 4−61526

composite models of hadrons
see also parton model; quarks
canonical gauge field theory of coloured quarks and gluons, Bjorken scaling violation 4−55630
dual, relativistic, anal. of Bethe Salpeter eqn. for one-meson states 4−62984
gluons, massless vector, in unified gauge theory of weak, e.m. and strong interactions 4−66053
gnome fields, weak hadronic current construction 4−55589
gnome model and deep inelastic lepton-nucleon structure functions 4−59576
heavy gluon, scaling breakdown in ep interactions at high energy 4−74625
non-Abelian vector gluon theory description of $e^+e^- \to$ hadrons total cross section 4−62958
nucleon fragmentation, analogy to nuclear processes 4−71729
one-quartet charm model with vector gluon coupled to baryonic current, e.m. corrections to leptonic amplitudes 4−43411
quark molecules, interaction energy calc. in nonrelativistic model with three triplets and coloured gluon octet *(Russian)* 4−66059
quark molecules, nonrelativistic model with three triplets and octet of coloured gluons 4−55629
relativistic properties, Regge slope 4−74642
relativistic quantum dynamical model of composite particles based on classical string 4−47431
single particle spectra, interpretation based on flow patterns of urbaryon lines 4−43445
straton model, composite field theory *(Chinese)* 4−77735
two body baryon model with modified Woods-Saxon potential between quark and diquark, study of $ep \to eN^*$ 4−74609
urbaryon rearrangement, higher-order, and line reversed processes 4−77861
urbaryon rearrangement amplitudes, universality 4−71696
vector-gluon field in SO(3) gauge model for e.m. corrections to semileptonic decays 4−71671
ν production explanation using urbaryon three quartet model 4−55627
π, relativistic model, including contrib. of infinitely massive reson. 4−77862
$\pi V \to \pi V$ scattering, field theoretic analysis, fixed J-plane poles and compositeness 4−59578

composite particles
see also alpha-particles; deuterons; nuclei with $A \leqslant 5$; tritons
many body theory, fermion composites 4−74417

composition measurement *see chemical analysis*

compound centrifugal force *see coriolis force*

compressibility
see also compressibility of gases; compressibility of liquids; compressive strength
alkalu halide single crysts. of various orientations, dynamic compression effects of microhardness and dislocation density *(Russian)* 4−69846
calcite, volume compression data to 40 kbar 4−68078
clay layer subject to surface loading 4−65660
dense matter, generalized Tait compressibility equation 4−79136
Elastomat II measurement system, applic. to anisotropic mats., texture correction *(German)* 4−73391
epoxy resins, bulk moduli 4−49982
ethylene, solid and liq., thermal expansion, compressibility meas., molar heat capacities calc. *(German)* 4−56887
finite element analysis of elastic material, incompressibility introduced by residual energy balancing 4−65684
fluid, radial distribution function and thermodynamic props., quantum corrections 4−59318

compressibility continued
hexagonal crystal, third order eqn. of state *(French)* 4−63885
Ichimaru theory generalisation, particle correlations in classical one-component plasma 4−66693
metal, porous, shock compressibility at l.p. *(Russian)* 4−61478
molecular fluids, perturbation theory 4−72415
PMMA under hydrostatic pressure, bulk modulus by sample immersion in Hg 4−71157
polymer, amorphous, linear volume viscoelasticity theory *(Japanese)* 4−80106
polymer, cryst., thermodynamic stability in transition region 4−44489
polymeric solids, relations between parameters of activation 4−72577
soil, plane explosive wave behaviour *(Russian)* 4−76654
ultrasonic absorption, theory 4−82227
Ar, data to 13 kbar, test meas. of apparatus for simultaneous adiabatic and isothermal compressibility meas. 4−50997
Ar, X-ray scattering evidence for critical exponent value 4−56859
$AuSb_2$, acoustic velocity obs. 4−82353
B_2O_3, glass, at fictive temp., rel. to light scatt. 4−61146
B_2O_3, vitreous, equilibrium expansivity, isothermal compressibility 4−75636
Fe, pure, and alloys and cpds., elastomech. props., isotropy values for polycrysts. *(German)* 4−61403
Ge III, bulk modulus calc., pressure effect on structure 4−48668
He, solid, modified Brueckner theory 4−67086
Mo, fine powder, physicochem. props., compressibility and sinterability 4−49868
Na, experimental equations of state 4−82257
SF_6, along crit. isochore, crit. exponent γ eval. *(Russian)* 4−79146
Si III, bulk modulus calc., pressure effect on structure 4−48668

compressibility of gases
see also high pressure phenomena and effects
butanes, Clausius-Mossotti functions of pure compressed gases and liquids 4−52326
ethane, Clausius-Mossotti functions of pure compressed gases and liquids 4−52326
ethane and ethene, PVT props. data eval., compressibility factors 4−56345
gas-gas equilibrium, high-press. limit, phase separation 4−60617
methane, Clausius-Mossotti functions of pure compressed gases and liquids 4−52326
propane, Clausius-Mossotti functions of pure compressed gases and liquids 4−52326
$Ar-NH_3$ mixtures, PVT relations at h.p., compressibility factors 4−56344
He adsorption on solid porous surfaces, isotherm determ. by compressibility press. plot (K method) 4−44759
N_2, Clausius-Mossotti functions of pure compressed gases and liquids 4−52326
N_2-NH_3 mixtures, PVT relations at h.p., compressibility factors 4−56344
Ne, compressed, sound vel. meas., 4 kbar, 25-200°C 4−60144

compressibility of liquids
binary mixture, of polar and non-polar liquids, compressibility investig. using u.s. method *(French)* 4−56793
butanes, Clausius-Mossotti functions of pure compressed gases and liquids 4−52326
cyclohexane + 2,3-dimethylbutane, mixtures, excess thermodynamic props. determ. 4−54096
cyclohexane-aliphatic alcohol mixture, u.s. velocities determ., excess vol., compressibility determ., assoc. investig. 4−56814
cyclohexane-phenol mixture, u.s. velocities determ., excess vol., compressibility determ., assoc. investig. 4−56814
derivative compressibility factors, generalized values at low reduced temp. 4−50212
ethane, Clausius-Mossotti functions of pure compressed gases and liquids 4−52326
ethylene, solid and liq., thermal expansion, compressibility meas., molar heat capacities calc. *(German)* 4−56887
fatty acids, u.s. investigation of association factors 4−75431
hard sphere liquids, surface tension, derived props. from eqn. of state 4−75684
methane, Clausius-Mossotti functions of pure compressed gases and liquids 4−52326
polyatomic liquids, isothermal compressibility and partial molar vol., perturbation treatment 4−60391
propane, Clausius-Mossotti functions of pure compressed gases and liquids 4−52326
relaxational compressional modulus derived from eq. of state 4−69702
styrene- and α-methylstyrene-alkane copolymers in soln. acoustic relax. obs. 4−52826
thallous acetate, aqueous soln., u.s. velocity and compressibility meas., conc. depend. 4−44602
water, self-diff. coeffs. and rot. correl. times, theoret. determ. 4−56896
B_2O_3, isothermal compressibility, 550-800K, light scatt. in glass melt 4−57517
Li salts in aqueous and organic solutions, short-range order from adiabatic compressibility data 4−48495
LiCl + n-propyl alcohol (n-butyl alcohol), adiabatic, solvation numbers 4−75576
$MgCl_2$ + n-propyl alcohol (n-butyl alcohol) adiabatic compressibility and solvation numbers 4−75576
N_2, Clausius-Mossotti functions of pure compressed gases and liquids 4−52326
Na, experimental equations of state 4−82257
Tl_2CO_3 aqueous soln., u.s. velocity and compressibility, conc. depend. 4−44602
$TlNO_3$ aqueous soln., u.s. velocity and compressibility, conc. depend. 4−44602
Tl_2SO_4 aqueous soln., u.s. velocity and compressibility, conc. depend. 4−44602

compressible flow
see also compressibility
adverse pressure gradient flow, turbulent boundary layer shear stress distribs. 4−78613
boundary layer equations, soln. using method of parameter differentiation 4−52424
boundary layer equations, soln. using method of parameter differentiation 4−52425
boundary layer on spinning sharp body at angle of attack 4−81885
compressible boundary layer within shock wave induced adverse press. gradient, Reynolds shear meas. 4−72296
corner layer flow, optimisation of ADI method 4−78617
elastic shell-gas system, wave mech. anal. 4−48266
flow, heat-conducting, in planar channels with strong local injection, modelling 4−75153
gaps and slots, including ablation effects 4−75127
interaction of two streams in plane channel at small Mach numbers 4−48311
internal gas dynamic flow, boundary conditions and uniqueness 4−81894
inviscid gas, plane and steady-state flow 4−66538
jet, free, centreline velocity decay 4−81917
nozzle discharge coeffs., boundary layer development 4−66629
plasma, divergent, nonlinear self-similar soln. 4−78741
potential and asymptotic viscous flows for corner region 4−81895
rotating cascades, solid particle flow eqns. 4−78616
shock turbulence in compressible fluid investig. 4−75140
supersonic submerged underexpanded gas jet, closing compression shock 4−44061
three-dimensional blunt-body flow, time-split finite-volume method 4−48259
transonic selfsimilar, with oblique shock wave, rectilinearity conditions *(Russian)* 4−75145
turbulent, in round tube of const. cross section with impermeable adiabatic wall 4−52429
turbulent shear, model eqns., effect of viscosity compressibility and density variations 4−56379
viscous barotropic gas, laminar flow along annular tube 4−48281
viscous fluid motion equations, with gravity, low Mach number 4−81904
viscous homogeneous gas, laminar boundary layer flow 4−56404

compressive strength
see also compressibility
annular ring, under diametric compressive force, holographic interferometry 4−68612
axially bored cylindrical specimens under compressive loads, longit. stability 4−50091
brittle anisotropic materials, cubic equation, biaxial and triaxial normal stress interaction 4−63852
brittle high-strength materials, biaxial compressive load testing device 4−50092
brittle material, rupture toughness testing 4−67971
composite, fibre reinforced, microbuckling compression failure 4−49953
ferrous alloys, strength differential effect, effective modulus interpret. 4−53771
fluoroelastomers with improved compression set resistance *(Japanese)* 4−49966
glass reinforced plastics, anisotropy and resist. to interlayer shear and compression perpendicular to fibres 4−49946
glass reinforced plastics, unidirectional hollow fibres, compressive creep relations 4−45780
graphite, strength changes due to neutron irrad. 4−71993
graphite/Al composite, liq. phase hot pressed, mech. props. 4−61517
graphite/epoxy composite, fibre/matrix interactions 4−64632
plastic specimen alignment device for compression testing 4−61571
polystyrene foam, pure tension and compression tests 4−50043
polyurethane foam, with cylindrical cavities, elasticity and strength 4−50044
resonance device, meas. strength of materials, symmetric cyclic tension, compression and bending 4−83005
sandstone, microfracturing in uniaxial compression 4−64796
steel, hydraulically extruded, compressive yield strength anisotropy 4−61466
steel, induction hardened, tension and compression fatigue strength *(Japanese)* 4−79995
stiffened panels, flat, buckling and failing stresses 4−47105
testing device for ring specimens 4−61567
tube creep bending, differences in tensile and compressive props. 4−45893
Al/steel wire reinforced, explosive-welded, struct. and mech. props. *(Russian)* 4−49938
Al-Cu(4%), W wire reinforced, metal-matrix/metal fibre composites, crack propag. 4−73368
B-Al composite, B-fibre reinforced, uniaxial compression 4−82969
C fibre reinforced plastics, compressive failure modes 4−49952
C fibre reinforced plastics, unidirectional, transverse compressive behaviour 4−53824
Fe, grey, strength and deformability during nonuniform omnilateral compression 4−49828
Fe alloys, strength differential effect, effective modulus interpret. 4−67874
$Li_2O-ZnO-SiO_2$ glass-ceramics, high temp. plasticity, const. strain rate tests 4−49889
Zn containing ZnO particles, high temp. texture strengthening 4−53763

compressors
adiabatic toroidal compressor, engineering tests and preliminary operation 4−60314
adiabatic toroidal compressor, neutral injection 70 kV pulsed floating deck switch, mech. design 4−60309
adiabatic toroidal compressor, ohmic and compression heating systems 4−63673
adiabatic toroidal compressor, Thomson scatt. system design and operation 4−60333
compressors, supersonic stratified flows *(French)* 4−48277
drives in petroleum and chemical industry, noise considerations 4−50926
solid particle flow eqns. 4−78616

Compton effect
see also electron scattering
anti-Compton scattering, with negative energy photon 4−77531

Compton effect continued
atomic L-shell Compton profiles, incoherent scatt. factors 4−47872
benzene, momentum distrib. meas., positron annihilation comparison 4−74935
bound electron, relativistic effect, atomic ionisation 4−78351
clusters of galaxies, magnetic field and inverse Compton radiation 4−46270
compact nonthermal radiosources, radiation processes 4−46248
Crab Nebula, quantum effects in radiation reaction 4−50720
diamond, Hartree-Fock directional Compton profiles calcs. 4−60515
diffuse X-ray background, multiple inverse Compton scattering 4−46267
electron moving in mag. field, Dirac eqn. 4−77827
electron spectrometer, time-resolved, kinetic energy of intense, relativistic beams using Compton diodes 4−46889
electron stimulated scattering, standing light wave, adiabatic switching on hypothesis, Kapitza-Dirac effect 4−81384
fixed pole, J=0, virtual Compton amplitude off proton and neutron 4−74603
forward scatt. on protons, dispersion inequalities 4−71679
functional representation, asymptotic behaviour 4−71625
gamma-ray backscatter in special geometry, approx. calcs. *(Czech)* 4−69396
gamma-ray excitation of electron currents 4−44562
gauge invariance in dual models, fermion and boson cases 4−59549
graphite, obs. using 22.1 keV X-rays 4−52781
graphite, profile determ., electron wave functions 4−57650
inhomogeneous interacting electronic system 4−72671
J=0 fixed pole, possible occurrence in amplitude 4−77831
J=0 singularity in forward virtual Compton amplitude 4−66033
Klein Nishina differential cross-section, Legendre polynomial expansion 4−55608
magneto-bremsstrahlung in charged cloud rel. to Crab Nebula 4−50719
meson polarisabilities in second order photon frequency terms 4−66032
Monte Carlo calculation of expt. Compton profiles, multiple scatt. effect 4−82769
multiphoton processes in Compton scatt. and induced Compton scatt. in const. e.m. field *(German)* 4−81419
neutron with mag., elec. moments, e.m. wave scatt. *(Russian)* 4−71674
non-Abelian, on spin-3/2 targets 4−47517
Perseus cluster of galaxies, high-energy X-rays and inverse Compton production 4−46271
phenomenological description 4−79735
photon gas, Compton cooling, Compton-Fokker-Planck eqn. 4−59301
plasma, diffusion of photons, Compton transport cross section evaluated 4−66683
profile determination method 4−57650
pulsar magnetosphere, radiative transfer under single-particle Compton scattering 4−76869
relativistic electrons near pulsars, thermal photon scattering 4−76873
relativistic scattering representation by discrete ordinates method 4−66014
scattering amplitude on nuclei, seagull terms from exchange forces below nucleon resonances 4−69237
secondary scattering effects in profile measurement 4−57649
solid, X-ray Raman and Compton scatt., optical transitions 4−79817
spin-zero charged particles, scatt. cross section in arbitrarily strong magnetic fields 4−59555
structure functions based on ρ-A_2 exchange degeneracy 4−66036
Veneziano model calc. of scalar analogue of virtual Compton scattering 4−66063
virtual scatt. fixed pole residues and diffractive limit in parton model calcs. 4−71701
virtual scattering, application of intrinsic photon size formula 4−51716
X-ray background spectrum due to inverse Compton scattering 4−65195
X-ray Compton profiles, kα doublet separation 4−58962
γd scattering below 1.5 GeV data compilation 4−81415
γN, scattering above 1.5 GeV, data compilation 4−81416
γN scattering, data compilation 4−81414
γp, 0.55-4.5 GeV, inconsistency with vector-meson-dominance 4−62938
γp, in $\Delta(1232)$ energy region, dispersion theoretic and partial-wave analyses 4−47508
γp scattering below 1.5 GeV, data compilation 4−81415
νe scattering in sun, energy loss mechanism rel. to Davis experiment 4−61958
pγ scatt. 21 GeV, photon yield meas. 4−77839
$\pi\gamma \to \pi\gamma(\pi\rho)$ scattering, field theoretic analysis, fixed J-plane poles and compositeness 4−59578
Al, X-ray Compton scatt. meas., electron momentum distrib. 4−61254
Ar, at. Compton profiles, depend. X_α exchange parameter 4−81713
Ar, relativistic Hartree-Fock Compton profile 4−66277
BN, electron momenta distribs., stuct. factor obs. on cubic and hexagonal samples 4−57032
BN, X-ray struct. factor and Compton profile, self consistent Hartree Fock calcs. 4−57033
Be, profile determ., electron wave functions 4−57650
Be, secondary scatt., profile meas. 4−57649
Cr, Compton profile determ. using 59.54 keV gamma-rays 4−66933
Cr, single crystal, Compton profile anisotropy 4−82771
Cu, Compton profile determ. using 59.54 keV gamma-rays 4−66933
Ge, expt. Compton scatt. cross sections, thermal diffuse scatt. contribs. 4−45386
H_2, Bethe surface, diff. cross sections, Compton profile, binding from electron scatt. at 25 keV 4−52269
o-H_2, solid, isotropic Compton profile 4−79816
Kr, at. Compton profiles, depend. X_α exchange parameter 4−81713
Kr, relativistic Hartree-Fock Compton profile 4−66277
Li, electronic structure, Hartree-Fock results 4−72683
Li, profile calc. using LCAO 4−72689

Compton effect continued
Li, X-ray Raman and Compton scattering, 77 and 300K 4−82770
LiF self-consistent Hartree-Fock calc. 4−75754
Ne, at. Compton profiles, depend. X_α exchange parameter 4−81713
Ne, crystalline, self-consistent Hartree-Fock calc. 4−75754
Ni, Compton profile determ. using 59.54 keV gamma-rays 4−66933
Ni, ferromag., band struct. calc. of momentum density distrib. for positron annihilation and Compton scatt. 4−53038
Pb, relativistic Hartree-Fock Compton profile 4−66277
Si, expt. Compton scatt. cross sections, thermal diffuse scatt. contribs. 4−45386
Si(Li) detectors, effect of electron-momentum distrib. on shape of Compton edge, calibration use 4−55059
TiNi, obs. of profile additivity for pure metals 4−61253
$TiNi_3$ obs. of profile additivity for pure metals 4−61253
Ti_2Ni obs. of profile additivity for pure metals 4−61253
V, Compton profile determ. using 59.54 keV gamma-rays 4−66933
V, electron momentum distrib. investigation 4−57648
$VH_{0.45}$, electron momentum distrib. investigation 4−57648
Xe, relativistic Hartree-Fock Compton profile 4−66277
Zn, Compton profile determ. using 59.54 keV gamma-rays 4−66933

Compton scattering *see Compton effect*

computation *see calculation*

computational physics
see also numerical analysis
Abel's integral eqn., inversion, appl. to plasma spectroscopy 4−56511
aerodynamics appl. of generalised capacity matrix 4−78619
algebraic algorithms, exactness concepts 4−68879
algebraic manipulation on computers, user's review of systems 4−68877
algebraic variational scatt. calcs. use of contracted basis functions 4−78365
alloy, binary, quenched, time evolution, computer simulation of 2-dimens. model system 4−79956
angular moment coupling coeffs. calc. procedure *(Russian)* 4−65752
anisotopic solids of revolution, thermal stresses, finite element analysis 4−62677
Arbitrary Lagrangian-Eulerian computing method for all flow speeds 4−60154
ASHMEDAI, symbol manipulation program 4−65652
astronomical applications of FFT computers 4−62253
astronomical data processing, directable modular approach 4−62223
atmospheric acoustical signals, naturally occurring, acoustic gravity waves, infrasound 4−80336
atomic scattering integrals eval. by numerical techniques 4−59947
binary III-V liquidus lines, thermodynamics and computer fits 4−52864
boiling water reactor, few-group three-dimensional burnup code, COSMO 4−81589
Boltzmann distribution for an ensemble of harmonic oscillators, computer derivation 4−58704
book, introduction to role of computers in physics 4−62658
boundary layer eqns. for Howarth flow in presence of suction, computer calcs. *(Russian)* 4−52408
bremsstrahlung spectra, thick target, experimental and theoretical comparison 4−42897
BWR rod bundle burnout predictions comparison of calc. methods 4−69284
Cauchy-Riemann equations, nonhomogeneous, fast direct numerical soln. 4−60198
charge exchange collisions, program for cross-section and probability calculations 4−47901
charged particle beam optics, matrix elements eval. methods 4−69100
colour matching by computer 4−54885
conference, Marseille, France (June 1973) 4−65650
configuration interaction calcs. using four-index transform. 4−60012
creep deformation of cyclically loaded structures, estimation method 4−43093
critical reactor, noniterative method for solving adjoint eqns. 4−55917
crystal potential construction for band struct. calcs., computer program 4−57017
crystallography, small-angle X-ray scatt. intensity, computer calc. using macromolecule model 4−48477
decision device for small angle high energy scatter 4−42875
diffusion in solids, numerical simulation 4−56910
EAS, computer simulations, fluctuations in shower development 4−58176
EAS, heavy primary particle initiated, computer simulation 4−58175
EAS, proton initiated, computer simulations of average characteristics 4−58174
eigenspace manipulation in SCF theory, general formalism 4−63319
eigenvalue calcs., instructional program 4−68600
elastic-plastic finite element program, three point bend fracture 4−67977
electron diffraction crystallography, TED and quasi-Laue RHEED patterns, computer simulation 4−52668
electron diffraction patterns, computer-simulated, use for phase identification in Co-Sm system 4−78872
electron wave function computation *(Russian)* 4−55338
e.m. finite difference eqns., fast direct soln. methods 4−74458
e.m. radiation and scatt. problems, computational aspects 4−74457
e.m. wave scatt. by inhomogeneous dielectric bodies of revolution, numerical soln. 4−74464
e.m. wave scatt. integral equations for numerical soln. 4−71482
e.m. wave scattering by dielectric cylinders, finite element computation 4−71477
energy loss of charged particles in thin absorbers, programs for Landau and Vavilov distribs. and random numbers 4−55032
epitaxial growth and device processing, impurity redistrib. in Si, model 4−45471
e.s.r., exchange-broadened spectra, least-squares analysis 4−53280
extended AROVMI model calculations, computer program 4−43472

computational physics continued
few-group diffusion eqns., one dimensional albedo-type boundary conditions, DRYDIFF-2 code 4−78157
Feynman parametric integrals, computer generation of integrands 4−69135
fissile material storage models, surface density method employing unit shape factor 4−78173
fluids, unsteady potential flow past group of spheres 4−78687
g-tensors determ. from exptl. g-value differences, computer program 4−53279
gamma-ray backscatter in special geometry, approx. calcs. *(Czech)* 4−69396
gamma-ray transmission through ducts in concrete shielding 4−81700
gas analysis in pulsed vacuum network, boundary conditions 4−42956
gas discharge ignition, transcendental equation system, computer-aided numerical soln. 4−78836
general relativity, ALAM/CLAM and CAMAL systems 4−68935
general relativity and symbolic algebra, computer aided manipulation 4−65779
gravitational radiation detector, time delay obs. 4−65808
group theory, algorithmic methods 4−65619
hard rod system, one-dimensional, molecular dynamics 4−52264
heat conduction in hollow cylinder, transfer functions 4−43203
heat conduction problems, method for improving efficiency of Monte Carlo calculations 4−74438
heat exchanger, multistage forced-circulation, approx. soln. of eqns. of thermal dynamics 4−65841
helical particles, computer-generated Fourier transforms 4−71503
Helmholtz equation, smoothing process on mode-matching technique 4−71462
high-energy elementary particle interactions, simulation program, design criteria 4−42850
hologram conversion, Fresnel transform to Fourier transform 4−43272
infinite momentum method applic. to QED and bound state problems 4−69133
interactions of arbitrary particles with arbitrary spin, kinematic calcs., ELKIN program 4−66015
interference pictures, computer deciphering *(Russian)* 4−58827
Ising model, two-dimensional one-spin-flip, first-order or discontinuous phase transition simulation 4−67341
isodose patterns for sharply-defined beam edges, computer calc. 4−54725
kinetic energy spectrometry, computer-aided averaging of energy spectra 4−46894
Kitt Peak NRAO 36 ft telescope, FORTH program for spectral line obs. 4−62258
least-squares fix, estimation of confidence intervals for nonlinear parameters 4−82103
Legendre series, quadrature formula for coeffs. 4−59046
Lie series perturbation solution to invariant bedding reflection equations 4−81529
linear chain model, breakdown phenomena in high-speed dislocations, computer simulation 4−52765
macromolecular quantum chemical characts. calc. by Huckel method, computer program 4−69543
magnetic field from rectangular helical block, FORTRAN program 4−59331
magnetostatic field calc. from wide class of current geometries 4−77589
many-electron wave matrices, eqn. for mean operator values 4−47950
mass spectroscopic peaks, computer identification 4−58946
matrix Pade approximants for scatt. amplitudes 4−65981
maximal colours and colour constancy, linear programming algorithm 4−54906
mechanical theorem proving applic. to symbolic calculus 4−65654
MEDUSA, one dimensional laser fusion code 4−66749
minicomputer automatic spectrum analysis, doublet resolution by gaussian fit 4−42933
mixed transonic flow, oscillatory kernel function method for lifting surfaces 4−48283
molecular energy level calc., educational paper 4−54789
molecular integrals determination over generalized Gaussian basis sets 4−59995
Molonglo Cross radiotelescope, source fitting using multiple beams 4−62225
Mossbauer effect spectra fitting, least squares fit route 4−49269
multicentre quantum chemical integrals and matrix elements, computer calc. 4−43796
multicentre two-electron integrals and matrix elements, calc. algorithm 4−69454
multiple integrals evaluation routine in BASIC 4−51308
neutron transport benchmark calcs. with PALLAS code 4−59822
neutronics problems soln. using Monte Carlo method 4−69267
nonsteady-state cooling problem soln. by approx. method 4−60258
nozzle flow, steady, computation by time depend. method 4−81918
nuclear cross sections, GALAXY 3* Part I FORTRAN program 4−59724
nuclear energy loss and range calculations, empirical approximations, in FORTRAN 4−74113
nuclear fuel elements, circular, thermal transients, two nodes model 4−63241
nuclear perturbed angular correlation and multiple lifetime expts., data analysis method 4−77168
nuclear reactor, rod array crit. heat flux data, sources, information 4−71984
nuclear reactor coated fuel particles, Walther model simplification without accuracy loss 4−74785
nuclear reactor hexcan response to transient internal pressures, SAD—CAT code 3D solution 4−81594
nuclear reactor subcriticality, inverse kinetics determ. 4−63264
nuclear reactors, clad and fuel design anal., method of correl. temps., expansion 4−71983
numerical calculation techniques in spaces of high dimensionality 4−65651
one-particle tensor operator reduced motion elements evaluation for jj-coupling configs., computer program 4−55304

computational physics continued
Pade approximants, convergence developments 4−65641
Pade approximants, convergence for totally monotonic and oscillating sequences 4−65643
parametrization of particle tracks in CERN split field magnet 4−74137
partial differential equations, numerical solution, using on-line techniques 4−75214
pattern search technique, appl. to optical model parameter searches for ^{16}O + ^{11}B elastic scatt. 4−51845
photofission cross sections for γ-rays, automatic analysis 4−42851
Pioneer 10, occultation by Jupiter, computer simulation of microwave experiment 4−62041
plasma, cold, automation of derivation of dispersion relations 4−63651
plasma, Rayleigh-Taylor instability, finite ion-Larmor radius effect 4−78745
plasma, toroidal pinch, data processing of magnetic probe meas. 4−75302
plasma, toroidal pinch, two-dimens. MHD computer code 4−44378
plasma optical interferogram processing by digital computer *(Russian)* 4−82030
plasma physics methods 4−69615
plasma waves, electrostatic, canonical calc. method for wave amplitudes, energy-momentum conservation laws 4−44249
polyatomic molecule, algorithm for geometry and natural coords. assignment from vibr. calcs. *(Russian)* 4−60044
pressurised water reactor core simulation, ASSY-CORE code system *(Japanese)* 4−81548
Princeton Plasma Physics Lab. data acquisition system 4−60334
Princeton Plasma Physics Lab. data acquisition system software support 4−60335
Princeton Plasma Physics Lab. digital control system 4−59077
program ACRL for scattering cross sections, adaption to IBM computers 4−47150
projection algorithm for rectangular resonator with dielectric sphere *(Russian)* 4−65866
pulsar dispersed radio emission detection, on-line computer program 4−62228
QED, review 4−69132
quantum electrodynamics, fourth order, analytic computation of parametric integrals 4−59505
quantum mechanical four-centre integrals, optimised transform. 4−55332
radiation field in presence of right cylindrical source, computer program 4−63308
radiative transfer geometry, optimal control method 4−81255
radioastronomy, computer generation of radar maps of lunar surface topography 4−62226
radioastronomy, NOD2, data analysis system using document or file concept 4−62222
random packing of hard spheres 4−69701
rarefied gas dynamics, test particle Monte Carlo method 4−81932
rational polynomial approximants defined from power series in N-variables 4−65642
reactor calculations, fictitious scattering Monte Carlo method, next flight estimation 4−81535
reactor shielding design, removal-diffusion vs transport theory, SABINE-ANISN comparison 4−81704
reactor vessels, axisymm. rectangular element, stress anal., heat cond. problem 4−71329
REDUCE program for computer algebra 4−65653
relative tensor calculus and tensor time derivative 4−55192
Rensselaer interactive graphics analysis system for nuclear reactor data assessment and modification 4−81586
rheological curves approximation using distrib. theory 4−49994
scattering, random rough surface, numerical solution of singular integral equation 4−74223
scattering phase shift, elastic, comparison between perturbation and numerical methods 4−74370
scattering phase shifts for screened Coulomb potential 4−74372
SCF computation program for mol. integral no. reduction, applic. to CH_5^+ 4−78399
SCF equations, matrix elements computation method 4−69453
SCHOONSCHIP, algebraic manipulation system 4−68878
Schrodinger equation, one-dimens., numerical soln. 4−55333
scientific computing in real time 4−65655
seismogram, synthetic, computation by expansion in generalised rays 4−61670
semiconductor, van der Pauw resistivity and Hall coeff. meas., contact size effects 4−80958
shell, pressurized cylindrical, nonlinear behaviour analysis 4−47103
SINAC program, use of subtracted generalised polylogarithms 4−47031
solenoid, coaxial array, on-axis field calc., computer program 4−51500
sonic-boom focus, overpress., hydrodynamic solns., computer with moving mesh 4−78630
spark chamber expt., computing techniques 4−68784
spectrophotometry, kinetic, direct computation 4−77079
statistical mechanics, computer simulation methods 4−65816
stiffness matrix, method of construction and solution, flow diagrams of programs *(Polish)* 4−71326
supersonic nonuniform flows over cones at angle of attack 4−81907
supersynthesis radiotelescope map data, interactive processing 4−62250
three-centre valence structures, enumeration and generation 4−69460
transmission electron microscopy, computer programs *(Czech)* 4−48488
transport theory, LS_n operator method 4−78151
two-electron integrals over contracted Gaussian lobe functions, efficient eval. methods 4−56116
u.s. wave energy partitioning at interface, using HP 9820 calculator 4−48828
waterbag method for fluid simulation 4−66557
Westerbork Synthesis Radio Telescope, data handling facilities 4−62224
Westerbork Synthesis Telescope, on-site data processing 4−62257
X-ray crystallography, analysis of step-scan mode data 4−78863

computational physics continued
  X-ray stress measurement, data treatment method *(Japanese)* 4−77029
  diffusion, CDM-1, two-dimens. multigroup code 4−59825
  Sb film, optical props., i.r. region 4−73216

computer-aided analysis
  see also computer-aided design; spectroscopy applications of computer
  1/f noise simulation, Markov process vs random walk computer solns. 4−46367
  acoustic loudness, program for computer time-sharing terminal 4−73935
  acoustic noise, nonlinear, finite amplitude noise propag., weak shock theory 4−68559
  aerodynamics appl. of generalised capacity matrix 4−78619
  airborne radionuclides, resuspended, computer-controlled sampling system 4−54333
  amorphous state structure, generation of random networks 4−75449
  amorphous state structure, mol. dynamic computer expt. 4−75450
  atomic displacement cascades in solids, binary collision approx. 4−72483
  b.c.c. model lattice, screw dislocation motion, computer simulation, orientation depend. of slip 4−44542
  boiling-water loops natural circulation, nonlinear lumped-parameter model anal. 4−51867
  bone microradiographs, electronic evaluation method *(German)* 4−50815
  branched shell of revolution, static response, computer program 4−77433
  bremsstrahlung spectra from diagnostic X-ray generators 4−42932
  bubble chamber data, automatic processing problems 4−51161
  calorimetry, automatic, meas. on noble metals and alloys 4−42752
  catenary eqn., parametric soln. by computer 4−47025
  centrifugal pump performance prediction 4−80857
  ceramic industry, colour match prediction and batch control techniques 4−54915
  channelling simulation, axial to planar transition 4−72505
  chemical reactions investigation, shocktube technique, shockwave and i.r. data anal. 4−61577
  corona loss calculations for d.c. transmission line 4−78834
  crystal stability, fluid viscosity, two-dimensional computer studies 4−60531
  diagnostic X-ray cumulative dose recording 4−58592
  dislocation glide, thermal activation 999 point obstacle simulation 4−60504
  dyehouse shade sorting applic. of Adams-Nickerson colour difference eqn. 4−54892
  electron beam, relativistic, propag. in metallic neutral gas drift tube 4−71593
  electron diffraction in gas phase, program for refining data by statistical least-squares method 4−52019
  electron micrographs of Au nucleation on carbon layer *(German)* 4−75742
  electron microscope, image analysis and automatic control *(Russian)* 4−71247
  electron microscope image of dislocation, direct printout *(Russian)* 4−66926
  electron microscopy, zone plate frequency contrast characteristics calcs. *(Russian)* 4−71245
  electrostatic lens simulation, relativistic trajectory computations for charged particle beams 4−43364
  environmental radionuclides, low level, gamma-ray spectrum anal. technique 4−51923
  error determination, algorithm for single measurement device *(Bulgarian)* 4−62407
  ERTS data interdisciplinary analysis and interpretations 4−70825
  few-group diffusion eqns., one dimensional albedo-type boundary conditions, DRYDIFF-2 code 4−78157
  field monitoring system, computer compatible, for radiation dose meas. in nuclear reactor vicinity 4−51916
  finite element anal. techniques status report 4−63260
  large-flanges, stress displacement under external loads 4−74312
  flow, turbulent, diffusion, fluid and spherical particles, computer anal. 4−75099
  flow simulation, slow rot. natural oscill. in vessel 4−48230
  fluid turbulence experiments, data processing problems 4−60176
  fluid-hammer anal. of nuclear reactor network response characteristics 4−81578
  fluids, corner layer flow, optimisation of ADI method 4−78617
  fluids, lifting-surface programs evaluation 4−78618
  fluids, rotating cascades, solid particle flow eqns. 4−78616
  fluids, shock propagation, noncentred analysis 4−78629
  fluorimetry, polarisation of fluoresc. spectrometer, computer-controlled system 4−65424
  gas chromatograph-mass spectrometer with on-line computer, catalysis studies 4−46898
  gas chromatography mass spectrometry, state of the art review, instrumentation, appls., computerised systems 4−71272
  gas-solid interaction, analogue computer programs *(German)* 4−44756
  group theory, normal coord. calcs., computer generated basis vectors 4−72149
  hard spheres aggregate as amorphous solid model 4−56618
  heavy-ion confinement sources, computer programs for ray-tracing 4−55026
  Hertzian cone crack growth simulation 4−65661
  heterogeneous reactor cores, energy release distribs. *(Russian)* 4−43594
  hodoscope system, fast digital coder connected with CAMAC dataway 4−55089
  illumination pattern variation, TV-recording for computer analysis 4−54869
  image interpretation, infrared imagery for land use classification 4−50979
  ionic conductivity, solute inhomogeneity effect 4−56911
  i.r. spectral positions determ. from digitally recorded spectra using minicomputer 4−72030
  Lorentz gas, mol. dynamics computer anal. of diffusion 4−63510
  low perveance ion beam extraction from electron bombardment discharge 4−47408

computer-aided analysis continued
  magnetic multiparticle spectrometer, track recognition code 4−46864
  many-spin n.m.r. spectra, NMRMRG program 4−49241
  mass spectrometry, empirical formula, rel. abundances, Σ_i values 4−51174
  mass spectroscopic chemical analysis, pattern recognition, six methods compared rel. to information content 4−42946
  matrix eigensystem routine package EISPACK in FORTRAN 4−55176
  measurement system for physics experiments using minicomputer 4−55120
  medical diagnosis sequential decision algorithm for bone tumours 4−50874
  microfacies, definition by automatic classification and comparison of description *(French)* 4−45950
  microscope photometry and stereometry, with process computer 4−62466
  microwave spectrometer system, computerised, use in rarefied atm., spectral studies 4−68838
  Mie scattering curves, computer calculated for Dow latexes EP-1358-38, optimisation with expt. data 4−82989
  molecular beam, reflector geometry calcs., uniform distrib. in plane of section *(Russian)* 4−72252
  m.o.s. structure, CV characs., theory for computer evaluation 4−49085
  Mossbauer effect, computer program for positions and intensities of $|3/2, i\rangle \rightleftharpoons |{}^1/_2, j\rangle$ transitions 4−43498
  Mossbauer spectra in applied magnetic fields least squares fitting 4−46920
  multi-mass systems, time history calc. inc. non-linearities or dry friction, SWING-R computer code 4−81142
  multicomponent fabric dyeing, computer-aided colour matching system 4−54914
  multiple sample chemical analysis by gamma and X-rays, programmable automatic system 4−51211
  music, impossibility of perfectly tuned 12-note scale 4−58662
  neutron effective multigroup cross sections, generation by energy moments method 4−66258
  neutron physics measuring system using minicomputer 4−51190
  neutron spectra standardisation, modified SPECTRANS-2 code 4−59826
  neutron therapy, dose distribution, at the TAMVEC facility, by a computer controlled system 4−46407
  nozzles, variable inlet geometry, maximum thrust design 4−81925
  nuclear reactor, fuel-cladding deformation anal. using SAS2A/DEFORM-II code 4−71978
  nuclear reactor EBR-II, application of on-line digital computer 4−47754
  nuclear reactor FFTF mockup, digital Fourier noise analysis system for subcriticality meas. 4−51862
  nuclear reactor FFTF mockup, inverse kinetics rod drop expts., real time analyzer 4−47753
  nuclear reactor fuel rod quasistatic elastoplastic deformation with heat conduction 4−81182
  nuclear reactor gaseous effluents, online monitoring of specific radionuclides 4−51918
  nuclear reactor operation, start-up phase *(German)* 4−47747
  nuclear reactor piping systems 4−71980
  nuclear reactor plant, comparative forced vibration test 4−63257
  nuclear reactor primary containment response, anal. using hydrodynamic-elastic-plastic computer code 4−63252
  nuclear reactor Xe transients anal. 4−78193
  on-line selection system for particle trajectories detected by multiwire proportional chambers 4−46842
  parameters calc. by least squares method by least squares method *(Russian)* 4−43852
  particle beam, dense, analysis on deformable relax. mesh 4−42870
  photogrammetric measurements, under-water 4−50414
  photoneutron research, data sorting and processing system 4−55061
  pigment colour matching and blending, instrumental approach 4−54916
  plasma, cold, automation of derivation of dispersion relations 4−63651
  plasma, laser beam compressed, MEDUSA numerical model 4−63633
  plasma, low-temp., spectroscopic analysis, automatic meas.-calc. system *(Russian)* 4−46969
  plasma, whistler waves, computer simulation, comparison with quasi-linear diffusion theory 4−52553
  plasma instability, simulation of heating and quenching of ion sound instability 4−52591
  plasma ion source, exit orifice optimal profile determ. 4−63700
  plasma simulation, belt-pinch evolution 4−63679
  plasma simulation, electron plasma wave excitation, freq. shift calc. 4−44203
  plasma simulation, e.m. grid effects reduction 4−48389
  plasma simulation, l.f. oscill. electric field, plasma instabilities 4−44260
  plasma simulation, numerical procedures 4−75217
  plasma simulation, on line systems 4−75216
  plasma simulation, parametric instability in weak turbulence regime 4−44215
  plasma simulation, r.f. confinement 4−66763
  plasma simulation 4−75215
  plasma simulation quiet high-resolution computer models 4−48388
  plasma simulation reln. to fusion reactor anal. 4−81980
  plasma simulation using particle codes 4−81982
  plasma waves, ion fluctuation-electron plasma wave coupling calc. 4−44204
  plate assemblies under combined loadings, anal. of buckling and vibration 4−51361
  plate bending analysis, finite element method *(Greek)* 4−43080
  polyatomic molecule, forces on atomic nuclei calc. 4−78409
  polyatomic molecules vibrational frequencies isotopic shifts, approx. calc. *(Russian)* 4−43864
  Polyhedron program set for cryst. chem. calc. 4−48466
  polymer, multiple chain system, density effects on chain dimens., computer simulation 4−75059

computer-aided analysis continued
- polynomials, APL program for production of algebraic expressions 4−62659
- polystyrene latex, Rayleigh scatt., photon statistics and autocorrel. 4−74471
- potential problems in general 2D regions, numerical solution package:POTENT 4−77591
- power reactor coolant monitoring, in-line gamma-spectrometry *(German)* 4−46930
- L-proline, p.m.r., computer simulation analysis 4−75017
- pulse radiolysis, computer-controlled system 4−57854
- radiation therapy, patient set-up monitoring by computer 4−46427
- radiative exchange, algebraic anal. 4−62763
- radioastronomy, role of data analysis in automated observatory 4−62220
- radiodiagnostics, redundant information 4−50876
- radioisotope scanning techniques (1947-73) 4−58556
- rectangular beam isodose profiles, photometric analysis for external beam computer programs 4−46492
- retina, human, computer analysis of photochemical changes 4−65252
- seismic data, modern marine seismic system with streamer 4−68273
- seismic waves, travel time curves and correlation sounding methods *(Russian)* 4−58129
- self-avoiding walk, interacting solid barrier, config. props. 4−51465
- sheet metal dished ends, explosively formed, deformation characts., anal. 4−61413
- shells of revolution, static, stability and dynamic anal. by integration, program comparison 4−47127
- space light and radiation distrib. photometry *(German)* 4−46654
- spectral analysis data, treatment *(Russian)* 4−42965
- spectral line processor, 100 channel, for Algonquin Radio Obs. 4−62236
- spectrochemical analysis, scanning spectrometer, design, evaluation 4−55132
- spectrometer wavelength calibration, using photon counter digital synchronous computer 4−58799
- split-Hopkinson pressure bar system, elastic response, elastic-plastic artificial viscosity computer program 4−74305
- stabilized march technique, reln. to nonlinear fluid flow 4−81867
- steam-generating channel, thermo-hydraulic low-freq. stability, computer investigation using D-partitioning 4−43939
- surface flatness, least-squares approach 4−60677
- thermal-hydrulic multichannel anal. using cross-flow approx. 4−81846
- Tokamak equilibrium states, non-linear programming anal. 4−78804
- Urey-Bradley Z matrix, simplified expansion for computer normal coord. calcs. 4−72151
- viscoelastic solid, finite linear, periodic excitations, computer programs for finite difference eqns. soln. 4−81200
- water-water interactions, Monte Carlo method, computer simulation 4−72419
- whistler wave oblique propagation in plasma, computer simulation 4−48398
- Windscale accident 1957, analysis with WEERIE program 4−63243
- X-ray crystallography, analysis of step-scan mode data 4−78863
- X-ray fluorescence analysis of steel, computer instrument control and data evaluation 4−77274
- diffusion, CDM-1, two-dimens. multigroup code 4−59825
- π^-p charge exchange interactions, use of multiprocessing data acquisition system SPINE 4−63022
- ^{14}C variation in nature, Box model calc., numerical values from computer program 4−76673
- $C_2(d^3\pi_g$-$a^3\pi_u)$ Swan band system spectral intensity meas. 4−56170
- D-T plasma, laser pulse shaping, LASNEX code calcs. 4−78783
- Fe magnetic spectrometer meas. of internal conversion electron spectra 4−46879
- H_2O, molecular cluster, props., Monte Carlo simulation 4−74930
- ^3H distribution and leakage characteristics for fusion reactors 4−63297
- SF_6, electric arc, voltage gradient in low current range 4−75348

computer-aided circuit design
- filter, active, RC, geophysical instruments input realization *(Russian)* 4−46759

computer-aided design
- *see also computer-aided analysis; computer-aided circuit design*
- astronomical two-lens objectives, aberrations and c.a.d. *(Russian)* 4−68465
- crane, double-link level luffing, optimal synthesis 4−81141
- electron optical collimating lens 4−43372
- electrostatic lens, two tube bipotential type, paraxial focal props. 4−43363
- gamma density gauges, use of Monte Carlo simulation of photons in spheric media 4−55037
- gamma density gauges, use of Monte Carlo simulation of proton in two-layered media 4−55036
- kinoform lens construction using c.r.t. circular plotter 4−46688
- laser rod materials 4−43317
- nuclear power station anal. using large modular computer systems 4−63259
- potential problems in general 2D regions, numerical solution package:POTENT 4−77591
- radwaste systems, optimisation using direct search algorithm 4−81682
- scintillation counter optimum well depth for radioactive tracer meas. 4−68780
- telescope mirror/lens system with spherical surfaces *(Russian)* 4−68467
- test equipment, superimposed eddy-current convertors for ferromagnetic plates 4−57810
- wing aerodynamic design methods, for subsonic flight 4−63566

computer-aided instruction
- *see also education*
- achievement testing, review 4−73966
- adaptive CAI in science teaching 4−65329
- adaptive teaching strategy, for learning systems 4−62404
- analogue computer generated displays as teaching aids 4−58727
- audio-visual means, user reaction comparison 4−65326

computer-aided instruction continued
- audiovisual teaching, computer preparation of 16 mm films 4−62402
- Boltzmann distribution for an ensemble of harmonic oscillators, computer derivation 4−58704
- computer programming techniques taught by APL language 4−58724
- console display on large screen which can be seen by whole class 4−58720
- course, for educators 4−73942
- education conference, London, England (July 1974) 4−58674
- eigenvalue calcs. 4−68600
- e.m. fields teaching, using computer graphics, effectiveness evaluation 4−47271
- e.s.r. first order, computer simulation for students 4−58701
- evaluation of student use of computer instruction program in chemistry 4−58723
- evaluation system, criterion referenced 4−73967
- examination analysis, for materials science and materials testing course *(German)* 4−77021
- Fourier transforms by analogue computer, educational paper 4−54780
- implementation model, graduate level 4−62394
- interactive education systems, answer analysis and feedback 4−62405
- knowledgeable teaching systems, design methods 4−62403
- learner controlled system 4−62400
- mathematics project, in Hertfordshire schools 4−62396
- medical education, applic. 4−46542
- medical education, new system 4−46543
- minicomputer for medical instruction of radiologic technologists 4−42685
- medicine, nuclear, applic. 4−46544
- molecular energy level calc. 4−54789
- molecular hybrid orbitals, shape plotting 4−58693
- multidiscipline education applic. 4−62393
- National Development Programme 4−62395
- nuclear engineering, package development and examples 4−62398
- Open University, UK, use by home based students 4−58732
- personality differences factors 4−65327
- physical electronics, simulation applic. 4−62401
- physics, library of programs for student use 4−73959
- physics in British universities, innovations *(German)* 4−46536
- physics teaching, secondary schools *(German)* 4−77020
- physics teaching 4−62399
- PILOT minicomputer language for educational purposes 4−62386
- radiography, Denver Collaborative Training Program, physics instructional modules 4−42684
- school-to-university transition, 'lesson' example *(German)* 4−58726
- statistics, applied, program design and use 4−62397
- statistics, undergraduate course, use of computer graphics 4−58685
- stellar atmosphere, exercise for students 4−46539
- stick-slip motion in mechanical systems, analogue computer simulation 4−58689
- student computing service, Open University 4−58731

computer applications
- *see also aerospace applications of computers; analogue computer applications; biomedical applications of computers; communications applications of computers; computer-aided analysis; computer-aided design; computer-aided instruction; engineering applications of computers; natural sciences applications of computers*
- fusion reactor instability, computer controlled feedback stabilisation 4−69369
- minicomputer position digitising and servo control of film meas. machines 4−58968
- stereo photography positioner 4−68715

computer architecture
- nuclear instrumentation, functional distribution system architecture for multi-user real-time computer networks 4−46770

computer facilities
- educational, conference, London, England (July 1974) 4−58674
- Open University, UK, student computing service 4−58731
- Open University, UK, use by home based students 4−58732

computer graphic equipment
- *see also interactive terminals; light pens; plotters*
- optical stress measurements evaluation with interactive data viewing unit *(German)* 4−46623
- stereo graphics display with mini-computer control 4−62567

computer graphics
- angiocardiography, biplane, dynamic computer generated displays 4−83333
- Earth satellite orbits, computer illustrations 4−76771
- electric field intensity and equipotential line plotting, computer education 4−73960
- e.m. fields teaching application 4−47271
- hologram, computer generated for 3-D display 4−77100
- image reconstruction, iterative three-dimensional, accurate algorithms 4−71113
- image reconstruction, three-dimensional, algebraic techniques 4−71114
- Newman projection computer program, calcs. for given cryst. struct. 4−56571
- partial differential equations, numerical solution, using on-line techniques 4−75214
- Rensselaer interactive graphics analysis system for nuclear reactor data assessment and modification 4−81586
- teaching aids using analogue computer generated displays 4−58727
- tomography, computerized transverse axial, three-dimensional image reconstruction 4−71112
- transfer functions of biological data, high and low order, graphical and iterative fitting 4−76945
- undergraduate statistics course applications 4−58685

computer interfaces
- *see also computer peripheral equipment; data communication equipment*
- biomedical online recording, of dynamic radioisotope data 4−54691
- CAMAC, for computer-controlled light ion backscattering expt. 4−77165

computer interfaces continued
CAMAC, neutron time of flight measurements scaling 4−68790
CAMAC computer peripheral interface system for laboratory 4−46919
CAMAC dataway with connected fast digital coder for hodoscope system 4−55089
Camac devices, logarithmic digital-analogue conversion 4−68820
CAMAC in radiation therapy 4−46450
CAMAC readout module for fast patterns 4−68757
CAMAC single crate controller and A/D interface module for tandem Van de Graaff accelerator 4−46777
CAMAC standard in physics laboratory review 4−68759
CAMAC systems for particle accelerator control systems 4−77152
CAMAC/PERSEUS output for DIDO pattern unit 4−77234
coherent optical processing 4−71505
c.r.t. system for bubble chamber picture analysis 4−77221
interface bus system, expansion of 5345A instrum. utility 4−77232
computer internal arrangement *see computer architecture*
computer languages *see programming languages*
computer operator training *see training*
computer peripheral equipment
see also character recognition equipment; computer graphic equipment; data communication equipment; interactive terminals; magnetic tape equipment; printers; punched tape equipment
CAMAC computer peripheral interface system for laboratory 4−46919
computer peripherals *see computer peripheral equipment*
computer printers *see printers*
computer programming *see programming*
computer programs, complete *see complete computer programs*
computer science education *see education*
computer software
see also complete computer programs; operating systems (computers); programming; subroutines; time-sharing programs
modular systems for structural anal. and design 4−63259
Parkes 1024 channel digital autocorrelator and conversational mode software system 4−62234
Princeton Plasma Physics Lab. data acquisition system software support 4−60335
computer storage devices *see storage devices*
computer subroutines *see subroutines*
concrete
aggregates in Britain, technical economic and geographical aspects 4−61695
cement content, quantitative field determ. by neutron capture 4−46953
composite orthotropic beams, steel and concrete, shear lag effects 4−53832
crack detection in cubes and cylinders by holography 4−45883
gamma-ray infinite medium buildup factors including bremsstrahlung contribution 4−81701
gamma-ray transmission through rectangular ducts 4−81700
neutron spectra emitted from spheres bombarded with 14 MeV neutrons 4−81698
pile, rebounding meas. with He-Cd laser beams *(Japanese)* 4−59460
prestressed, reactor pressure vessels, structural and constructional problems 4−71981
prestressed concrete pressure vessel, rupture analysis creep effects 4−78171
prestressed concrete reactor vessels, finite element analysis 4−78169
radiation transport, cross-section sensitivity study 4−81699
radioaction contaminated concrete structures, demolition by explosives during nuclear power plant removal 4−78305
rheometer construction and meas. on mixes 4−46987
shielding, 1D calc. of radiation transmitted through underground structure cover 4−81696
shielding effectiveness of buried concrete structures 4−81697
condensation
see also clouds; drops; fog
alkali metal, condensate surface prop. effects 4−63907
anomalous water, composition 4−45841
atmosphere, adsorption effect on primary water product appearance 4−50283
binary vapour mixtures, direct contact condensation on laminar coolant 4−75085
binary vapour mixtures of miscible liqs. 4−52876
Boltzmann and Krook equations, nonlinear solutions 4−81250
Bose gas in finite geometry, condensation, new law of corresponding states 4−62743
Bose-Einstein, influence of random sources and sinks, phase diagrams 4−52870
Bose-Einstein gas, shift in critical density due to impurities 4−51455
carbon tetrachloride-air mixture, vertical surface condensation from turbulent stream 4−75622
cloud droplet, condensational growth 4−61785
cloud droplet growth by condensation and coalescence in strong updraft 4−54238
cold liquid jet, vapour condensation, heat transfer 4−69593
droplet, boundary layer obs., electrification *(German)* 4−80148
film condensation, correl. of data, similarity parameter applic. 4−63534
film condensation heat transfer in presence of noncondensable gas, effect of elec. field 4−75175
fron binary mixtures, condensation, heat and mass transfer 4−69901
gas mixture, turbulent flow, condensation on vertical surface *(German)* 4−56362
heat transfer coeff., vibration effect 4−60173
heat transfer during vapour condensation on jet 4−44065
heat transfer to wall from gas-vapour system 4−63527
inert gases, solid layers, density and refr. index 4−70378
kinetic theory, variational calcs. 4−79142
laminar forced convection film condensation of vapour flowing around circular cylinder 4−52353
liquid condensate film, laminar stability anal. 4−63535
liquid film, free and on solid surface, spontaneous rupture, hydrodynamic stability 4−44752
condensation continued
liquid metal MHD condenser cycle with preheating *(German)* 4−69600
liquid metal vapour, binary condensation heat transfer 4−44108
metal film, noncondensable gas effects 4−44667
nonequilibrium vapour condensation on liq. surface, kinetic theory anal. 4−79145
nuclei counter calibration, submicron aerosol standard 4−53915
nuclei size, and drop growth, in supersaturated vapour 4−44659
organic vapour, on immiscible water film, heat transfer 4−75084
sea-salt cloud condensation nuclei formation on seashore 4−68146
solar system and solar nebula, hypothesis 4−61993
steam, high speed flow, nonequilib. expsn. 4−69605
steam, in presence of air, heat and mass transfer coeffs. 4−52875
steam, on horizontal finely-finned surface, liquid film flow mechanism 4−78577
steam-air mixtures flowing downward over horizontal tube, film condensation 4−48219
stratosphere, lower, high condensation nuclei conc. meas. 4−68194
sulphate cloud condensation nuclei, Aitken particles obs. as precursors 4−68193
surface temperature evolution in cryopump rel. to time investig. *(Spanish)* 4−80861
transient condensation without condensate flow 4−56868
vapour flow in quasiclosed volume with temp. gradient, gas dynamics eqn. 4−60166
vapour-liquid condensation in carbon tetrachloride shock tube 4−72324
water vapour, condensation in inclined tube, hydrodynamics, heat transfer 4−66563
water vapour, on flat surface under vacuum conditions 4−63906
Au, radial distrib. func. for condensation on clean KCl surface 4−57011
CO-Ar(Kr)(Xe), solid mixtures, electron diffr. struct. investigation 4−69970
CO_2, supersonic flow, at cryogenic panel, performance meas. 4−56418
CO_2 condensation coeff. from molecular beam expt. 4−67028
CS_2-CCl_4 vapour mixture, direct contact condensation on water, theory 4−75085
Cs vapour, from flowing argon 4−43946
H_2O condensation coeff. from molecular beam expt. 4−67028
LiF, at scratch on curved surface, step motion 4−56950
N_2O condensation coeff. from molecular beam expt. 4−67028
Na, entrainment in Ar flow, rel. to nucl. reactor operation 4−43628
NaCl surface, of NaCl:^{22}NaCl mol. beams investig. 4−75625
SF_6, solid layers, density and refr. index 4−70378
Ti, over W, initial phase, FEM struct. exam. *(Russian)* 4−82333
condensers (electric) *see capacitors*
condensing *see condensation*
conductance measurement, electric *see electrical conductivity measurement*
conducting materials
see also bimetals; metals; superconducting materials; superionic conducting materials
phase transition time, possibility of estimation using self-oscill. processes *(Russian)* 4−72749
conduction, heat *see heat conduction*
conduction bands
see also Fermi level; semiconductor materials
ferromagnetic semiconductor, conduction electron energy determ. near Curie point by short range magnetic ordering 4−67345
free-electron metals, K-spectra edge shape, broadening mechanisms 4−45383
metal, interband tunnelling in strong magnetic fields, contribution to non-linear effects in Landau damping 4−49045
semiconductor, conduction electron effective mass in field of excitons 4−57037
semiconductor, degenerate, hot-electron mag. susceptibility at low temp., effect of non-parabolicity 4−57247
semiconductor, layer-type, theory of two dimensional electron-hole liquids 4−75822
TCNQ-TTF, mol. orbital calc., tight binding approx. 4−72699
Ag, temp. modulation of optical transitions involving Fermi surface, theory 4−79745
Ag, temp. modulation of optical transitions involving Fermi surface, expt. 4−79746
AgBr, cyclotron reson. of polarons 4−72727
Al, density of states, rel. to X-ray $L_{2,3}$ absorption spectrum 4−73211
Al-Mn(Co)(Ni)(Cu) alloys, rel. to soft X-ray emission spectra 4−64445
$Bi_{12}SiO_{20}$, electron effective mass and cond. band effective density of states, photocond. excitation spectra obs. 4−60827
CaF_2, calc. using orthogonalised plane-wave method 4−75784
Cd_3P_2, non parabolicity, determ. from electron effective mass meas. 4−53047
Cd_3P_2, thermoelectric power, magnetic field and conc. depend., conduction band effective mass meas. 4−79373
CdS, crysts. with nonparabolic cond. bands, one, two-photon absorpt., freq. depend. 4−76279
CdS_xSe_{1-x}, crysts. with nonparabolic cond. bands, two-photon absorpt., freq. depend. 4−76279
$Eu_xCa_{1-x}(NH_3)_6$, Mossbauer effect, conduction electron interactions at Eu^{2+} site 4−53351
GaAs, electron energy loss spectra of surface states 4−72840
GaAs, electron impact ionisation, threshold energy calcs. involving band struct. 4−79825
GaAs, electron relax., electron-optical phonon coupling, wave-vector depend. 4−56841
GaAs, influence of impurity ions under moderate doping conditions, expt. 4−48914
GaAs, rel. to interpretation of cyclotron reson. in fields up to 140 T 4−79292
GaAs:Cr, excited levels of Cr centre in reson. with cond. band., optical absorpt. and photocond. obs. 4−48932
GaAs:Se, electron conc., influence of subsidiary extrema in conductivity zone 4−44817
n-GaAs:Te, photoluminesc. spectra in strong mag. field to 300 kOe 4−49455

conduction bands continued

- GaP, conduction band X_3 effective mass and spontaneous emission time of X_1 and X_2 conduction band transitions 4−60739
- GaP:Cr, excited levels of G centre in reson. with cond. band, optical absorpt. and photocond. obs. 4−48932
- GaSb, $\Gamma(000)$ conduction band parameters, Faraday effect meas. 4−44852
- Ge, conduction electron effective mass in field of excitons 4−57037
- Ge, electron energy loss spectra of surface states 4−72840
- o-H_2, solid, determ. using mol. o.p.w. method 4−67162
- o-H_2, solid, strong s-p hybridization, non-selfconsistent KKR calcs. 4−67158
- $Hg_{1-x}Cd_xTe$, carrier conc. calcs., spin-orbit splitting effects 4−53040
- Hg_xTaS_2, x=0 to 1, metal layer intercalation in TaS_2, cond.-band form., n.m.r. investig. 4−64273
- n-InAs, compensated, galvanomag. props. meas., cond. band model 4−75897
- InP_xAs_{1-x} highly doped n-type solid solution, reflection spectra, carrier effective mass 4−53463
- InSb, degenerate band excitons, high mag. field effects 4−67188
- n-InSb, drag of cond. electrons by photons due to direct transitions between spin branches 4−57506
- n-InSb, mechanism of resistivity decrease by mm microwave irradiation 4−64092
- InSb, rel. to interpretation of cyclotron reson. in fields up to 140 T 4−79292
- KCl, evaporated film, valence and cond. bands, photoemission obs. 4−61274
- $K_2[Pt(CN)_4]Br_{0.30}.3H_2O$, band structure 4−79288
- LiCl, evaporated film, valence and cond. bands, photoemission obs. 4−61274
- LiF, press. depend. of Hamiltonian matrix elements 4−75749
- LiF, pseudopot. calcs. *(French)* 4−44835
- MgO, ab initio investigation of electronic props., density of states 4−67160
- MoS_2, density of states of valence and cond. bands, interpretation of optical spectra 4−57036
- NaCl, evaporated film, valence and cond. bands, photoemission obs. 4−61274
- $NbSe_2$, density of states of valence and cond. bands, interpretation of optical spectra 4−57036
- PbI_2, electronic charge density calcs., spin orbit interaction effects 4−44850
- $Pb_{0.82}Sn_{0.18}Te$, mag. remanence and elec. props., 78-500K *(Russian)* 4−57116
- Pb_xTaS_2, metal layer intercalation in TaS_2, cond.-band form., n.m.r. investig. 4−64273
- Si, 0.4-4.2K, Mott-Anderson localization in 2-dimensional band tail 4−48916
- Si, energy distrib. of surface states in cond. band region 4−82468
- n-SiC(6H), many-valley struct. rel. to piezoresist. const. 4−76216
- SiO_2, transitions in K_β satellite shifts 4−76329
- SmS, film, optical absorption meas., press. induced semiconductor-metal transition 4−75800
- Sn_xTaS_2, x=0 to 1, metal layer intercalation in TaS_2, cond.-band form., n.m.r. investig. 4−64273
- Ti ternary compounds, X-ray spectra, valence and conduction band electronic struct. *(Russian)* 4−49479
- TiO_2, electronic structure and X-ray spectra investigation 4−67159
- ZnS film, in Al-ZnS-Au struct., rel. to d.c. elec. cond. 4−49088

conduction in solids, ionic *see ionic conduction in solids*

conductivity, electrical *see electrical conductivity*

conductivity, thermal *see thermal conductivity*

conductors (electric)

see also bimetals; wires (electric)
- AFL-8-525, rigidity determ. 4−68906
- cylindrical, quantum e.m. waves *(Russian)* 4−82538
- d.c. magnetic field computation, Bessel and Fourier transforms *(German)* 4−43229
- e.h.v. substations, crossing bus conds., field intensity calc. *(Russian)* 4−55419
- high temperature thermophysical props. meas. technique 4−50985
- magnetic field distrib. in cond. slab near current carrying cond., eddy currents 4−47269
- wire, acceleration to hypersonic vels. in pulsed mag. field *(Russian)* 4−77587
- Al foil and wire, elec. explosion, products condensation and movement *(Russian)* 4−69686
- Cu foil and wire, elec. explosion, products condensation and movement *(Russian)* 4−69686
- Cu wire, rupturing in elec. explosions *(Russian)* 4−69685

confinement, plasma *see plasma confinement*

connecting *see joining processes*

conservation laws

see also C invariance; CP invariance; CPT invariance; elementary particle symmetry; P invariance; T invariance
- anharmonic crystal, nonlinear wave propag., weak dislocation potential effects, infinite set of conservation laws 4−72535
- Bessel-Hagan resulting from geometric invariance groups for e.m. field 4−59220
- black hole decay, charge and particle conservation, Hawking's predictions 4−73719
- dynamic systems, generalised Lagrangian description 4−55232
- education, Noether's theorem, appl. to optical systems 4−73948
- education, transfer of learning, conservation laws 4−73941
- effective nuclear interaction and average field parameters relations *(Russian)* 4−66130
- field theories, geometric invariance groups, resulting conservation laws 4−59220
- flux conservation, magnetic monopole absence basis of topological symmetry of Maxwell's equations 4−74577
- Korteweg-delbries type eqns., gauge invariance and conservation laws, canonical formalism 4−47415
- Lagrangian field theories with higher-order derivatives 4−65970
- long wave equations, fully nonlinear, proof of infinite number of conservation laws 4−56433
- momentum conservation, effect on Regge-Mueller models in pionisation region 4−66068

conservation laws continued

- motion and fundamental constants, in reln. to contemporary physics *(Russian)* 4−55302
- orbital symmetry, free radical reactions, insertion and abstraction, selection rule 4−80171
- QED, formulation with gauge invariant propagators and field operators 4−55572
- quantum, for charged particle systems in magnetic fields 4−55370
- spin-structure of reaction with 4 spin 1/2 particles, consequences of conservation laws 4−66016
- $e^+e^- \rightarrow \gamma \rightarrow \pi X$, isospin bounds for two particle correlations, Bose condensation 4−77843

constant current modulation *see amplitude modulation*

constant current sources

- interfacility standard cell calibration by current transfer 4−65337

constant voltage diodes *see avalanche diodes*

constants

see also elastic constants; gravitational constant; lattice constants; optical constants; thermal critical constants
- Avogadro's constant, uncertainty reduction, Si single crystal obs. 4−71155
- cryogenic voltage comparator system for 2e/h meas. 4−65363
- fundamental constants, 1973 least squares adjustment 4−68608
- fundamental in reln. to contemporary physics *(Russian)* 4−55302
- gas const. determ. by acoustic interferometry 4−60142
- Planck's constants, units 4−77018
- tables of latest CODATA recommended values 4−65362
- Ne, sublimation energy, isotope effects and new calc. value 4−63908

constitution diagrams *see phase diagrams*

construction *see building*

constructional engineering *see civil engineering*

contact angle

see also capillarity; surface tension; wetting
- n-alkanes liq. films on silica, wetting investig. 4−48833
- aluminium borosilicate glass fibre, contact angle of wetting by polyethylene 4−49928
- ceramic, Zn wetting 4−45755
- ceramic slips in casting, role of surface tension and contact angle 4−45757
- fluoropolymer surface, obs. by ESCA, soft X-ray spectroscopy, contact angle hysteresis and electron microscopy 4−67091
- glass fibre impregnation with polymer dispersions, advancing contact angle determ. 4−82993
- metal-ceramic systems, determ. by thin film techniques 4−75686
- method for surface energy of solids 4−72626
- nematic liquid, rel. to alignment and wetting properties 4−52680
- polymer surface, gas plasma effects obs. 4−67946
- steel, stainless, Zn wetting 4−45755
- temperature dependence, thermodynamic status, meas. and interpretation 4−79232
- van der Waals dispersion force contrib. to work of, macroscopic theory 4−44751
- water, rel. to detection of antistatic agents diffusion to surface of plastics 4−80137
- water on Cu and Ag surfaces, contact angles meas., adsorpt. investig. 4−68024
- C, vitreous, wetting by molten Al and alloys 4−79233
- Cr_2O_3, wetting by Fe-C melt, 1300°C *(Russian)* 4−44753
- GaAs/liquid Ga system, substrate characts. influence 4−48831
- Pb-Sn alloys, liq., meas. by sessile drop technique 4−48832
- SiC, contact reaction with liq. Si 4−70556
- SiO_2, thermally grown, surface characterisation by contact angle obs. 4−56958
- Ti, TiO_x, TiC and TiN, wetting by sodium disilicate glass 4−80066

contact e.m.f. *see contact potential*

contact potential

see also contact resistance
- meas. at small surfaces, rotating armature method *(German)* 4−46745
- metal, strain induced pot. on 'dirty' polycryst. surface 4−49052
- metal-dielectric interface, charge transfer by contact potential 4−72865
- metallic melt, interaction processes of refractory inclusions, role of electrocontact *(Russian)* 4−45489
- pendulum device for measurement 4−46734
- substrate/vacuum interface properties, review 4−60836
- Al, O_2 adsorption, effect of electrode separation 4−49059
- C/Mo, work function of C films, obs. *(French)* 4−45021
- Cu/Ni couple, e.m.f. prod. on shock compression 4−60848
- Ni surface, CO adsorpt., build-up of surface carbon layers investig. 4−75692
- SiO_2 film, on Si, oxide charge obs. 4−60872

contact resistance

see also contact potential
- brass, in liquid N 4−70061
- stainless steel, in liquid N 4−70061
- Ag, in liquid N 4−70061
- Ag alloys, oxide containing 4−80049
- Al, in liquid N 4−70061
- Au, in liquid N 4−70061
- Cu, in liquid N 4−70061
- Fe, in liquid N 4−70061
- n-GaAs, very low resistance Ni-AuGe-Ni contacts 4−60860
- Zn_3As_2-metal contacts, influence of work function 4−53143

contacts, electrical *see electrical contacts*

content-addressable memories *see content-addressable storage*

content-addressable storage

- holographic, page oriented 4−46677

continuous creation hypothesis *see cosmology*

continuum hypothesis *see set theory*

continuum mechanics *see classical mechanics of continuous media*

contours, surface *see surface contours*

control engineering applications of computers

see also control systems; digital control; numerical control
- a.c. properties of materials, freq. response analyser 10^{-5} to 10^5 Hz, computer controlled 4−62490

control engineering applications of computers continued
- airborne radionuclides, resuspended, computer-controlled sampling system 4−54333
- Algonguin Park 46 m radiotelescope, data acquisition and control system 4−62255
- ambient air monitoring by computer-controlled stations 4−71136
- automated computer-controlled meas. systems, review 4−65552
- automatic film measuring apparatus KAMA, bubble chamber appl. 4−77209
- automation of meas. processes, fundamentals *(Dutch)* 4−46550
- backscattering, light ions, computer-controlled experiment using CAMAC system 4−77165
- bubble chamber film analysis, report on ERASME system 4−77216
- c.r.t. device POLLY, at Brussels, for bubble chamber film meas. 4−77219
- c.r.t. scanning device for bubble chamber film, programmed controller 4−77211
- c.r.t. scanning devices AELT-1, AELT-2, for bubble chamber film 4−77210
- Effelsberg 100 m radiotelescope computer control system 4−62256
- ESO spectrum scanner, three channels with digital computer control 4−73864
- fluorimetry, polarisation of fluoresc. spectrometer, computer-controlled system 4−65424
- flying spot digitizer, resolution improvement for closely spaced bubble chamber tracks 4−77212
- materials tensile testing machine, computer-controlled *(German)* 4−61551
- measurement process computer standardisation *(Dutch)* 4−46921
- microwave discharge emission spectrometer, computer-controlled, for elemental microanalysis 4−62610
- Netherlands astronomical satellite ANS, onboard digital computer 4−54610
- neutron beam position for expts., hardware *(French)* 4−74142
- neutron diffractometer, 16-bit GRAY-BCD disc code convertor for *(Russian)* 4−48481
- nuclear reactor, on-line calibration of control rods by process computer *(German)* 4−81542
- particle accelerator control applications at CERN 4−77152
- radiation therapy, wedge-shaped dose distrib. by computer control 4−46426
- Raman spectrophotometer, programmed sample carrier 4−58967
- rheometer, computer controlled using servo driven torque motor 4−42980
- spacecraft tracking system, v.h.f. interferometer 4−77090
- visual system research equipment, computer controlled 4−76962
- water pollution control *(Spanish)* 4−71126
- X-ray spectrometer, computer-controlled, calibration and analytical results *(German)* 4−62620

control gear, electric *see electric control equipment*

control systems
- *see also adaptive systems; closed loop systems; discrete time systems; distributed parameter systems; multidimensional systems; optimal control; physical instrumentation control; sampled data systems; time-varying systems*
- aircraft wake incidents, automatic correction simulation 4−66587
- astronomical telescope, electronic systems 4−65233
- automotive power plants, high temp. materials 4−76521
- Copernicus orbiting astronomical observatory 4−71070
- linear with optimal control and estimation *(Russian)* 4−47050
- neutron therapy, fast, control and monitoring systems 4−46406
- nuclear reactor time optimal shutdown 4−55908
- psychophysical research, sensing magnitude matching, successive approximation method 4−65557

control theory
- *see also optimal control; stability*
- linear systems, multidegree-of-freedom, transient response to forcing functions, inequality constraints 4−77386
- measurement and feedback as single obligatory course for students 4−65324

controllers
- *see also cryostats; instruments; servomechanisms; thermostats*
- analytical stereo photography 4−68715
- for automatic Toepler pump control 4−46615
- CAMAC single crate controller and A/D interface module for tandem Van de Graaff accelerator 4−46777
- current stabilizer, for spectral lamp source 4−42796
- mass spectrometer direct insertion probe, temp. programmer, circuit design 4−77241
- temperature, efficient and inexpensive *(Spanish)* 4−62428
- temperature, use in cryogenics, optimum performance 4−50990
- thermostatic, PID, self-optimizing, indicating instrument incorporation 4−46591

convection
- *see also convection in liquids*
- air, hot-wire, free convection flow, effect of interfaces 4−75080
- air, turbulent free convection from vertical surfaces, computer calcs. 4−78580
- air-sea interface, velocity fluctuations rel. to convection 4−54172
- atmosphere, dust devils and plumes, influence on free convection 4−73543
- atmosphere, problem of multivalued pressure 4−76704
- atmospheric convective activity over GATE area, interannual variations 4−61742
- atmospheric convective rainfall estimation method 4−61924
- atmospheric mesoscale cellular convection 4−61790
- atmospheric planetary boundary layer, vertical struct. in undisturbed trade winds 4−58007
- atmospheric thermals, realization form of spontaneous convective movements 4−50291
- Benard convection, thermal expsn. coeff. variation effect 4−43973
- Bernard convection, viscous dissipation effect 4−60165
- binary vapour mixtures, direct contact condensation on laminar coolant 4−75085
- boundary layer, unsteady free-convection, propagation of disturbances 4−81847
- boundary layer on vertical flat plate, uniform surface heat flux 4−52372
- bubble growth by mass transfer, radial convection effect 4−52506

convection continued
- channel, heat transfer prediction, hybrid method 4−43924
- chemically reactive binary gas mixture, convection in mag. field *(Russian)* 4−63628
- circular plate system, one-dimens. axisymmetrical steady-state problem for radial temp. distrib. 4−43201
- condensation heat transfer to wall from gas-vapour system 4−63527
- conducting fluid in electric magnetic fields, convective instability *(Russian)* 4−60231
- conducting fluid in vertical channel, convection excitation by h.f. electric current 4−66646
- convective flow over flat plate, three dimensional heat transfer 4−66574
- convective stability of conducting fluid, mag. field effect *(Russian)* 4−52472
- core He burning stars, semiconductive zone 4−62105
- creeping flow mass transfer to single sphere in random inactive particle cloud 4−52490
- critical Rayleigh number, decrease by temp. fluctuation 4−56431
- cumulus cloud ensemble, interaction with large-scale environment 4−70708
- cumulus clouds, non-precipitating convection, parameterization 4−76718
- diffusion in infinite band, mixed boundary-value problem soln. 4−59310
- dissociative fluid, stability of horizontal layer, stationary and oscillatory convection *(Russian)* 4−52536
- doubly diffusive convection, solute flux upper bound 4−81843
- Earth mantle convection and plate dynamics from three-layer model 4−45963
- electric arc in turbulent stream, parameters calc. w.r.t. convective and radiant losses 4−60354
- flow around plate, interaction between radiation and convection *(German)* 4−63541
- flow in horiz. porous gap 4−81970
- flow instability, natural convection along inclined plate 4−43941
- fluidised bed, heat transfer to immersed objects 4−44118
- fluids, transition to time-depend. convection, Rayleigh, Prandtl numbers 4−81836
- forced, in slow flow through ducts and packed beds, boundary layers in cubic sphere array 4−52488
- forced, in slow flow through ducts and packed beds, cubic sphere array problem 4−52487
- forced, in slow flow through ducts and packed beds, vel. profile in cubic sphere array 4−52486
- forced, slow flow through ducts and packed beds, Graetz problem 4−52485
- forced convection heat and mass transfer, rapidly varying surface boundary conditions 4−43930
- free, from vertical cone at high Prandtl numbers 4−52394
- free, on vertical plates and cylinders, dimensional analysis 4−48200
- free convection turbulent flow in conducting fluid, MHD 4−75168
- gas and liquid flow, turbulent and laminar *(Spanish)* 4−81839
- gasdynamic and chemical lasers, linear theory, diffusion problems *(Russian)* 4−69051
- glass melt, steady state flow pattern, temp. distrib. 4−48206
- Graetz problem, large Pr fluid flow, natural convection effects 4−63524
- grey gas, radiation-convection interaction in bounded flow past hot plate 4−63526
- effect on heat transfer, flow in vertical tubes 4−69563
- heat transfer from flat plate to CO_2 4−69562
- horizontal anisotropic porous layer, criterion for appearance of natural convection *(French)* 4−48378
- horizontal branch stars, interior evolution with convective overshooting and semiconvection 4−62101
- horizontal layer divided by permeable wall, convective currents 4−52526
- human microenvironment, aeronautical techniques applic. to physiology 4−54673
- humid air, free convective heat transfer to vertical plate under frosting conditions 4−69560
- hydromagnetic dynamo model convection driven, weak field case 4−44100
- intertropical convergence zone over east Atlantic, convection conditions 4−68200
- inward solidification with radiation-convection boundary condition 4−52873
- jet noise, convective amplification 4−44071
- laminar, combined with injection, heat transfer 4−52378
- laminar boundary layer, with free convection on vertical porous surface, heat and mass transfer 4−43960
- laminar forced convection, thermal entrance region, curved pipes 4−72275
- laminar forced convection film condensation of vapour flowing around circular cylinder 4−52353
- laminar forced convection in arbitrary polygonal ducts, numerical soln. 4−52360
- laminar natural convection about vertical plates with oscillatory surface temp. 4−52389
- laminar to turbulent transition, numerical anal. 4−56377
- liquid crystal, nematic, convective instabilities 4−72427
- liquid jets and air in crossflow, direct contact convection 4−75178
- liquid layer, surface tension driven convective instability 4−60161
- lower atmosphere, convection cell model 4−73533
- lunar interior solid convection, effect of variable viscosity 4−73642
- lung airways, oxygen transport, convection and diffusion of gases 4−46366
- magnetosphere convection model, support from recent plasma meas. 4−61873
- magnetospheric convection, effect of east-west component of interplanetary magnetic field 4−83131
- magnetospheric convection electric field and high-latitude F_2-layer 4−46086
- mantle convection mechanism explaining episodicity of magmatism and orogeny 4−80247
- Marangoni instability in liq. layer with non-uniform heat source 4−75092
- MHD channel flow, forced and free convection in entrance region 4−52473

convection continued
  mixed convection in isothermally heat horizontal pipe, theory 4—75087
  mixed turbulent convection in channel between vertical plates *(Russian)* 4—75078
  narrow slits, convective heat transfer characts. 4—43963
  natural, automatic determ. of turbulence characts. *(French)* 4—59017
  natural, between vertical parallel plates at unequal uniform temps. 4—52361
  natural, in vertical channel in nonuniform mag. field 4—48339
  natural, shallow cavity, differentially heated end walls, numerical solns. 4—75095
  natural, shallow cavity, differentially heated end walls, theory 4—75094
  natural, shallow cavity, differentially heated end walls 4—75096
  natural circulation in heated inclined rectang. channel 4—72278
  natural convection about heated sphere in porous medium 4—78714
  natural convection around semi-infinite vertical plate, higher order effects 4—56372
  natural convection heat transfer from high temp. wires to gases, low Rayleigh number 4—56373
  natural convection on vertical cylinder, local nonsimilar solutions 4—75102
  Newtonian fluid horizontal layer with heat-generating plane *(German)* 4—78589
  non-Newtonian fluid, dynamic shape factor in convective heat and mass transfer 4—48203
  non-Newtonian fluids, finite amplitude thermal convection, numerical soln. 4—43978
  non-Newtonian fluids, local free convection from horizontal isothermal cylinder 4—52388
  nonlinear, layer with imposed energy flux, appl. to solar granulation 4—73609
  nonlinear saturation of convection phenomena, equation 4—74441
  nonstationary heat-transfer problem. linearization, perturbation technique 4—65847
  oils, turbulent free convection from vertical surfaces, computer calcs. 4—78580
  parabolic equations solution with method of alternating directions 4—65840
  permeable vertical space, natural convection 4—63624
  pipe with harmonic internal heat generation 4—75088
  plane parallel convective flow of fluid in horizontal layer, stability *(Russian)* 4—52400
  planetary boundary layer structure from higher order closure model calcs. 4—70713
  plasma, incompressible, reconnexion of unequal antiparallel mag. fields, convection region solns. 4—78740
  plasma, Tokamak, stationary convection phenomena 4—44359
  plasmochemical reactor, heat exchange problem 4—48453
  porous layer, inclined, natural convection, extremity effects influence on stability *(French)* 4—44152
  porous media large amplitude convective flow, stability 4—56455
  porous vertical slab, asymptotic stability condition 4—44157
  rarefied gas flow, heat and mass transfer during sublimation 4—44088
  Rayleigh-Benard instability, convective velocity meas. by frequency anal. of scattered light 4—48213
  rectangular basin, critical Grasshoff no. depend. on elongation 4—66575
  rising thermal, entrainment coefficients 4—43972
  secondary oscillatory convective motion, plane vertical fluid layer *(Russian)* 4—52366
  solar convection zone model 4—62005
  solar temperature reversal, convective motions 4—62000
  solid placed in container, temp. fields calc. w.r.t. nonlinear boundary conditions 4—51484
  sphere heat transfer coefficient, $3 \times 10^4 < R_{e\infty} < 3.3 \times 10^5$ 4—60170
  spherical shell, Boussinesq fluid, anal. 4—52376
  steady-state convective motion, plane inclined fluid layer 4—52370
  steady-state heat cond. with convective boundary conditions, theorems for heat flow bounds 4—51487
  stellar atmosphere, thermal-convective instability with rotation and Hall effect 4—58290
  stellar atmospheres, non-local theories 4—62107
  stellar atmospheres, thermal-convective instability with Hall effects 4—54464
  stellar evolving convective core, generalisation method 4—80559
  stratified gas-liq. flow, natural convection 4—78581
  subcooled critical heat flux prediction model 4—48218
  supersonic recirculating flow region, Telenin's method 4—78584
  temporal behaviour of single mode near instability threshold 4—48214
  thermal, rotating cylinder of gas centrifuge, mass vel. distribs. 4—81861
  topological pumping of magnetic flux 4—72337
  transverse gas flow over cylinder, convective heat transfer 4—43964
  tropical convective boundary layer, climatological aspects 4—57974
  tube, curved circular, fully developed viscous-flow heat transfer 4—69559
  turbulent convection, rotating fluid layer 4—66565
  turbulent convection with shear 4—52355
  turbulent flow near soluble surface, dissolution roughness 4—81974
  turbulent free convective heat transfer coeff. meas. using differential interferometer 4—46669
  two-phase flow of orientable particles, transport mechanics 4—52523
  upper bounding approach, moderate Rayleigh numbers 4—63522
  vertical cylinder, natural convective flow temp. field, interferometric obs. 4—75082
  vertical plate with given heat flux in const. temp. gradient medium 4—43956
  vibration effects upon heat transfer 4—72277
  viscoelastic fluid in vertical slot, natural convection, linear stability theory 4—63528
  viscous gas in narrow extended space, Navier-Stokes eqns. 4—48278
  Ar plasma, in tube flow, heat transfer obs. and computer calcs. 4—75232

convection continued
  H_2O, turbulent free convection from vertical surfaces, computer calcs. 4—78580
  He I, flow boiling research 4—50989
  He(I) boiling, forced convection heat transfer in a tube 4—69939

convection in liquids
  alkali metals, heat transfer crisis during boiling 4—44666
  aniline, subcooled boiling heat transfer, forced convection 4—79147
  Benard type problems, temp. dependent material properties, approx. variational and exact numerical solns. 4—78582
  n-butyl alcohol, subcooled boiling heat transfer, forced convection 4—79147
  centrifuge, thermally controlled *(Italian)* 4—78596
  electroconvection of electroconductive drop in elec. field of dielec. liq. *(Russian)* 4—63948
  ethyl alcohol, subcooled boiling heat transfer, forced convection 4—79147
  forced, subcooled boiling heat transfer 4—79147
  free and forced, flow through rotating channel 4—81851
  glycerol-water mixture, convective heat transfer in presence of turbulator 4—52373
  heat and salt transport across diffusive interface 4—79170
  heated-cylinder temp. field in potential stream *(German)* 4—63539
  hydrazine, subcooled boiling heat transfer, forced convection 4—79147
  laminar flow in prismatic pipe of triangular section 4—43951
  liquid metal, thermal oscillations 4—63947
  mass transfer between vibrating sphere and liquid flow *(French)* 4—52368
  metal, h.f. current heating in vertical channel 4—44711
  metal, multiregional anal., in eccentric annuli 4—43985
  metal, turbulent forced heat transfer coeff. 4—43987
  metal solidification, two-dimens. model including convection in liq. region 4—73279
  MHD free convective flow past vertical flat plate, with variable viscosity and thermal cond. 4—75169
  non-Newtonian fluid, mass transfer to rot. disc calc. 4—44149
  North Atlantic, Geosecs ^{14}C and T results 4—73503
  ocean upwelling theories over shelf break 4—50269
  organic, heat transfer crisis during boiling 4—44666
  oscillatory and collective instabilities in large Prandtl number convection 4—81838
  porous layer, density inversion effects on free convection 4—78713
  iso-propyl alcohol, subcooled boiling heat transfer, forced convection 4—79147
  saline solution, thermohaline convection, Soret diffusion 4—60650
  saturated boiling in channel, subcooled, heat transfer coeff., semi-empirical calcs. 4—72342
  seawater conditional instability at freezing point, thermohaline convection 4—57978
  silicone oil horizontal convecting layer, heat transfer meas. 4—75079
  static liquid pools, convective disturbances 4—52354
  stratified flow past obstacles, blocking 4—43992
  stratified salt solution, cellular convection due to lateral temp. grad. 4—43993
  sugar-salt-water system, double-diffusive convection, two-dimensional effects 4—43994
  water, Benard problem near 4C 4—63532
  water, hot-wire, free convection flow, effect of interfaces 4—75080
  water, rotating differentially heated cylindrical annulus, effect of upper boundary condition 4—66564
  water, subcooled boiling heat transfer, forced convection 4—79147
  water, underheated, boiling onset for small velocities of forced movement *(Russian)* 4—52880
  water, vel. and heat transfer meas. with laser Doppler velocimeter 4—43968
  water-methanol mixture, thermal oscillations 4—43971
  Ga, liq., convective temp. oscillations 4—63946
  He I, crisis of nucleate boiling in vertical channels 4—69940
  Hg, heat transfer from vertical flat plate 4—44710
  Hg-Cd dilute alloys, convection effects during electrotransport 4—44691
  K, forced convection, heat transfer rate press. depend. 4—44133
  NH_3, subcooled boiling heat transfer, forced convection 4—79147
  Na, forced convection boiling loop, crit. conditions 4—44134
  Na, heat transfer during l.p. boiling 4—44665
  Na, vertical channel, body forces effect 4—43986
  Na-NaK, horizontal heat exchanger, mixed convection in shell 4—43629

convergence
  see also convergence of numerical methods
  Cauchy problem for equations with functional derivatives *(Russian)* 4—51282
  Galerkin method for nonlinear problems in mechanics *(Russian)* 4—55260
  impact vibrations, steady, in mechanical systems with broken-line collision characteristics, series soln. 4—74357
  nonlinear differential eqns., singularly excited periodic solns. and small parameter method 4—77372
  nonlinear differential equations of second order, convergence of bounded solns. 4—74241
  optical constants, superconvergence and sum rules, phys. meaning, comparison with expt., and generalization 4—45264
  Pade approximants and orthogonal polynomials, relations for Stieltjes series 4—43006
  short range intermolecular forces, convergence of multibody expansion 4—52012
  tetrachromatic colour matching function meas., two-level convergent technique 4—54895

convergence of numerical methods
  analytic iterations, for two-dimensional elasticity problems 4—59121
  celestial mechanics, three-body problem, convergence of expansions of differential equations 4—58200
  CNDO method, calc. of self-consistent doublet and triplet states 4—47932
  continuous-time Galerkin method, in viscoelasticity 4—65680
  Dirichlet series, convergence and summability, analytical functions in closed domains *(Russian)* 4—74214
  elastic shells of revolution, non-shallow, existence of soln. and approximate method convergence in nonlinear theory *(Russian)* 4—55247

convergence of numerical methods continued
e.m. wave scatt. integral equations for numerical soln. 4−71482
finite element analysis, class of functionals class giving improved convergence 4−59040
heat conduction equation, free boundary value problem, global convergence of implicit difference method *(German)* 4−74440
iterative method for plastic ideal body under Haar-Karman hypothesis conditions *(Russian)* 4−74322
multistep method, quasilinear initial-value problems soln. *(German)* 4−81128
Navier-Stokes eqn. numerical proof of existence of Hopf's weak soln. *(Russian)* 4−52343
neutron transport eqns., iterative solns. convergence accel. 4−81521
nonlinear boundary problems, convergence of approximate methods of soln. *(Russian)* 4−55212
nonlinear quasi-geostrophic equation, solutions on a bounded domain 4−64892
Pade approximants, convergence developments 4−65641
Pade approximants, convergence for totally monotonic and oscillating sequences 4−65643
rhombic plates, simply supported, under uniform pressure, exact analysis, series soln. 4−59128
seaming method for approx. soln. of Laplace eqn. in potential theory *(Russian)* 4−51294
shell theory equations, justification of use of virtual work and variational theorems 4−43049
stochastic matrix, infinite, of special form, stationary distrib. computation 4−43024
superposition approximation and natural iteration calc. in cluster variation method 4−52851
surface-interacting self-avoiding walks, numerical results for radius of gyration 4−55375

conversion electron spectra
see also gamma-ray internal conversion
internal, cycle meas. using Fe magnetic spectrometer 4−46879
pN collisions, 300 GeV search for direct lepton production π^0 spectra deduction 4−77933
^{226}Ac radioactive decay scheme *(Russian)* 4−71836
^{75}As(p,nγ)^{75}Se, 2.0-5.0 MeV, gamma-ray and internal conversion electron spectra, level struct. determ. 4−51760
^{115}Cd decay spectra anal. with semiconductor detectors setup 4−46845
^{167}Er(n,e)^{168}Er, obs. of transitions between 1 and 6.7 MeV, level scheme determ. 4−59776
^{57}Fe Mossbauer meas. for thin surface layers and inside sample 4−74127
^{156}Gd isotopic conversion reln. to exposure neutron imaging 4−62570
^{158}Gd isotopic conversion reln. to exposure neutron imaging 4−62570
^{72}Ge, in-beam meas. of E0 matrix element using α-particle reactions with ^{70,72}Ge 4−55778
^{191}Hg populated in ^{191}Tl decay, gamma-ray and conversion electron spectra meas. *(Russian)* 4−51781
^{119}In, structure study through ^{119g,m}Cd β-decay, γ-ray and conversion electron spectroscopy 4−51788
^{77}Kr→^{77}Br, electron conversion, Br isotopes level structure 4−66142
Lu, A=171, 172 decay, transition energy determination *(Russian)* 4−51799
^{88}Nb decay populating ^{88}Zr two-body states *(Russian)* 4−51754
^{95}Nb*, ^{95}Nb^{g}, weak β and γ transition meas. *(Russian)* 4−78007
^{184}Re^{m,g}→^{184}W, level structure study from γ-ray and conversion electron meas. 4−43458
^{99}Rh ($T_{1/2}$=16.1 days) decay, level diagram *(Russian)* 4−78008
^{209}Rn decay to excited levels of ^{209}At *(Russian)* 4−51800
^{219}Rn transitions following ^{223}Ra alpha decay, spectroscopic meas. 4−47671
^{72}Se, in-beam meas. of E0 matrix element using α-particle reactions with ^{70,72}Ge 4−55778
^{148}Sm(^{12}C,4n)^{156}Er, internal conversion-electron spectra, high-spin yrast level obs. 4−47628
^{93}Tc, γ-ray spectrum, conversion electron spectrum and positron spectrum, decay diagram *(Russian)* 4−78009
^{97}Tc populated in ^{97}Ru decay, meas. of transition rates 4−47650
^{228}Th, elec. monopole transition meas. 4−71828
^{166}Tm→^{166}Er electron capture, conversion electron and γ-ray spectra, reduced transition probabilities *(Russian)* 4−77995
^{49}V from ^{49}Ti(p,nγ), 3.6 to 5.2 MeV, conversion coefficient measurements 4−77997
^{120}Xe decay scheme determ. 4−55771
^{95}Zr, weak β and γ transition meas. *(Russian)* 4−78007

converters *see convertors*

convertors
see also analogue-digital conversion; code convertors; digital-analogue conversion; direct energy conversion; frequency convertors; image convertors; magnetohydrodynamic convertors; power convertors
a.c./d.c. and d.c./a.c., static, for analogue telemetering systems *(Polish)* 4−46750
high pressure, electrical, sensitivity improvement *(Russian)* 4−46613
log-diff-log circuit, first-order reaction rate const. form spectrophotometric data 4−46752
log-log circuit, first-order reaction rate const. from spectrophotometric data 4−46752
nuclear radiation conversion enhancement with inhomogeneous convertors and intensifiers, model 4−68758
static, for capacitance and inductance measurement *(Polish)* 4−46749
straight-through eddy-current convertors, hodograph calcs. 4−64688
transmission-absorption, for photometric anal., using transdiode 4−62581
voltage frequency convertor, controlled relax. oscill. using one junction transistor 4−42836
voltage frequency convertor, using bipolar transistors in avalanche mode 4−42837
voltage to frequency convertor, linear, accurate, temp. independent, stable clock frequency 4−68732
voltage-frequency, for A/D kit, use of two operational amplifiers *(Czech)* 4−54993

convertors continued
voltage-frequency convertor for automatic control system 4−42835
voltage-to-frequency, in acoustic emission detector 4−54833

cooling
see also Joule-Thomson effect; low-temperature production; magnetic cooling; refrigeration; supercooling
adiabatic toroidal compressor, neutral injection 70 kV pulsed floating deck switch, mech. design 4−60309
bearing, high thermal conductivity for rotating optical filter in front of rocket-borne spectroscope 4−58142
boiling water reactor recirculation systems, jet pump development 4−47769
bubble, hot gas in liquid, numerical anal. 4−48358
CERN bubble chamber, refrigerating systems 4−77197
cylinder semi-infinite, heat cond. anal. 4−55400
discrete hole cooling with free-stream turbulence and favourable press. gradient 4−75090
electrooptics, passive cryogenic cooling with heat pipe/radiator, spacecraft appl. 4−77049
eutectics, completely and partially co-operative lamellar growth investig. 4−63775
film cooling, analysis of heat transfer 4−78586
fusion reactor blanket cooling, using flowing Li in conducting wall pipe in transverse mag. field, MHD pressure drop 4−69603
fusion reactors, first-wall shields for early machines, heat flux limitations 4−69339
fusion reactors, He cooling parametric analysis 4−63302
High Field Magnet Laboratory, Grenoble, review 4−74099
laminar boundary layer, three-dimens., near stagnation pt., transpiration cooling 4−44002
liquid jets and air in crossflow, direct contact convection 4−75178
liquid metal cooled rod assembly, temp. fields 4−43615
MHD channel, boundary layer effect on semi-hot wall 4−44098
nonsteady-state porous cooling problem soln. by approx. method 4−60258
nuclear fuel elements, liq. metal, thermal-hydraulic anal. 4−43618
nuclear fuel rod assembly, analytic and lumped parameter solns. 4−43617
nuclear reaction with dissociating coolants, safety *(Russian)* 4−63267
nuclear reactor, fast breeder, dismantling of hot fuel assemblies 4−63248
nuclear reactor, K flow, boiling limit, crit. heat flux 4−43625
nuclear reactor, Na flow and temp. distrib. round blockage 4−43622
nuclear reactor, Na mixing effect, temp. distrib. 4−43623
nuclear reactor, rod array crit. heat flux data, sources, information 4−71984
nuclear reactor, rod displacement effect on heat transfer 4−43621
nuclear reactor, simulation, heating method, rod eccentricity effects 4−43620
nuclear reactor, temp. distrib., Na flow, eccentricity effects 4−43619
nuclear reactor coolant gas entrainment inception at laminar vortex, modelling 4−43592
nuclear reactor coolant leakage detection system idealisation 4−47756
nuclear reactor SNR-300 sodium systems 4−51864
oceanic crust, thermal stresses and transform faults due to cooling 4−68076
Peltier effect coating, rel. to thermocouple meas., using solid-state reference junction *(Spanish)* 4−54837
photomultiplier cooler, standard refrigeration unit, for extended periods of operation 4−80842
PLT machine, toroidal field coils design and manufacture 4−56537
power reactor coolant monitoring, in-line gamma-spectrometry, computer applic. *(German)* 4−46930
Princeton Reference Design fusion reactor superconducting coils 4−55948
Princeton Reference Design Reactor heat transfer system and blanket design 4−55946
reference theta-pinch reactor, heat transfer calcs. through gaseous cooling layer 4−69343
sea mists, cellular structure, atmospheric vortices due to radiative cooling *(French)* 4−54199
solar flare plasma cooling model 4−80482
solar protons, adiabatic cooling in interplanetary magnetic field of spiral form 4−50456
spatial layer, during Stefan-Boltzmann radiation from surface 4−65843
steel, continuous temp. meas. device 4−65395
stellar surface current speeds and cooling time for HZ Herculis 4−46227
sunspot cooling mechanism, reply and comments 4−68347
thin wire in gas layer, effect of radiation and temp. jump 4−65849
two-dimens. duct walls, effect on sound attenuation 4−80786
Varian e.s.r. spectrometer, increase of modulation amplitude by water cooling 4−68756
very hot vertical surface by falling liquid film 4−75101
water, density stratification due to introduction of heated water *(German)* 4−78592
CO_2, CO_2-N_2(He), gas, transient cooling by absorption of Q-switched laser radiations 4−59446
CO_2 laser in closed loop using induced flow glowing discharge, convection cooling *(Russian)* 4−51577
He II, adiabatic flow, cooling, mutual friction and press effects 4−63953
K, boiling, heat removal system design for fusion reactor blanket 4−69342
Li cooled fusion reactor blanket, use of insulated walls to reduce MHD pressure effects 4−69341
Li-cooled Tokamak reactor blankets, thermal and mech. design 4−59857
$LiTaO_3$, Czochralski growth, post growth cooling, thermal stress analysis 4−62677
N_2O_4 dissociating, turbulent flow, cooling in pipe, heat exchange characts. 4−78717
Si wafer heat cycling, thermal stress relaxation obs. 4−49603
Xe laser, vacuum u.v. high press., diluent cooling, expt. 4−51555

cooling towers
see also water supply
downwind precipitation 4−70690
effect on climate from local weather records 4−70692
meteorology and natural draught cooling tower operation 4−70689
natural draught towers, plume persistence 4−70691
nuclear power station, Caorso, core residual heat transfer to external environment, system design 4−51860

Cooper Hewitt lamps *see mercury vapour lamps*

coordination complexes
inorganic complexes are indexed under the appropriate metal compound headings
characterisation by i.r. spectroscopy 4−58713
chelate lasers *(Polish)* 4−69054
$[Co(NH_3)_6]_2(C_2O_4)_3.4H_2O$, ^{57}Fe Mossbauer emission spectra, oxalate ion effect on second coord. sphere of Fe oxidation state 4−61066
$[Li(HCONH_2)_2]^+$ complex, chelate effect, ab initio LCGO SCF calcs. 4−60016
S chelates, fluorescence determ. of electronic struct. *(Russian)* 4−48069

copolymerisation *see polymerisation*

copper
(111) dislocation etch pits *(Japanese)* 4−79056
acoustic emission during strain hardening transitions 4−49816
adsorbed-atom capture zones on amorphous C film 4−79235
adsorption of He II, film thickness as function of surface roughness and saturation 4−82299
adsorption of Kr, single cryst. (1,1,1) face 4−56970
adsorption on Ge, influence on surface states 4−49057
adsorption on Ge, neutralization of surface states 4−60846
anelasticity during plastic deformation of single crysts. *(German)* 4−73333
annihilation photons, ang. correl. tails 4−69979
anode surface temperature in microsec. vac. arc. 4−78842
anomalous skin effect, single crystal at 35 GHz at room temperature, obs. 4−44953
atom, monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
atomic electron scattering, elastic and inelastic, 20 and 60 eV 4−63366
atomic M-shell vacancy states, X-ray photoelectron and Auger spectra 4−57668
band structure calc. for nonlocal screened exchange potentials using MAPW method 4−75770
bicrystal, annealing twins, faceting and grain boundary pinning 4−49705
bicrystal, oriented, intercryst. creep *(French)* 4−49711
chemisorption of CO, theory 4−48859
cold rolled (110)[112] oriented single crysts., neutron irrad. effect on recrystn. 4−61363
cold work effect on elevated temp. stress components 4−53780
composite, Fe fibre reinforced, internal friction changes on cold rolling 4−80088
composite, W fibre reinforced, diffusion bonded, mech. characts. *(Slovak)* 4−49934
composite, W fibre reinforced, fibre spacing effect on fatigue behaviour 4−49923
composite, W fibre reinforced, fracture surfaces *(Czech)* 4−53838
Compton profile determ. using 59.54 keV gamma-rays 4−66933
condensation on sapphire, contact angles determ. by thin film techniques 4−75686
conduction electron scattering, de Haas-van Alphen determ., impurity effects 4−64058
contact resistance in liquid N 4−70061
core angle, temperature of conical tip, action of evaporation and surface diffusion *(French)* 4−75690
crystal binding, s- and d-electron models 4−75476
cubic crystal, anisotropic, displacement field of a dislocation loop 4−63832
cyclic stress/strain relation and fatigue strength, grain size depend. *(Japanese)* 4−82889
Debye-Waller factors, modified de Launay ang. force model 4−56847
deformed in tension and torsion, dislocation struct. at small strains 4−79938
density of states determ., X-ray and u.v. photoemission obs. 4−57026
desorption of H_2 from Cu crystals, ang. distribs. 4−75709
diffusion, review 4−82288
diffusion coefficient and electromigration velocity in Ag films 4−60710
diffusion in $Cd_xHg_{1-x}Te$, p-n junction displacement obs. 4−48806
diffusion in $CdGeAs_2$, glassy and cryst., temp. depend. and activation energy 4−56913
diffusion in epitaxial and bulk GaAs, carrier conc. meas. 4−60645
diffusion in glassy $CdGeAs_2$, temps. near onset of crystn. 4−56914
diffusion of Ni along dislocations *(Russian)* 4−75641
diffusion of Sn, temp. depend. *(Russian)* 4−67064
dislocation loop, interaction with interstitial, calc. 4−48637
dislocation-dragging effects after quenching and electron irradiation 4−63840
Doppler shifted cyclotron reson. and e.m. waves *(Russian)* 4−79282
Doppler shifted cyclotron resonance, with circularly polarised e.m. waves, new mode 4−82443
ductility, tensile, at intermediate temp., effect of strain rate *(Japanese)* 4−45628
ductility, tensile, of single crystal, at elevated temp., strain rate effects *(Japanese)* 4−45629
dynamic recrystallisation during high temp. torsional deform. *(Japanese)* 4−70457
edge dislocation interaction with vacancies and interstitials, computer simulation 4−56732
elastic constants, effects of irrad. induced self-interstitials and close pairs 4−79072
elastic constants, thermal neutron irrad. effects 4−79071
elastic constants, third order, calc. 4−73314
elastic constants, third- and fourth-order, calc. by method of homogeneous deform. 4−66957

copper continued
electric field gradient, dilute alloy single crystals, non transition metal impurities 4−73046
electrical resistivity, temp. depend., 4.2-27K, single cryst. 4−60772
electrodeposition, onto single cryst. a.c. effect on morphology 4−61615
electrodeposition, pulsed plating technique application, review 4−76606
electrolytically deposited thin films, ductility, strength, low temp. *(Russian)* 4−67827
electron irradiated, 15 and 7.5K, elastic bulk effect 4−72487
electron microscope exam. *(German)* 4−81036
electron microscope mapping technique for defect density of thin foils 4−48489
electron microscopy of plasmons 4−79317
electronic density of states, X-ray photoemission spectra 4−72690
electronic density of states calc. using resonance parameter approach 4−44821
electroreflection at interface with electrolyte, phenomenological interpret. *(French)* 4−64369
electroreflection spectra in polarized light *(French)* 4−61172
epitaxial growth on alkali halides, electron bombard. effect 4−44800
equilibrium solubility in heavily doped Si, calc. and obs. 4−53620
erosion by cavitation of cryogenic liquids 4−75722
excitation energy, determ. using 600 MeV protons, rel. to range-energy reln. determ. 4−58919
exploding wire, design relations between diameter and length, and discharge circuit parameters *(Russian)* 4−44422
explosive loading, effect on Young's modulus, internal friction 4−82934
fatigue deformation of single crysts. containing alumina particles, dislocation distrib. 4−53671
fatigue life in high cycle region 4−67855
fatigue limit and nonpropagating microcrack correl. 4−49747
fatigue rel. to intermediate surface layer removal 4−45639
fatigue strength, prestraining influence, stacking fault interpret. *(Russian)* 4−45607
fatigue testing, high cycle, crack propag. rates 4−76565
f.c.c. and b.c.c. crystals, static lattice Green's function and its asymptotic behaviour 4−63822
f.c.c. lattice, interaction of interstitial atoms with one another and with substitutional impurities 4−69800
Fermi surface, hydrostatic press. effects 4−79271
Fermi surface, investigation by positron annihilation 4−82350
fibrous crystals, diffusion of Zn, 600-700°C *(Russian)* 4−49701
film, cond. change due to low energy He^+ bombard. 4−67290
film, creep and lifetime investigation under load 4−72656
film, Cu condensation onto C-replica containing dispersed Au particles *(Russian)* 4−71255
film, damage mechanism with focused N_2 laser irradiation 4−51622
film, effect of vacuum deposition on microstructure 4−76381
film, electrodeposited, on Cu single cryst., nucleation, orientation and morphology 4−63996
film, electrolyte for electropolishing and revealing struct. 4−67113
film, e.m. to acoustic wave conversion efficiency 4−45050
film, evaporated, positron trapping at defects 4−79060
film, hot-electron scatt. length determ. by electron spin polarisation meas. 4−64479
film, initial epitaxy on (111) Ag film 4−76376
film, low energy He ion penetration 4−63842
film, oblique incidence evaporated, resistivity anisotropy 4−64142
film, optical absorption coeff., 20 to 120 eV, electron energy loss calcs. 4−53387
film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
film, photoexcited hot electrons, attenuation length determ. 4−75975
film, strength props. 4−49823
film, ultrathin, in multilayer sandwich struct., thermal and elec. cond. 4−60879
film, vac. deposition, oxygen-free water on surface, contact angles meas. 4−68024
film, vacuum-deposited, Hall effect dependence on thickness, temp., and time, obs. *(Japanese)* 4−44897
fine structure parameters changes due to plastic deformation 4−80043
foil, 3.3-165.8 keV photon attenuation, photoelec. cross sections 4−80985
foil, multiple scatt. of protons and N ions 4−57654
fracture stress, temperature dependence, ultra-high purity *(German)* 4−69853
friction, external static coeff., temp. depend. *(Russian)* 4−67830
fusion reactor first wall materials, He and H isotope depth profiles and migration 4−69318
gamma-ray total absorpt. cross-section at 250 to 550 MeV 4−63127
glow discharge optical spectroscopy for monitoring sputter depostion 4−75330
grain boundary cohesion, effect of dilute additions of Bi 4−49805
Gruneisen's gamma, low temp. limit from elastic constants data 4−44637
Gruneisen constant, volume depend. calc. 4−67008
Hall coefficient rate of change, estimation using Fermi energy 4−60784
heavy ion irradiated, point defect clusters, weak-beam electron microscopy 4−48656
heterodiffusion in Al, neutron irrad. effect *(French)* 4−44699
high-rate sputtering aided by permanent magnets 4−51000
hyperfine properties anal. 4−57410
impulsive heating profiles meas., vaporisation expansion wave 4−48746
internal friction, expt. verification of formulae for conversion of measured data to intrinsic values 4−48706
interstitial configuration splitting from thermal neutron irradiation and elastic constant changes 4−44569
interstitial diffusion mechanism in Al, neutron induced *(French)* 4−81637
ion scattering, spatial distrib., channelling 4−79834
i.r. absorptivity, temp. depend. from 10 to 310 K 4−45299
islet film, morphology and struct. *(Russian)* 4−72649

copper continued
- isotope mass, meas. by mass spectrographic doublet method 4−59891
- Johnson noise, temp. depend below 10 mK 4−60767
- K X-ray production from ^{252}Cf fission fragment collisions 4−59967
- K-shell ionisation, 1 to 5 MeV α impact, cross section determ. 4−49496
- Kapitza resistance with liquid helium-4 phonon attenuation and impedance matching 4−63958
- laser mirror, light scatt. meas., dominant mode refl. 4−68713
- lattice distortion, phenomenological force model 4−75583
- LEED intensity profiles calc. for (100) and (111) faces 4−75673
- LEED intensity profiles from (100) and (111) faces, analysis 4−44737
- LEED measurements of Cu(100) structure 4−75671
- LEED surface structure determ. 4−75677
- liquid, enthalpy meas. using liq. Ar calorimeter 4−60623
- liquid, u.v. photoemission, density of states determ. 4−72675
- low temperature studies using pulsed n.m.r. thermometer 4−46605
- mass absorption coefficients for CK_α line *(Japanese)* 4−45382
- molten, high temp. viscosity meas., viscometer design 4−58952
- NaCl:Cu, X-irradiated at 80K, thermolum., rel. to F'-centres 4−53540
- neutron damage thermal and fast, comparison of stage I 4−72494
- neutron irrad. single crysts., slip band development, cinematographic obs. 4−52786
- neutron irradiated, defect clustering in annealing stage, anomalous X-ray transmission obs. 4−52788
- neutron irradiated, dislocation pinning point density, temp. and time depend. 4−60523
- neutron irradiated, lattice parameter changes, dose depend. 4−48654
- neutron irradiated, vel. and local density of dislocations in slip bands, high speed cinematography obs. 4−69830
- notch creep rupture strength under torsion *(Japanese)* 4−70504
- Ohm's law, at 4K, nonlinear correction derived from Boltzmann's eqn. 4−53074
- orientation relationships determ. from relative orientations of variants of product phases 4−45506
- oxidized impurities, mag. obs. using supercond. quantum interference device 4−61383
- Pauli principle model, electronic stopping power of channelled ions 4−69836
- phonon dispersion, modified de Launay model 4−56824
- phonon dispersion relns. by modified Sharma-Joshi model 4−56838
- phonon drag thermopower obs. in high mag. field 4−67204
- photoelectric cross section for 279.1 keV and 411.8 keV γ-rays 4−74857
- photoelectron cross-section, γ-ray attenuation coeff. meas. 4−72068
- photoemission, energy dependent self energy 4−70398
- photoemission spectra and band struct., f.c.c. interpolation schemes 4−45407
- plant material, determination by atomic absorption spectrophotometry 4−65583
- plastic deformation, early, of single crysts. with Cr platings 4−76504
- plastic stress/strain response in high cycle region 4−67854
- plastically deformed, anharmonic effects of dislocation energy on volumetric expansion *(French)* 4−48716
- plate, plastic wave obs. on charge detonation in aperture *(Russian)* 4−57755
- polycrystalline, plastic deform., intense electron beam bombard. 10^{-8}-10^{-7} sec. *(Russian)* 4−73319
- porous, shock compressibility at l.p. *(Russian)* 4−61478
- positron annihilation, effects of multivacancies, ang. correl. obs. 4−44565
- positron annihilation investigation 4−79065
- positron annihilation rate calc. for valence and core electrons, mechanism for transition metals 4−48897
- positron lifetime, effect of thermal expansion, 100-300K 4−56773
- positron trapping by defects 4−75542
- positron trapping end at dislocations 4−48649
- powder, porous, diffusional retardation of chemisorption 4−60691
- powder compacts, dimensional changes 4−67890
- quasi-localised representation of electronic band struct. 4−67151
- recovery process, one-dimens. and cyclic deform., modulus and elec. resist. meas. *(German)* 4−70514
- recrystallisation, nucleation mech., effect of plastic deformation and annealing *(German)* 4−67794
- recrystallisation, secondary, after high speed deform. *(Czech)* 4−49697
- secondary electron emission from single crysts. under fast ion impact, anisotropic excitation of electrons *(French)* 4−53557
- sediments at bottom of eastern tropical Atlantic, distrib. of Cu, Pb, V, Y, and Mo trace elements *(Russian)* 4−80306
- self-diffusion, isotope effect, correction factor calc. 4−44706
- self-diffusion, obs. of ^{67}Cu in thin sections 4−56908
- self-diffusion, volume and surface, review 4−44702
- shock compressed, temp. meas. using rarefaction wave parameters *(Russian)* 4−49757
- sintering kinetics of spherical particles, pressing effects *(German)* 4−73338
- skin effect anomaly at room temp., 35 GHz 4−64108
- slip line length, blocking in single crystals 4−45568
- small angle scattering effects 4−67202
- sputtered atoms from ion bombardment, ang. distrib. 4−64468
- sputtering, neutron induced in samples doped with ^{235}U 4−78242
- sputtering on He$^+$ ion bombardment, optical radiation of sputtered atoms 4−79824
- steel/Cu layered composite, u.s. shear wave propag., dispersion relations 4−76538
- stopping power for 7.2 MeV protons 4−60528
- strain rate tensile tests on dislocation free single crystals 4−45699
- strain-rate sensitivity of OFHC specimens 4−45671
- structural state, creep characts. *(Russian)* 4−66965
- structure heterogeneity of polycryst., rel. to strain hardening and tensile test parameters *(Polish)* 4−64568
- substrate, electrocrystallization of Pb, current density effects, mech. of growth 4−44796
- substrate, stability of amorphous Bi films *(Russian)* 4−67128
- substructure and impurities, block boundary peak of internal friction *(Russian)* 4−67829

copper continued
- surface, ion bombardment induced light emission, influence of reactive gases 4−45345
- surface, spreading of Hg under cathodic polarisation conditions 4−64712
- surface energy, u.s. meas. *(German)* 4−51179
- surface layer on PbSe, alloying by Cu atom diffusion *(Russian)* 4−72591
- surface plasma oscillations, anisotropic model 4−44982
- surface resistance of single crystal, mm. wave region, room temp. 4−75935
- surface self-diffusion, influence of free evaporation *(French)* 4−63972
- surface states, five layer (001) film, LCMTO calc. 4−64125
- tensile loading process investig. using cine camera 4−61558
- tetramethyl ammonium manganese chloride: Cu^{2+}, e.s.r. line shape anal. 4−79587
- texture, X-ray diffraction determ., errors 4−46910
- thermal conductivity of ultrahigh-purity specimens, annealing effect *(German)* 4−53080
- thermal resistivity, electron-phonon interaction 4−72741
- thermal resistivity and Lorentz number, free electron approx. calc. 4−48954
- thin film, crack propagation gauge, in bridge circuit 4−50087
- thin film on mica, multiply twinned particles obs. during vac. deposition 4−57012
- thin-film bicrystals, vacuum welding technique, grain boundaries obs. 4−82864
- total energy and equation of state, vol. depend. 4−63785
- u.s. attenuation and velocity near open-orbit reson., 4.2K 4−44830
- u.s. treated, grain boundary peak of internal friction *(Russian)* 4−67826
- vapour arc, theoretical model, electron emission 4−56558
- vapour laser, rapidly pulsed, buffer gas effects 4−62833
- water inclusions, near surface, obs. method *(German)* 4−73308
- whisker, deformed, slip geometry effect on dislocation recovery phenomenon *(Russian)* 4−60714
- whisker, under tensile deform., slip patterns obs. 4−69847
- whiskers, anisotropy of internal friction 4−79252
- whiskers, polygonization process, influence of slip geometry *(Russian)* 4−69808
- wire, creep, applied pot. and surface dissolution effect 4−61399
- wire, rupturing in elec. explosions *(Russian)* 4−69685
- work hardening, Ashby's model for polycrystal grain boundaries 4−57749
- X-ray absorption, meas., 1.5-3 keV 4−61238
- X-ray emission, stimulation obs. from nonlinear effects 4−64456
- X-ray experimental form factors, charge distrib. model 4−60432
- X-ray K absorption edge, Cu in Cu cpds 4−64446
- X-ray photoemission spectra of valence bands 4−45404
- X-ray scattering, K-edge anomaly, three crystal interferometric method *(Russian)* 4−66798
- X-ray spectra, bombardment by S ions, target-thickness depend. 4−82780
- yield and ultimate tensile strength, fatigue deform. influence, 20-380°C *(German)* 4−61469
- Al:Cu, grain boundary solute electromigration 4−82334
- Be:Cu, diffusion coeff. rel. to Cu introduction investig., ion backscatt. technique 4−63944
- CdCl$_2$(Br$_2$):Cu^{2+}, vibronically allowed d-d transitions, i.r. spectra 4−64406
- CdS, Cu compensated, s.c.l. conduction in thin structures 4−44933
- CdS:Cu, single crystals, impurity structures, electrical properties 4−64079
- Cu core fixed in Mo shell, thermal expansion of system *(Russian)* 4−70482
- Cu foil and wire, elec. explosion, products condensation and movement *(Russian)* 4−69686
- Cu I, atom, oscillator strengths for spontaneous transitions 4−66286
- Cu I, Stark shifts estimated, semiempirical method 4−66288
- Cu:^{57}Fe, Mossbauer, recoilless fraction calc., lattice dynamical study 4−79649
- Cu:Ar mixture, low temp. metal to nonmetal transitions, Mott's model calcs. 4−64122
- Cu:B(Sb), loss of ductility, intercryst. fracture, elevated temp. *(Russian)* 4−67825
- Cu:Co, electron spin density near Co atoms, n.m.r. meas. 4−57261
- Cu:Fe, spin 1/2 Kondo system, spin polarisation 4−72953
- Cu:Ge, vacancies and vacancy-impurity pairs, positron annihilation 4−63823
- Cu:Mn, cond. electron spin polarisation near Mn impurities, n.m.r. meas. 4−57262
- Cu:S surface, Pb deposition, quantitative Auger electron spectroscopy using co-adsorption 4−67100
- Cu/CdS/Cu multilayer, anomalous behaviour of junctions 4−72867
- Cu/glass target, co-sputtering, secondary electron emission effects 4−79829
- Cu/graphite powder composites, resist. meas. during compaction 4−82968
- Cu/Ni couple, e.m.f. prod. on shock compression 4−60848
- Cu/solid ^{3}He interface, Kapitza resist., theoretical explanation 4−44741
- Cu-Be contaminated surface, secondary electron ejection by He and Ar neutral atoms 4−82777
- Cu-CdS thin film Schottky diodes, obs. on heat treatment 4−49069
- Cu-constantan film thermocouple, for 80 to 700 C 4−65397
- Cu-Pb sandwiches, supercond. proximity effect 4−49110
- Cu^{2+} in crystal fields, config. interaction screening factors 4−60747
- Cu^{2+} ion, exact hyperfine states and transition probabilities for axial crystal field and transverse mag. field 4−67170
- Cu^{2+} ions bound to hexagonal openings of type A zeolite lattice, e.p.r. *(Russian)* 4−82617
- Cu^{3+}, aq. soln., dynamic nuclear polarisation, electronic spin-lattice relaxation 4−73021
- ^{63}Cu/^{65}Cu dipole moment ratio, hyperfine struct. anomalies 4−79609
- Fe(NH$_4$)$_2$(SO$_4$)$_2$6H$_2$O:Cu^{2+} spin resonance obs., mag. properties at low temp. 4−45090

copper continued
- n-GaAs:Cu, conc. profile determ. by Faraday effect *(Russian)* 4–53631
- n-GaAs:Cu, field-induced deform. of impurity luminesc. spectrum 4–49457
- GaAs:Cu, negative photocond. obs., quenching of injection current 4–67259
- Ge:Cu, high-purity, low-temp. Hall effect anal. 4–53107
- KBr:Cu, X-irradiated at 80K, thermolum. rel. to F'-centres 4–53540
- KCl:Cu, X-irradiated at 80 K, thermolum. rel. to F'-centres 4–53540
- KCl:Cu(Ag), dislocation interaction with electron and hole centres, deform. luminesc. obs. 4–56755
- $K_2SO_4:Cu^{2+}$, low symmetry e.p.r. of ions, orthorhombic model 4–73019
- $K_2Zn(SO_4)_2.6D_2O:{}^{63}Cu^{2+}$, e.s.r. ; ^{17}O superhyperfine tensors 4–76147
- $K_2Zn(SO_4)_2.6H_2O:Cu^{2+}$, e.s.r., Jahn-Teller effect 4–76148
- Li/Cu double layers, cond. electron spin relax., spin diffusion 4–73029
- LiCl: Cu single crystal, luminesc. props., photo, thermo and X-ray, 79-450K *(Russian)* 4–82737
- $LiNbO_3$:Cu, optical absorption spectra, correlation with photorefractive sensitivity 4–57586
- $NH_4Cl:{}^{63}Cu^{2+}$, anomalous behaviour in the e.p.r. spectrum 4–67439
- $(NH_4)_2Co(SO_4)_2.6H_2O:Cu^{2+}$, e.s.r., spin-lattice relaxation 4–67443
- $NaCl:Cu^+$, defect-induced reson. modes, zero-freq. limit, isotope effects and amplitude patterns 4–79128
- $Na_2SO_4:Cu^{2+}$, e.s.r., superhyperfine struct., quadrupole interaction parameter 4–57366
- $Rb_2SO_4:Cu^{2+}$ low symmetry e.p.r. of ion, orthorhombic model 4–73019
- p-Si:Cu, defect cluster form. by neutron irrad., comp. depend. 4–79067
- SrS:Cu, electroluminescence, voltage and freq. depend. of brightness 4–57635
- ZnS, cubic, Cu^{2+} centre i.r. absorpt. and emission meas., Zeeman effect 4–67621
- ZnS:Cu, Br, electroluminophors, electron traps rel. to ageing *(Bulgarian)* 4–53533
- ZnS:Cu, Cl, ageing of electroluminophors *(Bulgarian)* 4–53532
- ZnS:Cu, Cl, ZnS:Cu, Cl, Nd, thin film, excitation spectra of electrolum., photolum. 4–64440
- ZnS:Cu, correlation between photodielectric effect and Gudden-Pohl effect *(Russian)* 4–53536
- ZnS:Cu,In, effect of trap filling on shift of thermoluminesc. peak 4–53541
- ZnS:Cu,Mn, electroluminesc., trap spectrum 4–82750
- ZnS:Cu:Co, photoconductor, thermally stimulated current curves investig. 4–79343
- $ZnS:Cu^{2+}$, Jahn-Teller effect in $^2T_2$ state, near i.r. absorpt. and emission spectra 4–57584
- $ZnWO_4:Cu^{2+}$, ligand hyperfine structure of e.s.r. spectrum 4–57374

copper alloys
- *see also brass; copper compounds*
- binary, dendrite arm spacings 4–45494
- bronze, coefficient of external static friction, temp. depend. *(Russian)* 4–67830
- bronze, sintered, heat cond. below 0.3K 4–77051
- Cu-Fe alloys, Mossbauer effect, Fe precipitates 4–64301
- deformation twinning, obs. of nucleation and suppression mechanism in f.c.c. crystals 4–57747
- diffusion, review 4–82288
- dilute, n.m.r., asymptotic region of charge density oscillation around impurities 4–76175
- dispersion hardened with Al_2O_3, strengthening behaviour 4–53755
- film, vacuum-deposited, struct. form. laws and resist. meas. *(Russian)* 4–48875
- Heusler alloys, Mossbauer spectra, Sb and Sn hyperfine fields 4–64288
- internal oxidation kinetics, 750-1020°C *(Russian)* 4–79926
- martensitic, Hall-Petch relationship 4–67856
- molten, high temp. viscosity meas., viscometer design 4–58952
- neutron irrad. induced deform. behaviour 4–52787
- stress corrosion cracking 4–45617
- yield point of α-phase alloys, influence of alloy type and conc. *(German)* 4–53778
- Ag-Cu, multivariate analysis of dendrite structures, pattern recognition approach *(Japanese)* 4–61347
- Ag-Cu eutectic system, metastable phases produced by laser melt quenching 4–45514
- Al-Al_2Cu, eutectic alloy, growth crystallography of single cryst. 4–69738
- Al-Cu, columnar, solidification microstruct. effect on corrosion behaviour 4–49791
- Al-Cu, dilute, solute-vacancy binding energies, theory 4–52751
- Al-Cu, eutectic, superplastically deformed, quantitative texture meas. 4–61362
- Al-Cu, eutectic crystn. 4–76424
- Al-Cu, fatigue cracks of precipitates *(German)* 4–61471
- Al-Cu, force constant ratio evaluation 4–82248
- Al-Cu, Hall effect and resistivity meas., comparison with two band model 4–60782
- Al-Cu, liq. phase sintering 4–80058
- Al-Cu, oxidation kinetics at phase boundary 4–57745
- Al-Cu, soft X-ray emission spectra and electronic states 4–64445
- Al-Cu, splat-quenching, glass substrate effect on cooling rate 4–79991
- Al-Cu, unidirectional solidification, change of fraction solidified *(Japanese)* 4–67761
- Al-Cu (4 wt.%), neutron irrad. effects on precip. 4–76443
- Al-Cu (4.4 mass %), solute depleted zone effect on stress-corrosion susceptibility 4–57752
- Al-Cu alloy, thinning technique for transmission electron microscope obs. 4–82849
- Al-Cu system, cellular and dendritic growth, expt. 4–49648
- Al-Cu system, cellular and dendritic growth, theory, comparison with expt. 4–49649

copper alloys continued
- Al-Cu with duplex dendritic struct., casting effect on mech. behaviour 4–49790
- Al-Cu-Si, Hall effect and resistivity meas., comparison with two band model 4–60782
- Al-Cu-Si film, electromigration effects 4–57186
- Al-Cu-Sn, ageing acceleration at high temps., aged struct. obs. *(Japanese)* 4–64578
- Al-Cu-Zn, unidirectional solidification, microstruct. and plane to cell transition *(Korean)* 4–76423
- Al-$CuAl_2$ aligned lamellar eutectic, Zn diffusion and transform. processes 4–45517
- Al-Cu(17.3 at.%), splat-quenching and noncryst. phase form. 4–61419
- Al-Cu(3.7 wt.%), solidification microstruct. effect on corrosion behaviour 4–49775
- Al-Cu(4 wt.%), antiphase domain boundaries within θ' and η precipitates 4–67792
- Al-Cu(4 wt.%), growth kinetics of platelike precipitates 4–76430
- Al-Cu(4 wt.%), repeated θ' precip. at prismatic dislocation loops 4–49695
- Al-Cu(4 wt.%) film, microprobe technique for nondestructive determ. of Si conc. profile 4–77305
- Al-Cu(4%), W wire reinforced, metal-matrix/metal fibre composites, crack propag., strength, toughness 4–73368
- Al-Cu(4%), W wire reinforced, metal-matrix/metal fibre composites, crack propag., fatigue behaviour 4–73369
- Al-Cu(4.5 wt.%), solute redistrib. in duplex dendritic struct. 4–49696
- Al-Cu(4.5 wt.%) morphology of solid/liquid interfaces and solute distribs. *(Japanese)* 4–45497
- Al-Cu(4.5 wt.%). solidification substruct. and solute distribs. at solid/liq. interface, quenching effects *(Japanese)* 4–45503
- Al-Si-Cu-Mg-Ni piston alloy, copper influence on microstruct. and mech. characts. *(German)* 4–61398
- $Al_{0.2}Cu_{0.9}$, local phonon modes, coherent potential approx. 4–52841
- Au-Cu-Ag, atomic ordering influence on decomp. processes *(Russian)* 4–61335
- Au-Cu-Zn, thermoelastic martensite, pseudoelasticity obs. 4–82936
- Au-Cu(4 wt.%) solid solns., resist. obs. of decomp. processes *(French)* 4–49727
- $AuCu_3$, positron annihilation effect of ordering 4–82199
- Be-Cu, mirror, Ag or Au coating, laser pulse damage 4–55501
- Cd-$CuCd_3$ eutectic struct. obs. by selective sublimation 4–82851
- Co-Ni-Al-Cu-Ti, nonmetallic inclusions influence on solidification behaviour 4–64559
- $(Co_{3.5}Cu_{1.5})Pr_{1-x}Y_x$, lattice parameters and coercivity 4–63793
- Cu self-diffusion, volume and surface, review 4–44702
- Cu-3d transition metal, dil., electron spin density determ. near impurity atoms, n.m.r. 4–64275
- Cu-Ag, dilute alloy, asymptotic region of charge density oscillation around impurities 4–67465
- Cu-Ag (0.02 to 0.25 at.% Ag) block-boundary peak of internal friction *(Russian)* 4–67829
- Cu-Al, eutectoid, isothermal and isovelocity pearlite growth kinetics 4–49657
- Cu-Al, grain boundary sliding meas. 4–82850
- Cu-Al, interaction with UO_2, eff. of Zr addition 4–43651
- Cu-Al, internally oxidized, Al_2O_3 particle struct. obs. 4–49733
- Cu-Al, Morse potential appl. 4–44617
- γ-Cu-Al, slip in intermediate phases 4–67795
- α-Cu-Al, surface stress distrib. due to group of edge dislocations on oblique glide plane, theory 4–52762
- α-Cu-Al, surface stress distrib. due to array of 60° dislocations on oblique glide plane, theory 4–52763
- Cu-Al and Cu-Al-Zn, time law interpret. of growth of β grain size and martensite plates 4–79898
- Cu-Al bronze containing Fe particles, dynamic recovery and recrystn. 4–49734
- Cu-Al FCC alloys, hot extrusion texture determ. by neutron spectroscopy 4–53783
- Cu-Al:Co liquid alloy, impurity susceptibility 4–45094
- Cu-Al-Co (2 wt.% Co and 8 or 15 wt.% Al) decomp., precipitated phase *(Russian)* 4–67776
- Cu-Al-Co alloys, influence of vacancies on nucleation of new phase *(Russian)* 4–73297
- Cu-Al-Fe aluminium bronze, cavitation at grain and phase boundaries during superplastic flow 4–45652
- Cu-Al-Ni, (14.5% Al, 1.6% Ni), emission of sound during thermoelastic martensitic reaction 4–57729
- Cu-Al-Ni, single interphase martensitic transform. 4–45513
- Cu-Al-Ni, stress-induced acicular β_1' martensite obs. 4–79970
- Cu-Al-Ni, stress-induced acicular γ' martensite obs. 4–79971
- Cu-Al-Ni, struct. depend. of superelasticity 4–76426
- Cu-Al-Ni thermoelastic martensite, morphology and crystallography using phenomenological theory 4–49676
- Cu-Al-Ni thermoelastic martensite, with Cu_3Ti type ordered struct., twinning 4–49677
- Cu-Al(Fe), dilute, mag. susceptibility meas. 4–45102
- Cu-Al(10 at.%), partial dislocation structs., electron microscope obs. 4–82878
- Cu-Al(10%), cold-worked, lattice thermal cond., 0.5-4K 4–44640
- Cu-Al(3 wt.%) single crysts., friction stress on individual dislocations 4–49728
- Cu-Au, bulk and thin film, X-ray microanalysis in TEM 4–77294
- Cu-Au, dil., f.c.c., phonon self-energy in high symm. directions, theory and expt. 4–79127
- Cu-Au, formation and growth of Cu_3Au_{II} in deformed matrix 4–61365
- Cu-Au-Fe(Cr) dil., magnetoresist., validity of calc. using field-depend. infinite-U Anderson model 4–53083
- Cu-B alloy, neutron irrad., small angle grain boundaries 4–70500
- Cu-based, transport prop. test for electron-phonon effects in density of states 4–64006
- Cu-Be, eutectoid comp. region, β-phase decomp. *(French)* 4–76427
- Cu-Be(2 wt.%), ordered microstruct. development by elastic interaction *(French)* 4–45565
- Cu-Bi, liq., comp. depend. of Hall coeffs. *(Japanese)* 4–44898
- Cu-Co, dilute, n.m.r. meas., 1.4 to 290K, diamag. deviation of Knight shift 4–82625

copper alloys continued
- Cu-Co, particle size and spacing effect on steady state creep 4−64586
- Cu-Co and Cu-Fe-Co, dil., low temp. thermo-e.m.f. *(Russian)* 4−64066
- Cu-Co system, stabilization of equiaxed precipitate array, Ostwald ripening 4−67804
- Cu-Co(1 wt.%), relax. time of superparamag. β-Co particles, Mossbauer obs. 4−76195
- Cu-constantan film thermocouple, for 80 to 700 C 4−65397
- Cu-Cr, ^{63}Cu spin lattice relax., electron spin obs., 0.32-20K 4−61054
- Cu-Cr, dil., magnetoresist., validity of calc. using field-depend. infinite-U Anderson model 4−53083
- Cu-Cr, dil., transport props. in mag. field 4−53082
- Cu-Cr, precip. of Cr 4−45561
- Cu-Cr eutectic alloy, unidirectionally solidified, crystallography of phase interfaces 4−82858
- Cu-Fe, determ. of local level, photoemission technique employing quantum efficiency 4−48921
- Cu-Fe, dilute, n.m.r. meas., 1.4 to 290K, diamag. deviation of Knight shift 4−82625
- Cu-Fe, Kondo alloy, exchange energy and spin scatt. anisotropy, de Haas-van Alphen meas. 4−49159
- Cu-Fe and Cu-Fe-Co, dil., low temp. thermo-e.m.f. *(Russian)* 4−64066
- Cu-Fe system, interdiffusion coeffs. and phase interface moving rates for reaction-diffusion *(Japanese)* 4−67760
- Cu-Ga, diffusion layers, concn. profiles, 500 to 700°C *(German)* 4−48807
- Cu-Ga, dil., mag. res. obs., wipe out numbers for first and second order quadrupole effects 4−48925
- Cu-Ga, dilute alloy, asymptotic region of charge density oscillation around impurities 4−67465
- Cu-Ga melt, short range order structure *(Russian)* 4−70453
- Cu-Ge, dil., mag. res. obs., wipe out numbers for first and second order quadrupole effects 4−48925
- Cu-Ge, dilute alloy, asymptotic region of charge density oscillation around impurities 4−67465
- Cu-Ge α-solid solns., chem. pot. of Ge 4−61324
- Cu-Ge-Ti alloy, decomp. processes, 400 to 700 degrees C *(Russian)* 4−73296
- Cu-Ge(5 at.%), ang. distrib. of annihilation photons, recovery by annealing 4−72488
- Cu-In, liq., comp. depend. of Hall coeffs. *(Japanese)* 4−44898
- Cu-In eutectoid alloy, unidirectional growth 4−64534
- Cu-In eutectoids, aligned, discontinuous coarsening obs. 4−53673
- Cu-In melt, struct. and elec. cond. *(Russian)* 4−45533
- Cu-In system, vol. diffusion coeffs. in β-phase region 4−53661
- Cu-Mn, ^{63}Cu spin lattice relax., electron spin obs., 0.32-20K 4−61054
- Cu-Mn, dilute, n.m.r. meas., 1.4 to 290K, diamag. deviation of Knight shift 4−82625
- Cu-Mn, nuclear specific heat, acquisition and treatment, 20 to 100 mK 4−67051
- Cu-Mn, X-ray electron spectra and state density of valency electrons 4−82766
- Cu-Mn-Al, Heusler alloys, effect of antiphase boundaries on mag. props. 4−45142
- Cu-Mn-Al alloys, magnetisation and coercive force *(Japanese)* 4−45150
- Cu-Mn-Ni, Ni-rich, Cu-rich, equilib. of melting *(German)* 4−73283
- Cu-Mn-Ni alloys, Ni-rich and Cu-rich, fusion equilibrium *(German)* 4−73287
- Cu-Nb, supercond., prod. method 4−53790
- Cu-Nb composite, superconducting, metallurgical effects 4−60916
- Cu-Ni, dilute, elec. field gradients, zero-field n.q.r. meas. 4−64283
- Cu-Ni, Fermi surface investigation, ang. correlation of photons from positron annihilation meas. 4−60726
- Cu-Ni, ferromag. and superparamag. alloys, moment assignments from saturation magnetisation data 4−76058
- Cu-Ni, magnetic moment field dependence, susceptibility and magnetic clusters 4−53212
- Cu-Ni, paramag., temp. independ. susceptibility 4−72952
- Cu-Ni, uncertainties in obs. of Fermi surface by positron annihilation 4−48902
- Cu-Ni alloys conc. depend. of residual resistance, ageing and clustering effects 4−53078
- Cu-Ni solid solns., elastic consts. 4−67853
- Cu-Ni-Cr, precip. of Cr 4−45561
- Cu-Ni-Fe, spinodally decomposed, loss of coherency 4−61359
- Cu-Ni-Mn bondable fatigue gauge, elec. resist. changes during fatigue 4−80050
- Cu-Ni-S, room temp. structure *(Russian)* 4−70437
- Cu-Ni-S molten system, miscibility gap and distrib. of nickel 4−45512
- Cu-Ni-Si, strengthening due to early stage spinodal decomp. 4−79892
- Cu-Ni-Sn, spinodal decomp. and effects 4−64525
- Cu-Ni-Zn, microduplex, residual tensile props. and microstruct. after superplastic straining 4−45661
- Cu-Ni-Zn alloy single crystal, stress-strain curves, temp. depend. *(Japanese)* 4−45633
- Cu-Ni(40 at.%) solid solns., liq. phase nucleation and growth during melting *(Russian)* 4−45534
- Cu-Sb, liq., comp. depend. of Hall coeffs. *(Japanese)* 4−44898
- Cu-Sb, thermodynamic props. 4−54089
- Cu-Sb and Cu-Sb-B solid solns., cold-shortness and intercryst. absorpt. of impurities *(Russian)* 4−73295
- Cu-Si, constricted dissociated dislocation lines, electron weak beam obs. 4−57738
- Cu-Si-Mn, shape memory effect possibility 4−49810
- Cu-Si(0.1%), internally oxidized, diffusion movement of oxide particles, calc. 4−52939
- Cu-Si(5 at%), dissociated Frank loop corners, electron microscopy obs. 4−70471
- Cu-Sn, liq., comp. depend. of Hall coeffs. *(Japanese)* 4−44898
- Cu-Sn, yield and ultimate tensile strength, fatigue deform. influence, 20-380°C *(German)* 4−61469

copper alloys continued
- Cu-Sn and Cu-Au-Sn α-solid solns., solute-solute and solvent-solute interactions 4−61323
- Cu-Sn bronze contact with steel, wear particle effects 4−49847
- Cu-Sn-Cr bronze, crystn. parameters effects on struct. form. *(Russian)* 4−45577
- Cu-Te, β''' hexagonal phase, cryst. struct., electron diffr. 4−82135
- Cu-ThO$_2$, thermomechanical processing, microstructure, properties 4−73325
- Cu-Ti, age hardening characts., effect of Ti conc. *(Japanese)* 4−67789
- Cu-Ti, supersaturated, Ti conc. effect on stacking fault energy and texture 4−76436
- Cu-Ti melt Al$_2$O$_3$, intermediate phase formation on adhesion and wetting 4−67930
- Cu-Ti(1.3-4.3 wt.%), temp. effect on ageing, hardness and thin foil electron microscope exam. 4−76454
- Cu-Ti(5 wt.%), hardness recovery anomalies *(Russian)* 4−49793
- Cu-Zn, brass, alpha/beta interface, capillarity effect 4−82836
- Cu-Zn, β' phase, disordering kinetics 4−67769
- Cu-Zn, dil., mag. res. obs., wipe out numbers for first and second order quadrupole effects 4−48925
- Cu-Zn-Si alloy, 3R stacking sequence in martensite, dark field electron microscopy 4−73300
- Cu-Zn-Si phase transforms, internal stresses *(Russian)* 4−67750
- Cu-Zr (1.07 wt.%), electron microscope observations, precipitation 4−67798
- Cu-Zr and Cu-Al-Zr, ageing mechanism *(Russian)* 4−49682
- CuAu alloy, order-disorder reaction, photoemission electron microscopy obs. 4−79897
- Cu$_3$Au, ^{197}Au Mossbauer line shape and recoilless fraction, temp. and lattice order depend. 4−64310
- Cu$_3$Au, disordered, atomic force const. determ., expt. 4−44616
- Cu$_3$Au, ordered, discontinuous yielding mechanism and dislocation locking 4−79974
- Cu$_3$Au, ordered, strain ageing yield drops 4−79975
- Cu$_3$Au, ordered and disordered, refl. spectra and band struct. 4−45323
- Cu$_3$Au, Portevin-Le Chatelier effect 4−53697
- Cu$_3$Au, rolling texture 4−82868
- Cu$_3$Au, shear modulus interaction and flow stress interpret. 4−53770
- Cu$_5$Cd$_8$, γ-brass types, cryst. structs. investig. 4−56647
- CuFe films, strength props. 4−49823
- CuFe(Cr)(Mn), dil., electronic struct., charge oscill., Knight shifts, pair interaction 4−79275
- Cu$_2$GeSe$_3$ based, nonstoichiometric, investigation of struct. and props. 4−44674
- CuMn, dilute, mag., thermoelectric power, interacting spin pair description 4−60783
- CuMn, polarisation anal. of neutron mag. scatt. 4−67380
- CuMn spin glass, low temp. resist. 4−79331
- CuMn-Pt, dilute alloy, e.s.r. linewidth, anisotropy due to heavy impurities 4−45173
- Cu$_2$Mn$_{0.9}$Al$_{0.81}$ Heusler alloy, β phase decomp. on heat treatment, precip. phenomena *(French)* 4−45531
- CuNi, dilute, optical props. exam. in terms of Anderson model 4−82712
- CuNi films, strength props. 4−49823
- CuNi(Co)(Fe), dilute disordered alloys, virtual bound states 4−79267
- $(\mathrm{Cu}_{0.83}\mathrm{Pd}_{0.17})_{1-c}X_c$, X=Mn, Fe, Co, Ni, Gd, paramag. Curie temp., influence of order-disorder transitions 4−45115
- CuPt, multi-ion interactions and L1$_1$ ordering 4−61328
- Cu$_2$Sb, mag. and n.m.r. meas. 4−53322
- Cu$_6$Sn$_5$, $\eta \rightleftharpoons \eta'$ transform. behaviour, metallic bonding 4−45515
- CuZn, alloys, metastable β', isothermal transforms. 4−53641
- CuZn, metastable β', martensitic transforms. 4−53640
- ErCu, neutron spectroscopy and mag. props. anal. in terms of crystal field levels 4−72713
- Fe-Co-Cu-V, semi-hard mag. material characts. *(Japanese)* 4−45139
- Fe-Co-Cu-V, semi-hard mag. material characts. and prop. changes on heating *(Japanese)* 4−45140
- Fe-Cu, Mossbauer investig. of solubility of Fe in Cu rel. to temp. *(German)* 4−57730
- Fe-Cu, tempering behaviour after quenching from liq. state *(German)* 4−53706
- Fe-Cu alloy, prep. by vacuum deposition, ageing process, solubility limits *(Japanese)* 4−45626
- Fe-Cu(1 wt.%), age-hardening, grain size and precip. hardening contribs. to mech. props. 4−61423
- Fe-Cu(1.4 at.%), precip. of Cu, field ion microscopy 4−45559
- Fe-Cu(1.4 at.%), precip. of Cu, atom probe analyses 4−45560
- Gd(Ni,Cu)$_2$, magnetic props. and indirect exchange 4−79520
- Ge-Cu, binary liquid, investigation of thermodynamic props. 4−45492
- Ge-Cu liq. systems, thermodynamic props., mass spectrometry obs. 4−45944
- Ge-Cu system alloy form. kinetics 4−70436
- Hf-Cu alloys, hafnium rich, phase diagram, oxidation kinetics and microstruct. *(French)* 4−81639
- Hf-Cu-Hg systems, X-ray anal., HfCuHg$_2$ struct. *(German)* 4−75479
- Mg-Cu-Si, superconducting transition temp., Mg content depend. 4−53172
- Mn-Cu, fine struct. characterised by high damping capacity *(Russian)* 4−73277
- (Ni,Cu)Al, β-phase, rigid band model approach to electron transport props. 4−67197
- Ni-Cu, high field susceptibility meas. up to 300 kOe, rigid band model 4−76060
- Ni-Cu, resistivity, sp. ht., neutron scatt. cross section, giant spin clusters contrib. 4−53236
- Ni-Cu, valence band density of states, X-ray photoelectron spectra obs. *(Russian)* 4−67154
- Ni-Cu-Al, paramag. props. investigation 4−79497
- Ni-Cu-Si system, phase diagram *(Russian)* 4−45539
- Ni-Cu(40 at.%), modulated structure *(Japanese)* 4−61382
- Pb-Cu, internal friction peaks obs., relaxation effects 4−66988

copper alloys continued
Pb-Cu, internal friction phenomena 4−66987
Pb-Cu, thermodynamic props. 4−54089
Pb-Cu-Sb, thermodynamics of intermetallides 4−50214
Pd-Cu-H, pressure-composition isotherms determ. at 303K 4−67767
Pd-Cu-H(D), high supercond. transition temp. 4−53177
ScCu, Knight shift, contact and orbital contribs., 78-300K *(Russian)* 4−49247
Sm-Ce-Co-Fe-Cu, permanent magnet props., cryst. structures 4−79541
Ti-Cu, amorphous phase and metastable solid soln. form. *(Russian)* 4−45536
Ti-Cu(2.5 wt.%) sheet, fatigue crack propag., environment and freq. effects, room temp. 4−49756
UCu_5, mag. susceptibility, antiferromag. transition 4−64191
UCu_5, neutron diffr., mag. struct. 4−57293
UCu_5, standard Gibbs energies determ. by solid electrolyte e.m.f. method 4−51878
UCu_5, standard Gibbs energies of form. from solid-state e.m.f. meas. 4−54093
V-Cu, electronic states and supercond. props., comp. effects 4−64152
V-Cu, nucl. spin-lattice relax. time and Knight shift meas. 4−79622
Zn-Al-Cu, uniaxially stressed, X-ray elastic consts. *(German)* 4−53779
Zn-Cu (up to 2.0 wt.%) alloy, heat treatment, ageing, microstruct., creep resist. 4−70494
Zn-Cu alloys, Doppler broadening of the energy distrib. of annihilation γ-quanta 4−61067
Zn-Cu(0.14 at.%), intergranular failure role of solutes, isothermal and thermal cycling creep 4−82896
Zr-Cu, amorphous phase and metastable solid soln. form. *(Russian)* 4−45536
Zr-Cu-Hg systems, X-ray anal., $ZrCuHg_2$ struct. *(German)* 4−75479
Zr-Mo-Cu, reactor construction material, corrosion properties, effect of organic coolant *(Czechoslovakian)* 4−43648
$Zr_{0.4}Cu_{0.6-x}Fe_x$, amorphous, spin fluctuations and spin-spin interactions, susceptibility and resist. obs. 4−64185

copper compounds
see also copper alloys
acetate monohydrate, Zn-doped and gamma irradiated, ENDOR studies of hyperfine and quadrupole interaction 4−79643
copper porphin, triphenylene matrix, polarized optical absorption and luminescence spectra 4−45331
cuprous halide-pyridine compounds, fluorescence thermochromism *(German)* 4−57615
etioporphin Cu complex, optical and mag. props. effect of complex form. and metal valency *(Russian)* 4−45329
ferrites, dielec. props., comp., freq. and temp. depends. 4−57458
formate tetrahydrate, dimer models for antiferroelectric transition 4−57480
formate tetrahydrate, proton spin-lattice relax. at antiferroelectric transition 4−61059
halide mixed crystals, excitons, coherent potential approximation 4−48947
phthalocyanine, position of Fermi level in δ-model 4−48970
phthalocyanine, protons spin-lattice relax. time meas. at low temp. 4−67483
porphine, matrix-isolated, visible spectrum 4−43827
salicylate adduct with dioxane, cryst. struct. 4−82169
tetrapheylporphin Cu complex, optical and mag. props., effect of complex form. and metal valency *(Russian)* 4−45329
X-ray K absorption edge, Cu in Cu cpds 4−64446
$A^IB_2^{II}C^{III}D_4^{VI}$ semiconductors, A=Cu, Ag; B=Zn, Cd; C=Ga, In; D=Se, Te; synthesis and characterization 4−48765
$Au^{2+}(H_2O)_6$, e.s.r. in Cu^{2+} doped Zn Tutton's salt at 20K 4−76147
$(CH_3NH_3)_2$ $CuCl_4$, magneto-optic study *(German)* 4−79705
CaO-CuO-P_2O_5 glass, i.r. absorp. spectra 4−61144
CaO-V_2O_5-P_2O_5:Cu_2O glass, elec. cond. reln. to exchange interaction between V^{4+} and Cu^{2+} ions 4−75862
$Cd_{1-x}Cu_xCr_2S_4$, mag. props., Cu conc. depend. 4−60945
Cu (II) complexes, 1,8-bis-(2'-pyridyl)-3,6-diazaoctanecopper(II) perchlorate, cryst., mol. struct. determ. 4−78952
Cu complex, $(perylene)_2[CuS_4C_4(CN)_4]$, semicond., prep., elec. cond. investig. 4−70017
Cu complex, $[(CH_3)_3NH]CuCl_3.2H_2O$, low temp. mag. susceptibility and e.s.r. obs. 4−53218
Cu complex, bis(ethylenediamine) Cu(II) nitrate, e.s.r., cryst. field energy levels 4−76138
Cu complex, copper proline dihydrate, e.s.r. spectra, electric field asymmetry study 4−49219
Cu complex, dichlorobis (pyridine) Cu(II) static susceptibility meas. combined with heat capacity and e.s.r. obs. 4−53219
Cu complex, dichloroethylenediamine Cu(II), i.r. spectrum, vibr. assignment 4−63427
Cu complex, electronic and mag. props. investig., angular overlap model 4−78424
Cu complex, linear chain copper acetate-pyrazine interdimer exchange 4−53283
Cu complex, polyethylenepolyaminecopper(II), i.r. spectrum and structure 4−48165
Cu complexes of 2,2'-bipyridine and 1,10-phenanthroline, far-i.r. and Raman obs. 4−53422
Cu complexes tetraphenylporphin and phthalocyanine, X-ray photoelectron spectra 4−52243
Cu cupferrate complex, u.v. and visible spectra, spectral line shift, solvent effect 4−49390
Cu isomorphous salts, scaling and universality hypotheses, verification from specific heat data 4−57240
Cu-Co-Mn-O_2, dispersion, electrokinetics of semicond. materials 4−76607
Cu-Sb-S-I, vitreous, photomodulation absorpt., i.r. region *(Russian)* 4−79736
Cu_2-II-IV-$S_4(Se_4)$ tetrahedral quaternary chalcogenides, synthesis and crystallographic characteriz. 4−60459
$Cu_{1-x}Ag_xMn_3N$, solid solution, first order magnetic transitions 4−67376
$CuAlS_2$, synthesis, elec. and opt. props., doping effects 4−61210
$CuAlS_2$:Fe, absorpt. peaks obs. at 1.3, 2.0 eV 4−53476

copper compounds continued
$CuAlS_2$:Fe^{3+}, near i.r. luminesc. 4−67640
$CuAlS_2$-ZnS, solid soln., cell dimensions, elec. props. 4−44915
$CuAlSe_2$-ZnSe, solid soln., cell dimensions, elec. props. 4−44915
CuB_{24}, single cryst. growth and struct. 4−66877
CuB_{28}, solubility of Cu in rhombohedral B, single crystal diffractometry, rel. to structure 4−63812
$Cu_3B_7O_{13}Br$, ferroelectric, optical absorpt., 2000-30000 cm^{-1}, 77-450K 4−76271
$Cu_3B_7O_{13}Cl$, ferroelectric optical absorpt. 2000-30000 cm^{-1}, 77-450K 4−76271
CuBr, biexciton energy levels 4−75833
CuBr, elastic and piezoelectric consts. anal. 4−57479
CuBr, excitons, degenerate, in mag. field, magneto-optical studies 4−75835
CuBr, n.m.r., hyperfine struct., ${}^{63}Cu/{}^{65}Cu$ moment ratio 4−79609
CuBr, p-d interference effect in extreme u.v. photoelectron spectra of valence bands 4−82789
CuBr, Raman scatt., electrooptic and dielec. props., temp. depend. 4−61159
$CuBr_4^{2-}$, electronic structure and absorption spectra *(Chinese)* 4−64026
CuBr(I), Raman backscatt., first order modes *(French)* 4−61140
$CuBr_2O_4$, ferroelectric, optical absorpt., 2000-30000 cm^{-1}, 77-450K 4−76271
$CuCO_3$:$Cu(OH)_2$, heat effects in amorphous-crystalline transform. 4−67035
CuCl, amorphous, thin films electron diffr., local atomic arrangement 4−75738
CuCl, anharmonicity, meas. of elastic, dielec. and piezoelec. constants 4−60532
CuCl, asymm. anharmonic vibr. of Cu atom, neutron diffr. 4−69754
CuCl, biexciton energy levels 4−75833
CuCl, biexciton states, electron-hole exchange contributions 4−60763
CuCl, elastic and piezoelectric consts. anal. 4−57479
CuCl, energy level spectra of biexcitons and related optical transitions 4−82381
CuCl, exciton contrib. to nonlinear optical susceptibility 4−69083
CuCl, exposure to Cl_2, elec. props. and acceptor levels investig. 4−54085
CuCl, fine structure of excitonic lines calc. using variational methods 4−69999
CuCl, interference of third-order light mixing and second-harmonic exciton generation 4−47380
CuCl, mol., thermal emission spectra, vibr. anal. 4−81769
CuCl, n.m.r., hyperfine struct., ${}^{63}Cu/{}^{65}Cu$ moment ratio 4−79609
CuCl, one phonon-two phonon interactions in Raman scatt. 4−73113
CuCl, p-d interference effect in extreme u.v. photoelectron spectra of valence bands 4−82789
CuCl, Raman scatt. meas., temp. depend., 7 to 295K, uncoupled and coupled-mode theories 4−61160
CuCl, S induced traps as exciton luminesc. killers 4−57620
CuCl, two-photon excitonic absorption in two- and three-band models 4−45327
$CuCl$:$xCuCl_2$, optical absorpt. and e.p.r. spectra meas. at high temp. 4−45341
$CuCl_4^{2-}$, electronic structure and absorption spectra *(Chinese)* 4−64026
$CuCl_4^{2-}$ ion, flattening of tetrahedra estimated by mean mag. moment meas. *(French)* 4−56652
$CuCl_4^{2-}$ ions, electronic absorpt. spectra, rel. to tetrahedra deformation *(French)* 4−56653
$CuCl_4(C_2H_5NH_3)_2$, antiferromag. susceptibility, spin wave theory, crit. behaviour 4−60965
$CuCl_2.2H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4−61043
$CuCr_2O_4$, paramag. susceptibility, temp. depend. meas., Curie const. determ. 4−79494
$CuCr_2S_4(Se_4,Te_4)$, exchange strictions, Curie temp. 4−45110
$CuCr_2Se_4$, Debye effective parameter, X-ray diffr. 4−63876
$CuCr_2Se_4$, X-ray photoelectron spectra, Cu valence state 4−73240
$Cu_yCr_2Se_{4-z}Br_x$ spinels, prep., stochiometry, rel. to Curie temp. 4−64214
CuF_2, mag. and cryst. struct. 4−82569
$CuF_{2-2x}Zn_xTi_xO_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
$CuFe_{2-2x}Ga_{2x}O_4$, cooperative Jahn-Teller distortions, comp. and temp. 4−79135
$CuFeO_2$, in high temp. aqueous systems, formation, reduction and oxidation, thermodynamic data 4−45947
$CuFe_2O_4$, in high temp. aqueous systems, formation, reduction and oxidation, thermodynamic data 4−45947
$CuFe_2O_4$, tetragonally distorted mag. ordering behaviour 4−57342
$CuFeS_2$, absorpt. edge obs. due to charge transfer transitions 4−53476
$CuFeS_2$, electronic struct. calcs., absorpt. band edge 4−53042
$CuFeS_2$, high-temp. nonequilib. supercond. hypothesis *(Russian)* 4−72928
$CuFeS_2$, single cryst., metal-semiconductor transition, 65 kbar 4−72718
$CuFeS_2$:Al(In), cryst. growth and characterisation 4−61319
$CuFe_{2-2x}Zn_xGe_xO_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
$Cu_{1/2}Ga_{1/2}Cr_2S_4$, method for indexing neutron powder diffraction peaks 4−56588
$CuGaS_2$, dielec. const. and electrooptic coeff., const. strain meas. 4−53398
$CuGaS_2$, Raman spectra, lattice vibrs. investig. 4−64389
$CuGaS_2$, vap. grown, electroluminesc., minority carrier injection 4−70366
$CuGaS_2$:Fe, absorpt. peaks obs. at 1.2, 1.9 eV 4−53476
$CuGaS_2$:Fe, electronic struct. calcs., absorpt. spectra 4−53042
$CuGaS_2$:Fe^{3+}, near i.r. luminesc. 4−67640
$CuGaSe_2$, crystal struct., microhardness and sublattice distortion 4−75492
$Cu^{2+}(H_2O)_6$, e.s.r. in Cu^{2+} doped Zn Tutton's salt, Jahn-Teller effect 4−76148
CuI, elastic and piezoelectric consts. anal. 4−57479

copper compounds continued

- CuI, layered film, exciton spectrum obs., quantum size effect 4−57572
- CuI, optical consts. determ. in exciton absorpt. region, 1.2 to 3.54 eV 4−67546
- CuI, optical lbs. of lattice vibrs., theoretical approach 4−56837
- CuI, p-d interference effect in extreme u.v. photoelectron spectra of valence bands 4−82789
- CuI, partial p and d densities of states determ. by u.v. photoemission 4−75764
- CuI, single cryst. growth from soln., and nonlinear optical props. investigation 4−49554
- Cu(I) complex, $CuCl_2 \times 2(NC_5H_5)$, zero point effects in susceptibility obs. 4−76064
- Cu(I) complex, dichloroethane solvate of 2:1 derivative of CuCl and bis(diphenylphosphine)methane 4−48560
- Cu(II) complex, 2-dimens. layer, for i.r. optical phonon spectra 4−73110
- Cu(II) complex, $[Cu_3(C_6H_5\text{-}N_2O)_3(OH)]SO_4.10.5H_2O$, Dzialoshinski interaction *(Russian)* 4−76072
- Cu(II) complex, [5-(2-hydroxyethyl)-4-methylthiazolium] tribromo-[5-(2-hydroxyethyl)-4-methyl-3-thiazolo]Cu 4−78983
- Cu(II) complex, bis{dichloro-[2,6-diacetylpyridinebis(picolinoylhydrazonato)]dicopper(II)}dihydrate, cryst. struct., spectroscopic props. determ. 4−78953
- Cu(II) complex, $Cu(C_{11}ON_2H_{12})_2(NO_3)_2$, cryst. struct. determ. *(French)* 4−78966
- Cu(II) complex, dichlorobis-(9-methyl-6-oxypurine)diaquo Cu(II) trihydrate, cryst., mol. struct. 4−69757
- Cu(II) complex, dinitratobis(antipyrine)Cu(II), cryst. and mol. struct. *(French)* 4−82139
- Cu(II) complex, e.p.r. temp. shift, exchange coupled *(Russian)* 4−82608
- Cu(II) complex, μ_4-oxo-hexa-μ-chlorotetrakis[(pyridine)copper(II)], mag. susceptibility, 1.7-294K 4−67357
- Cu(II) complex, tetraaquo-(9-methyladenine)copper sulphate monohydrate 4−78980
- Cu(II) complex, thiamine hydrochloride-$CuCl_2$, cryst. struct. 4−60433
- Cu(II) complexes, $[Cu(acetate)_2pyridine]_2$ and $[Cu(acetate)_2quinoline]_2$, single cryst. e.s.r. parameters 4−61018
- Cu(II) complexes, with ammonia and pyridine, in NaY zeolite, e.p.r., vibr. investig. 4−73016
- Cu(II) complexes of N,N′-dimethylethylenediamine cryst. struct. 4−52721
- Cu(II) complexes with tridentate amino acids, circular dichroism and electronic spectra 4−61185
- Cu(II) ion complexes adsorbed on interlamellar surfaces of montmorillonite, e.s.r. 4−63976
- Cu(II) Schiff base metal complex study 4−66499
- $CuInSe_2$-2ZnSe, 3d electron contrib. to struct., spectral determ. 4−69985
- $Cu_2Li_2P_6O_{18}$, cryst. data *(French)* 4−63806
- $Cu_2Li_2P_6O_{18}$, cryst. struct. determ. *(French)* 4−78951
- $Cu_3LnS_3(Ln=Sm, Gd, Dy, Yb, Y, Sc)$, synthesis, physicochem. and elec. props. 4−44520
- $Cu(NH_3)_4PtCl_4$, interchain exchange from high temp. spin correlation functions 4−73012
- $Cu(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
- $Cu(NO_3)_2$, in liq. NH_3, e.s.r. h.f.s., 195-300K, relax. mechanisms 4−73015
- CuO-MgO-GeO_2 system, thermodynamic relations among olivine, spinel and phenacite structs. 4−72555
- Cu_2O, 'forbidden' resonance Raman scatt., scatt. tensors calc. 4−70306
- Cu_2O, Cu_2O-Zn(Mg)O solid solutions, chemisorption of O_2, e.p.r. obs. 4−48851
- Cu_2O, dispersive Raman modes, phonon dispersion and exciton mass 4−45300
- Cu_2O, exciton origin of structure of magnetoabsorption 4−79753
- Cu_2O, n=1 exciton line of green series 4−79744
- Cu_2O, single crystal growth and microstructural control 4−73254
- Cu_2O, single crystals, electrical conduction phenomena, model 4−70022
- Cu_2O, Stark effect of Wannier Mott excitons, use of Gaussian pot. and Feynman path integrals 4−48945
- Cu_2O, yellow exciton series, binding energy 4−57056
- Cu_2O crystal, polarised light electroabsorpt. in yellow exciton series region, theory 4−67607
- Cu_xO, switching, expt. and model 4−53128
- $CuO.P_2O_5.V_2O_t$, I-V characts., strong electric field effects 4−57103
- $CuRh_2Se_4$, n.m.r., hyperfine struct., $^{63}Cu/^{65}Cu$ moment ratio 4−79609
- CuS, sulphur Kβ emission spectra and electronic struct. 4−79809
- CuS, X-ray Kβ spectra of S *(Russian)* 4−45373
- $CuS \rightarrow Cu_{2-x}S$ transformation, kinetics, electron diffr. obs. 4−48757
- CuS_2, mag. susceptibility and n.m.r. meas., 4.2 to 300K 4−45196
- Cu_2S, solubility of H using $H_2/H_2O(H_2S)$ gas mixtures 4−48762
- Cu_2S-CdS, heterojunction photovoltaic cell, heat treatment effects 4−60824
- Cu_2S-Ge heterojunction, surface field effect in piezoreflectance spectra 4−76277
- Cu_2S-Sb_2S_3 system, investigation at 320-400°C 4−67033
- $Cu_{2-\delta}S$, cubic, homogeneity range, high temp. 4−72554
- Cu_xS, x=2.000 to 1.960, phase diagram determ. by e.m.f. meas. of $Cu/CuBr/Cu_{2-\varepsilon}S/C$ cell *(French)* 4−56857
- $CuSO_4$, electrolyte soln., laminar flow, Cu^{2+} electroreduction, diffusion investig. rel. to temp. 4−54036
- $CuSO_4$ aqueous solution high voltage divider 4−71222
- $CuSO_4$:gel, X-ray laser expts., theoretical model, possible wavelengths 4−47332
- $CuSO_4$:gelatin, expt. attempts to confirm X-ray lasing 4−43278
- $CuSO_4.3H_2O \rightarrow CuSO_4H_2O + 2H_2O$ thermogravimetric-X-ray diffr. simultaneous meas. during reaction 4−59014
- $CuSO_4.5H_2O$ dehydration reaction, adiabatic scanning calorimeter obs. 4−46597
- $Cu_{2-x}S(Se)$ and solid solns., lattice struct. and consts., X-ray investig. 4−48575
- Cu_2STe, effective meas. of carriers, refl. spectra 4−72701

copper compounds continued

- $CuSnF_6.4H_2O$, Mossbauer ^{119}Sn chem. shifts 4−79646
- Cu_2SnSe_3, phase diag. during melting, phase transitions, microstruct. 4−44671
- CuTe, Cu_2Te, liq. struct., neutron diffr. 4−75441
- $Cu_{2-x}Te$, film, growth, optimum thickness, reactive diffusion of Cu, Hall mobility 4−45443
- $Cu_{2-x}Te$, semicond., mech. strength and plasticity 4−52806
- $Cu_2Te_{0.68}S_{0.32}$, heat treatment and Mossbauer effect, conductivity 4−67494
- Cu_2UBr_6, cubic cryst., relative intensities in vibronic Zeeman effect 4−73114
- CuV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4−72448
- $Cu_xV_2O_5$, d-d overlap estimate from e.s.r. meas. 4−82613
- $CuWO_4$ small-dimens. antiferromag., mag. dilution effect on crit. temp. *(Russian)* 4−72971
- Cu_2XTe_3, X=Si, Ge, Sn, correlation between Mossbauer meas. and anomalous electronegativity 4−49282
- Cu complexes of phthalocyanine and tetrazaporphin, extended Huckel calculations 4−52049
- $K_2CuCl_4.2H_2O$, polycryst., i.r. spectra of water mol. 4−64368
- K_2CuF_4, ferromagnetic, optical properties and spin dynamics 4−79514
- MnO-CoO-CuO sinters, thermoelec. props. rel. to thermistor applic. *(Polish)* 4−57117
- NiCoCuMn ferrite, piezomagnetic, static mag. props. 4−64252
- NiS_2-CuS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
- ZrCuSiAs, filled PbFCl type 4−75497

copper-oxide rectifiers

- No entries

copper zinc alloys *see brass*

copying *see reproduction (copying)*

Corbino effect

- *see also Hall effect*
- semiconductor, double and single injection structures 4−60811

core stores (magnetic) *see magnetic core stores*

Coriolis force

- *see also rotation*
- acetonitrile i.r. spectra, Coriolis reson. anal. 4−72184
- anti-pairing transition in simplified shell metal with R(5) × R(5) symmetry 4−43470
- education, centripetal and Coriolis accels., expt., quantitative meas. 4−73951
- ethane, i.r. spectrum, $\nu_{12}+\nu_4$, ν_8 and ν_6 bands 4−43849
- formaldehyde-d_2, rot., vibr. struct. and Coriolis perturbations 4−56200
- group-V trihalides, vapour phase Raman spectra, Raman band contour anal., Coriolis and force const, thermodynamic functions 4−66437
- methyl acetylene, deuterated, vibr.-rot. spectra, Coriolis reson. 4−56229
- methyl bromide, high resolution i.r. spectra assignment, Coriolis interaction 4−56227
- methyl bromide, high resolution i.r. spectra assignment, Coriolis interaction 4−56228
- MHD waves, Coriolis force influence 4−52478
- molecular tetrahedral ions, XY_4, vibrs., Coriolis coupling consts. 4−60033
- molecules, axial symmetric, coupling effect on angular correlation functions *(German)* 4−78429
- plasma wave dispersion and stability in presence of Coriolis force 4−48411
- Poiseuille flow, Coriolis force effect on stability 4−43998
- rare-earth nuclei, perturbation effects for $K^\pi=3/2^-$ bands 4−63093
- rotating cylinder of gas centrifuge, scaling analysis, field of flow 4−81861
- rotating magnetoplasma, low freq. flute instability anal. 4−44201
- three body problem, adiabatic representation *(Russian)* 4−77528
- zones of divergence and convergence, formation, near shore *(Russian)* 4−70682
- $AsCl_6^-$, valence force consts., Coriolis coupling, mean vibr. amplitude 4−56153
- CO_2, vib. relax., effect of vib-rot. interactions 4−69534
- Dy, odd mass, effects of Coriolis coupling on N=5 orbitals 4−81461
- Er odd-mass isotopes, decoupling in positive parity rotational bands 4−47631
- $GeCl_6^-$, valence force consts., Coriolis coupling, mean vibr. amplitude 4−56153
- PCl_6^-, valence force consts., Coriolis coupling, mean vibr. amplitude 4−56153
- PCl_4F, Coriolis coupling constants calc. 4−43803
- $POCl_3(F_3)$, vapour phase Raman spectra, Coriolis force consts., thermodynamic functions determ. 4−63433
- $PSCl_3$, vapour phase Raman spectra, Coriolis force consts., thermodynamic functions determ. 4−63433
- $SbCl_6^-$, valence force consts., Coriolis coupling, mean vibr. amplitude 4−56153
- $SnCl_6^-$, valence force consts., Coriolis coupling, mean vibr. amplitude 4−56153
- $VOCl_3(F_3)$, vapour phase Raman spectra, Coriolis force consts., thermodynamic functions determ. 4−63433

cornea *see eye*

corona

- *see also electric breakdown; flashover; solar corona*
- a.c., oxidants prod., environment effects 4−48457
- air, corona discharge, neutral and charged particle influence on subsequent one 4−75388
- air, corona inception, sparking potential, Trichel pulses 4−75387
- air gap discharges, long, 1973 results *(French, English)* 4−82048
- d.c. corona discharge in air filled ozonizer, pulsed emission decay 4−66779
- discharge characteristic control by changing corona form 4−75393
- discharge development field distrib. effects 4−75376
- discharge in flowing gases, prebreakdown corona 4−75400
- discharge of wire electrode, pulsating negative voltage effect 4−75389
- Hermstein glow corona, quasi-uniform field 4−75385

corona continued
impulse corona, air ionisation effect 4−75394
inception voltage, effect of gas config. 4−78858
long point/plane gap initial corona development 4−75374
negative corona discharge, energy transfer to anode surface 4−75384
negative corona pulse characteristics 4−75392
positive point-to-plane corona discharge, Hermstein glow 4−75391
positive point/plane gap, switching surges, final arc development 4−75371
positive rod-plane gap in air, onset voltage, calc. 4−69675
prebreakdown currents, anomalous increase in nonuniform field gap by water vapour addition 4−75386
static elimination using corona discharge with electrical screening 4−47275
stellar, extrapolation from solar obs. 4−58285
switching-impulse-breakdown, long air-gap, first corona delay depend. 4−75379
transmission lines, discharges, water drops, freezing temp. range, expt. 4−56556
transmission lines, monopolar d.c. corona losses, space charge effects 4−78834
CdS, powder layers, charging props., heat treatment effect 4−60842
He metastable atomic beam source using nozzle 4−56044
SiO_2, surface charging, ZnS field effect modulated photoluminesc. 4−45351

coronagraphs
see also solar corona
No entries

corpuscular streams *see cosmic rays; solar corpuscular radiation*

correlation methods
see also correlators
acoustic transducer array radiation impedance determ. 4−50967
alphanumeric characters, holographic reading limitations 4−51069
cervical cancer radiotherapy, ret dosage correl. with selected complications 4−46437
complex Weiner filter for seismic data processing 4−61886
correlated temperatures, expansion to clad and fuel design anal. 4−71983
cross-correlation function, brain regions, spindle activity correlation 4−71093
digital, stereopair of photographs evaluation, using analytical plotter 4−46720
digital photocount autocorrelation, statistics of photocount products 4−71515
image coincidence detection, optical correlation method 4−46731
interferogram interpretation, random multiplicative noise attenuation 4−51061
Kirkwood-Rice-Allnatt, kinetic theory, transport in liqs. 4−69927
light beam propagated through turbulence, intensity correlation function meas. *(Russian)* 4−51520
light intensity fluctuations, using variable diameter aperture, measurement *(Russian)* 4−77624
meteorological elements, random sample anal. of daily means *(German)* 4−61800
optical deconvolution of seismic traces *(French)* 4−61892
optoelectronic fault detection in laminar objects *(German)* 4−53933
radioastronomy, hybrid correlator for interferometric obs. 4−62237
rainfall, apparent periodicity, Fortaleza, Ceara, Brazil 4−61798
slurry of powder particle size analyser using optical statistical method *(Japanese)* 4−50041
steel, mechanical characteristics, interrelationships between different props. of various steels 4−49765

correlation theory
see also correlators; information theory
autocorrelation clipper bias, real-time compensation 4−62231
confidence intervals for exptl. correlation functions *(Russian)* 4−50944
correlation spectrometers, quantization noise 4−62230
first-order measurement systems, correlation functions for random changes in time constant *(Russian)* 4−62406
hum-contaminated correlation functions, restoration 4−55081
maximum entropy spectral analysis in radioastronomy 4−62232
ocean surface, directional correlation functions 4−61720
seismic autocorrelation function determ. *(Russian)* 4−54140
thin plate and baffle, spatial correlation function in gap between *(Russian)* 4−54761

correlators
see also correlation methods; correlation theory; information theory
correlation analyser of digital signal for quantum optics, statistics 4−68666
correlation search coil magnetometer for artificial satellite 4−71075
cross correlation flowmeter, using u.s. transducer 4−46981
digital, fast, for weak optical signals 4−71199
self-tracking, used in photoelectric velocity meas. 4−58742

correspondence principle
basis for nonsymmetric generalisation of general relativity giving unified theory 4−71408
diatomic molecule, excitation by atoms, strong coupling correspondence principle 4−75055
electron self-energy problem, correspondence principle violation *(Russian)* 4−74380
friction, quantised, determ. of non-linear, time-dependent Schrodinger eqn. 4−55327
Groenwald rule, double limiting transition *(Russian)* 4−65726
large angle scattering, correspondence principle relating inclusive and exclusive processes 4−55626
quantum mechanical operators, ordering process in generalized coords. 4−55306
quantum riddle solved using principles of symmetry, covariance and correspondence 4−47144
N_2 + Ne, rot. excitation, strong coupling correspondence principle 4−75055

corrosion
see also corrosion protection; electrochemistry; surface chemistry
aeronautic materials testing, acoustic emission applic. *(French)* 4−73397
aircraft wing plank slices, holographic NDT 4−46684
alloy, stress corrosion cracking, fracture mechanics role 4−45615

corrosion continued
alloys, superheated, high-press. steam loop, high heat fluxes *(German)* 4−82887
brass, dezincification test based on potentiostatic polarisation 4−49745
brass, machinability, aqueous copper-ammonium complex solns. influence *(Russian)* 4−45601
α-brass, stress corrosion cracking in aliphatic amine solns. 4−49746
cladding material, fast breeder reactor fuel, Na corrosion, mechanical props. *(Spanish)* 4−78228
constructional materials, corrosion cracking susceptibility determ. method *(Russian)* 4−53728
corrodescope, contour mapping pat. profiles, pitting phenomena study 4−62554
cracking, device static or pulsating loads 4−67975
fatigue, low-cycle testing apparatus *(Russian)* 4−53936
fine wire, corrosion-fatigue testing 4−50062
fretting corrosion, metal fatigue testing, transverse bending 4−83008
gamma radiation exposed materials, testing, design of corrosion expts. 4−76566
LMFBR oxide fuel-cladding interaction problems 4−55919
long term strength and creep, material exposed to radiation in corrosive media 4−83007
metal, stress corrosion cracking, minor components mass transfer in crack 4−76465
oxide scale, calc. of relative layer thicknesses, two component scale 4−82327
polarization curves shape in vicinity of corrosion pot. 4−50171
radioactive corrosion product transport in LMFBR, computer simulation 4−81570
steel, austenitic, intergranular corrosion sensitivity and nitride precip. *(German)* 4−53675
steel, austenitic, low-cycle failure resist. in chlorides at high temps. and press. *(Russian)* 4−45599
steel, austenitic Mn-Cr type, stress corrosion cracking resist. in conc. chloride solns. *(Czech)* 4−79999
steel, austenitic stainless, eval. tests for detection of intergranular corrosion susceptibility 4−49755
steel, compatibility in liquid In and In-Ga alloys 4−71997
steel, corrosion fatigue in acid media, halogen anions effect on inhibitory protection effectiveness *(Russian)* 4−53730
steel, crack-branching meas. applics. 4−49859
steel, durability in borax soln., influence of fittings *(Russian)* 4−53940
steel, embrittlement by hydrogen, stress intensities for slow crack growth 4−49787
steel, fatigue- and corrosion-resistance in contact interaction regions *(Russian)* 4−45598
steel, ferritic, in LMFBR steam generator, water-side corrosion processes 4−81659
steel, ferritic and austenitic, deformed, potentiodynamic curves, heat treatment influence *(French)* 4−45695
steel, high-strength, P and S effect on hydrogen absorpt. and corrosion cracking susceptibility 4−82929
steel, high-strength crack growth rate during corrosion cracking, cathodic polarisation effect *(Russian)* 4−73316
steel, intergranular self-diffusion and corrosion *(French)* 4−53690
steel, low-alloy, intercryst. stress corrosion cracking *(German)* 4−45579
steel, low-alloy, stress corrosion cracking in acetate solns. 4−45589
steel, low-alloyed, corrosion resistance in eutectic Al_2Br_6 and Al_2Cl_6 mixtures *(Russian)* 4−45706
steel, low-C, magnesium and boron effect on struct. and corrosion resist. 4−82924
steel, maraging, crack growth, cyclic freq. and corrosive environment effects 4−50115
steel, maraging, sustained load subcritical flaw growth characts. 4−50116
steel, maraging and martensitic stainless, endurance in air and water comparison *(French)* 4−49798
steel, martensite aged, optimum conditions for performance in active media *(Russian)* 4−53734
steel, mild, surface treatment influence on pitting pot. 4−49744
steel, Na/water leak sites, reactor heat exchangers, chem. of wastage in flame region 4−81622
steel, Ni-Cr-Mo-V type, temp. influence on corrosion fatigue crack propag. 4−76475
steel, stainless, 18 Cr ferritic, impurity effects on stress corrosion cracking 4−67847
steel, stainless, austenitic, caustic stress corrosion cracking 4−64573
steel, stainless, austenitic, durability on low-cycle torsion in hot chloride and alkali solns. 4−61462
steel, stainless, corrosion product transport in Li cooled primary circuits in fusion reactors 4−51911
steel, stainless, high-purity ferritic, high temp. props. 4−57746
steel, stainless, intercryst. corrosion and impact strength, precip. of carbides 4−79950
steel, stainless, intercryst. corrosion rel. to thermodynamic characts. of carbides 4−79949
steel, stainless, stress corrosion cracking 4−45616
steel, stainless austenitic, weld overlays, stress corrosion cracking in high temp. water *(Japanese)* 4−45631
steel, stainless ferritic 18 Cr, impurity effects on stress corrosion cracking *(Japanese)* 4−67851
steel, tempering under stress influence on resist. to dynamic loads and stress corrosion *(Russian)* 4−76462
steel, type 304, stress corrosion cracking 4−49752
steel, vacuum-diffusion Cr plating influence *(Russian)* 4−53720
steel, with protective coating, kinetics of crack development during corrosion-fatigue 4−67970
stress corrosion cracking, fluid flow in propagating crack analysis 4−82911
stress corrosion cracking, hydrogen pump model 4−53764
Zircaloy cladding tubes, quality determ. using stat. eval. of materials props. *(German)* 4−51897
Al alloy 2024-T850, sustained load subcritical flaw growth characts. 4−50116
Al alloy 2024-T851, crack growth, cyclic freq. and corrosive environment effects 4−50115

corrosion continued
Al alloy 7075-T6, fatigue crack growth rates, effect of specimen polarisation 4—45677
Al alloys, fracture toughness and stress corrosion cracking behaviour 4—49742
Al-Cu (3.7 wt.%) alloy, solidification microstruct. effect on corrosion behaviour 4—49775
Al-Cu (4.4 mass %) alloy, solute depleted zone effect on stress-corrosion susceptibility 4—57752
Al-Cu alloy, columnar, solidification microstruct. effect on corrosion behaviour 4—49791
Al-Mg (7.2 mass %) alloy, solute depleted zone effect on stress-corrosion susceptibility 4—57752
Al-Zn-Mg alloy, SCC vel. and grain boundary precipitates 4—80007
Al-Zn-Mg alloy, stress corrosion susceptibility, heat treatment influence 4—45648
Al-Zn-Mg alloy, trace Ag additions influence on stress corrosion 4—49743
Al-Zn-Mg alloys, stress corrosion cracking, microstructure 4—70594
Al-Zn-Mg alloys, stress corrosion of normal and welded specimens *(Russian)* 4—73317
Al_2O_3, corundum, etching of surfaces with molten V_2O_5 4—64609
Cu alloys, stress corrosion cracking 4—45617
Cu wire, creep, applied pot. and surface dissolution effect 4—61399
Fe, acid corrosion inhibitor action mechanisms, EHT calcs. *(German)* 4—79241
Fe, carbonyl type, surface treatment influence on pitting pot. 4—49744
Fe, electrochemical behaviour in crevices in chloride solns. 4—76466
Fe, thin oxide layer formation and props. 4—60697
Fe-Cr-Mo alloys, pitting resistant, development 4—61410
Fe-Cr-Mo alloys 4—64544
Fe-Cr-Ni alloys, high-purity, stress corrosion, additive effects *(French)* 4—45693
Fe-Cr-Ni alloys, stress corrosion cracking 4—45616
Ge_3N_4, resist. to acids and alkalis 4—49586
Li_2BeF_4, molten, corrosion control in fusion reactors 4—51912
Mg-Al, Mg-Mn and Mg-Al-Mn alloys, phase comp. influence on corrosion behaviour *(Russian)* 4—45714
Mg-Al alloy, stress role in stress corrosion cracking 4—49754
Mg-Be alloy, reactor construction material, effect of organic coolant *(Czechoslovakian)* 4—43648
Mg-In (20-30 at.%Mg), positron study indicating macroscopic breakdown 4—79063
MgO, stress corrosion cracking, four-point bend and static fatigue tests 4—73358
Mn-Ni-Fe antiferromag. Elinvar-type alloy characts. 4—79567
Mo_5Ru_3 films, high corrosion resist. 4—45660
Ni-Cr-Fe alloy, corrosion behaviour in nuclear once-through steam generator service 4—81660
SiC, self-bonded REFEL, active to passive oxidation transition, effect of fission fragment irradiation 4—81623
Ti alloys, compatibility in liquid In and In-Ga alloys 4—71997
Ti and alloys, effect of oxygen 4—76484
Ti and alloys, effect of oxygen 4—76487
Ti and alloys, stability in liq. In and In-Ga alloys *(Russian)* 4—53725
Ti and alloys, subcritical cracking, river markings form. 4—45584
Ti-Al alloys, hydrogen embrittlement role in stress corrosion cracking 4—49753
Ti-Al-Mo-V, stress corrosion cracking, effect of H_2 4—82328
Ti-Al-Mo-V alloy, stress corrosion cracking in chloride containing liq. environment 4—61422
Ti-Al-V alloy, stress corrosion cracking in NaCl aqueous soln. obs. 4—53749
Ti-Al-V alloys, crack growth, cyclic freq. and corrosive environment effects 4—50115
Ti-Al-V alloys, sustained load subcritical flaw growth characts. 4—50116
Ti-Al(8 wt.%) alloy, surface slip topography rel. to stress corrosion cracking 4—61411
Ti-Cu(2.5 wt.%) sheet, fatigue crack propag., environment and freq. effects, room temp. 4—49756
V and V-Ti-Nb alloys, stability in liq. Li at 700°C *(German)* 4—59845
WC-Co heterogeneous system, anodic polarisation and passivity *(Russian)* 4—53794
W_3Ru_2 films, high corrosion resist. 4—45660
Zr alloy corrosion parameters in advanced test reactor 4—66268
Zr alloys as replacements for Zircaloy-2, corrosion characteristics 4—66263
Zr-Cr-Fe, β-quenched, effect of microstructure and lattice strain on corrosion resistance and mechanical props. 4—64594
Zr-Mo-Cu alloy, reactor construction material, effect of organic coolant *(Czechoslovakian)* 4—43648
Zr_3Al alloys, corrosion by CO_2 and CO_2-water vapour mixture 4—72000

corrosion control *see corrosion protection*

corrosion prevention *see corrosion protection*

corrosion protection
see also corrosion; packaging; pH control; protective coatings
cathodic, underground storage tanks of PTT buildings *(German)* 4—64590
ferritic and austenitic steels, chromium-rich tarnish films 4—45588
nuclear plant decontamination procedures following buildup of radioactive corrosion products 4—81566
Ni alloy, IN-100, pack aluminide coating form. 4—76467
Zr alloys, oxidation-resistant coating development 4—64593

cosmic dust
see also meteoroids
absorption of cosmic soft X-rays 4—46329
alignment of interstellar dust clouds 4—73862
charged dust spheres, soln. to Einstein-Maxwell eqns. in implicit form 4—55349
charged dust spheres, solns. of Einstein-Maxwell eqns. for isotropic collapse 4—59274
circular polarisation from survey of 84 bright stars 4—62217
circumsolar dust grains, dynamics 4—65135
circumstellar origin, i.r. emission processes 4—46340

cosmic dust continued
cloud behind Orion cluster, H, H_2Co obs. 4—46325
cool stars, dust grain ejection, interaction with interstellar clouds 4—46337
Crab Nebula, interstellar circular polarization, dielectric composition 4—46315
Crab Nebula, remnant dust envelope model, modulation of u.v. and i.r. luminosities 4—58377
dark clouds, NH_3 27.7 GHz line obs. 4—54573
dense dust cloud genetic relation with ordinary interstellar clouds by gravitational collapse 4—46326
dirty ice mantle destruction by sputtering of He atoms 4—46336
early-type stars, wavelength dependence rel. to interstellar grain alignment 4—58433
element underabundance, effects of new star formation and supernova explosions 4—80666
exploding interstellar grains, source of interstellar organic molecules 4—46339
galactic centre, spectrum in 8-13.5 μ region and interstellar silicate 4—73809
galactic dust distrib. from colour excess in close star couples 4—46321
galaxies, light polarization by interstellar dust 4—46282
gas phase production of molecules in dust clouds 4—46298
grain alignment by beams of particles or light 4—76919
grain alignment by magnetic relaxation, comparison of Monte Carlo and Fokker-Planck methods 4—46317
grain composition, use of circular optical polarization 4—46314
grains, linear interstellar polarization meas. in u.v. and i.r. 4—58435
graphite, silicate and Fe particles, extinction and refractive indices 4—71063
graphite, thermal accommodation coeff. 4—46332
graphite grains, interaction with hot gas 4—62215
graphite grains, optical and photoemission props. rel. to interstellar extinction 4—46331
graphite grains in hot gas, supernova remnants 4—62216
H II regions, tight mixing of neutral gas and dust with ionized gas 4—46309
high galactic latitudes, interstellar reddening, Stromgren four colour and $H\beta$ photometry 4—46327
interplanetary dust particles in solar elliptic orbits, nongravitational effects on evolution 4—46204
interstellar, detection, origin and importance in physics of interstellar space *(French)* 4—50723
interstellar and circumstellar, rel. to star formation 4—58450
interstellar clouds, H I content 21 cm line obs. 4—46323
interstellar dust grains in region of local disturbance 4—80667
interstellar grains, wavelength of maximum polarization 4—58434
interstellar reddening correlation with $L\alpha$ absorption in 61 star, OAO-2 obs. 4—46324
ion implantation effects 4—58449
K3-50, compact H II region,, i.r. spectrophotometry rel. to interstellar reddening 4—50704
Khavtassi 3, HI 21-cm-line obs. of dark cloud 4—58447
L1534, dense dust cloud, H, OH, H_2CO line obs. 4—46325
laboratory simulation, hydrocarbon matrices, absorption features in 5400-5800 Å range 4—46334
M 31, dust distrib. and kinematics, photographic obs. 4—46283
magnetite, optical props. in near i.r. to far u.v. rel. to possible interstellar importance 4—46330
molecular abundances and formation on grain surfaces 4—46338
molecular distrib. in dust clouds from lab. expts. 4—46299
NGC 6857, planetary nebula, i.r. spectrophotometry rel. to interstellar reddening 4—50704
normal galaxies, reddening effect in central regions *(Russian)* 4—71047
nucleation props. of silica, Fe and C particles 4—46333
olivine, optical props. in near i.r. to far u.v. rel. to possible interstellar importance 4—46330
orion molecular cloud, 350 μ mapping and thermal radiation from dust 4—73837
Orion Nebula region, dust and gas in molecular cloud, radio obs. 4—50695
photoelectron emission due to u.v. stellar radiation 4—46335
photon and magnetic alignment, cooperative effect 4—46319
planetary nebulae i.r. spectrum from dust calc. 4—73861
planetary nebulae radiometry at 15.5 GHz rel. to interstellar extinction and O^{2+}/H^+ abundances 4—54587
polarisation at 4430A and 5780A features in HD 183143 4—50721
relative chemical abundance in dust clouds and unshielded cold clouds 4—46295
silicate extinction, quantitative study 4—80665
solar neighbourhood, dust distrib. from const. mass method of distance to planetary nebulae 4—46322
supernova envelopes, test for existence of dust from Ca II emission spectrum 4—83218
supernova luminosity in u.v. and i.r., modulation by dust grains 4—50616
suprathermal grains, electric charge and acceleration 4—58448
viscous universes, dust-filled, integration of Friedmann eqn. 4—58211
CH and CH^+ from grain mantle evaporation 4—73841
H I gas-dust association, 21 cm line strength and narrow emission line components 4—46304
H II region i.r. emission by dust grains 4—80655
H II regions, i.r. excess and dust grain absorption of trapped Lyman α photons 4—54567
HI in dense interstellar dust clouds, 21-cm. line profiles 4—58446

cosmic radiation *see cosmic rays*

cosmic radiations, radiofrequency *see radiofrequency cosmic radiation*

cosmic radio waves *see radiofrequency cosmic radiation*

cosmic ray absorption
No entries

cosmic ray alpha-particles and helium nuclei
galactic, solar modulation during 1965 to 1968 4—68302
HEOS-2 obs. of MeV electrons, protons and alpha particles during 1972, August 2-12 events 4—61960

cosmic ray alpha-particles and helium nuclei continued
- interplanetary particle fluxes from solar events, OV5-6 satellite obs. 4−62031
- interplanetary shock waves, proton and α-particle enhancements 4−83196
- nuclear interactions, 10^{12}-10^{13}eV, meas. using photoemulsion piles on satellite *(Russian)* 4−65025
- primary, energies $E_p \sim 10^{18}$ eV, from fluctuation studies of EAS 4−58173
- solar, flux at Earth during 1972 Oct 29-Nov 3 event 4−61963
- solar electron, proton, and alpha-particle obs. during 1972 August event 4−61961
- solar He nuclei, Alfvenic acceleration in wind 4−50463
- solar wind, α-particle bulk velocities, discrepancy between HEOS 1 and Explorer 34 obs. 4−54399
- solar wind, He^{2+} to H^+ temp. ratio 4−68344
- spallation cross-section meas. at 920 MeV on ^{27}Al, ^{16}O, ^{12}C and ^{9}Be 4−63193
- ^{3}He, ^{4}He, >1 GeV/nucleon, abundance ratio, in primary cosmic rays *(Russian)* 4−83162

cosmic ray apparatus
- *see also particle detectors*
- acoustic recording of single γ-rays and multiply-charged ions at relativistic energies *(Russian)* 4−55040
- Deep River neutron monitor, response to solar cosmic ray flux anisotropy 4−62521
- discharge-diffusion camera with high-sensitivity region, charged particle track recording *(Russian)* 4−55071
- EAS, data recording and reading system for coordinated hodoscope-scintillation detectors *(Russian)* 4−58172
- EAS, ionized radiation and low energy muon detectors, efficiency calcs. *(Russian)* 4−58169
- flash tube chamber, search for quarks in EAS 4−59667
- fluid scintillation counters for obs. of nuclear interactions of muons, energies up to 10^{13} eV *(Russian)* 4−65034
- gamma telescope using scintillation, Cherenkov counters, spark chamber, cosmic gammas $\geqslant 100$ MeV, meas. *(Russian)* 4−83262
- gas scintillator, large, spherical high altitude flight, primary cosmic ray detect. 4−68778
- hadron identification, $\varepsilon \geqslant 300$ GeV, based on transient radiation detector 4−77171
- hodoscope counter, electronic circuit for elimination of two or more events 4−58934
- hodoscope for momentum analysis of particles in magnetooptical channels 4−74143
- hodoscope system, fast digital coder connected with CAMAC dataway 4−55089
- ionisation calorimeter, for obs. of nuclear interactions of primary cosmic rays *(Russian)* 4−65025
- ionisation calorimeter, liquid Ar, detection of e.m. and hadronic showers 4−77181
- ionisation calorimeter type device, investigation of errors in μ energy spectra measurements *(Russian)* 4−80444
- magnetic spectrometer, balloon-borne, for primary positron-electron ratio determ. 4−58162
- magnetic spectrometer for underground muon obs. *(Russian)* 4−62535
- Molniya-1 satellite, low energy electron and proton spectrometer 4−65529
- multi-spacecraft meas. of solar particle events in 20th cycle rel. to catalogue 4−62267
- multiwire proportional chamber horizontal muon spectrum meas. 4−71231
- multiwire proportional counter hodoscopes for trajectory meas., efficient read-out system 4−55046
- muon telescopes, instrumental variations, continuous determ. 4−65530
- muon telescopes, response functions at sea level and 60 m.w.e. 4−58921
- muon twin telescopes, coupling constant determ. 4−58190
- neutron moderated detector for analysing cosmic ray events 4−77187
- neutron monitor, evaporation neutron detection efficiency meas. 4−83166
- neutron monitor Lomnicky stit 4-NM-64 data processing system and reliability tests 4−65514
- neutron supermonitor, multichannel, quality of data *(Russian)* 4−77170
- nuclear emulsion, thick-layer, for recording transitional radiation in X-ray region *(Russian)* 4−55072
- nuclear emulsions, strong γ-ray background removed by pulsed electric field 4−77193
- nuclear interaction investigation, review of useful equipment *(Russian)* 4−65023
- particle spectrometer system for low-energy interplanetary particle meas. 4−54603
- particle track detection for chemical composition mapping 4−80396
- photoemulsion pile, for obs. of nuclear interactions of primary cosmic rays *(Russian)* 4−65025
- plastic detectors, for obs. of isotopic components of primary cosmic rays 4−81006
- Prognoz satellites, equipment for studying charged-particle fluxes 4−54597
- Prognoz satellites, instruments for recording cosmic ray ionizing component 4−54598
- Prognoz unmanned stations, cosmic ray instrumentation 4−65528
- Sanae neutron monitor, effect of snow level on counting rate 4−77188
- satellite anisotropy meas. spherical harmonic anal. 4−62529
- scintillation and Cherenkov counters for meas. of flux and spectrum of 10^{8} eV electrons 4−54596
- scintillation counter, thick fluid, for particle density meas. in EAS *(Russian)* 4−58171
- scintillation counters, shaped systems for cosmic gamma-ray detection 4−46841
- scintillation detector, fluid, for underground meas. of μ-e decay intensity *(Russian)* 4−58189
- scintillation detector of area 200 m^2, appl. to intensity variations and EAS obs. *(Russian)* 4−62520
- spark chamber assembly, performance 4−65523
- X-ray emulsion camera, photometric density of spots caused in hadron blocks by nuclear-electron cascades *(Russian)* 4−65029
- γ-ray detector, Pb-glass energy calorimeter 4−46854
- Ne flash tubes, low-pressure, operational characteristics 4−55062

cosmic ray composition
- *see also cosmic ray alpha-particles and helium nuclei; cosmic ray deuterons; cosmic ray electrons; cosmic ray mesons; cosmic ray muons; cosmic ray neutrinos; cosmic ray nucleons; cosmic ray photons*
- charge composition of nuclei between 4 and 100 GV, balloon-borne meas. 4−61965
- diffusion of galactic cosmic rays, energy depend. *(Russian)* 4−80426
- EAS, energy absorption in shower stem *(Russian)* 4−58164
- electron-nuclear cascades in dense substance above 200 GeV *(Russian)* 4−58163
- energetic, spatial characteristics, cosmic rays in August 1972, linked to effects on Sun *(Russian)* 4−83163
- hadron charge ratios in secondary cosmic rays, anomalies in calculated values 4−65021
- hadron families in range 2 to 20 TeV, differential energy spectrum *(Russian)* 4−58158
- hadrons, $\varepsilon \geqslant 300$ GeV, device for identification using transient radiation 4−77171
- heavy particle search, singly charged, mass $>$ approx. $6\,m_p$ 4−68304
- interactions in atmosphere, influence of hadron component composition on plurality of γ-quanta *(Russian)* 4−65031
- interplanetary heavy ion composition anomalies, 0.01-40 MeV per amu 4−62088
- interstellar B, upper limit in Ophiuchi direction from B II 1362.461 A line obs. 4−58437
- isotopic anal. by Earth's magnetic field using Monte Carlo methods 4−65013
- isotopic components detection using plastic detectors 4−81006
- nuclei above 1.3 GeV n^{-1} and 23 GeV n^{-1} 4−50424
- nuclei above 20 GeV per nucleon, charge composition and energy spectra 4−80440
- particle track detection for chemical composition mapping 4−80396
- primary, energies $E_p \sim 10^{18}$ eV, from fluctuation studies of EAS 4−58173
- shower spectrum anal. at 1850 metres above sea level *(Russian)* 4−58159
- solar flare transiron nuclei, Apollo 16 command module obs. 4−70853
- solar particle energy spectra for 1972, August 4-7 events, temporal var. 4−61962
- ^{12}C, ^{13}C, isotope content in primary cosmic rays *(Russian)* 4−80441
- N enhancement by solar motion in interstellar medium 4−61964
- O enhancement by solar motion in interstellar medium 4−61964

cosmic ray deuterons
- flux 6 m w.e. underground in range 0.84 to 1.15 GeV/c 4−65014

cosmic ray effects and interactions
- *see also nuclear reactions and scattering due to cosmic rays*
- black body radiation interaction, galactic and extragalactic sources model 4−70852
- cascade shower in thundercloud field, radio emission from ionization electrons 4−76767
- dangerous dosages of cosmic and terrestrial radiations *(Dutch)* 4−65266
- EAS atmospheric ionization, local changes of atmospheric elec. field 4−76766
- e.m. cascades in Pb, from primary electrons and photons in 20-100 GeV region *(Russian)* 4−58186
- fossil nuclear particle tracks in extraterrestrial materials, artificial aging 4−62056
- HZ Herculis (Hercules X-1), suggested cosmic-ray surface heating 4−46228
- light flashes, by astronauts on Apollo flights 4−68510
- lunar materials, charged-particle track studies and galactic cosmic ray simulation 4−62058
- Malakal chondrite, cosmic ray history 4−62079
- nuclear-electron cascades, photometric density of spots caused in hadron blocks of X-ray emulsion camera *(Russian)* 4−65029
- pitch angle scatt., Fokker-Planck coeff. 4−65011
- San Juan Capistrano meteorite, cosmic ray irradiation history 4−68390
- shock waves, motion of charged particles in random mag. field *(Russian)* 4−83149
- solar protons, acceleration to relativistic energy by interplanetary shocks 4−46139
- ^{26}Al production rate depression by low shielding in meteorites 4−62078

cosmic ray electrons
- abundances of positrons and antiprotons in primary flux 4−76765
- cascade shower, angular distrib. of electrons with allowance for ionization losses *(Russian)* 4−65019
- cascade shower in thundercloud field, radio emission from ionization electrons 4−76767
- differential energy spectrum in range 2 to 20 TeV *(Russian)* 4−58158
- EAS, 10^{17}-10^{19} eV, fluctuations in electron density spatial distrib. *(Russian)* 4−65018
- EAS, computer simulations, fluctuations in shower development 4−58176
- EAS, influence of primary nuclei fragmentation on characteristics *(Russian)* 4−65017
- EAS, multistemming problem *(Russian)* 4−58165
- EAS, spatial distrib. of electrons and muons *(Russian)* 4−58167
- electron-photon shower, equilibrium spectra in Pb and air *(Russian)* 4−61968
- electron-photon showers, transitional effects in absorbers, cyclotron study *(Russian)* 4−55033
- e.m. cascades in Pb, 20-100 GeV *(Russian)* 4−58186
- e.m. radiation production rel. to X- and γ-ray astronomy 4−50419
- energy dependence of diffusion coeff., effect on spectrum of electron component of galactic cosmic rays 4−70849
- energy spectrum above 0.5 GeV for 1972 4−50425
- galactic, solar modulation during 1965 to 1968 4−68302

cosmic ray electrons continued
  HEOS-2 obs. of MeV electrons, protons and alpha particles during 1972, August 2-12 events 4−61960
  low energy gradients implications and solar modulation 4−61966
  nuclear-electron cascades, photometric density of spots caused in hadron blocks of X-ray emulsion camera *(Russian)* 4−65029
  primary positron-electron ratio determ., 5 to 50 GeV 4−58162
  scintillation and Cherenkov counters for meas. of flux and spectrum of 10^8 eV electrons 4−54596
  sea level spectrum of soft-component electrons 4−68303
  secondary electron fluxes, energy spectra at various atmospheric depths *(Russian)* 4−80443
  shower in stratified environment, electron spatial distrib. near axis from γ-quanta beams *(Russian)* 4−65020
  solar electron, proton, and alpha-particle obs. during 1972 August event 4−61961
  solar electrons, magnetospheric access, use as probe of geomagnetic topography 4−61880
  solar flare electrons, coherent propagation in random magnetic fields 4−46138
  spectrum and intensity in upper atm. *(Russian)* 4−80442
  synchronous variations in energetic electron flux and gamma quanta during magnetic perturbation *(Russian)* 4−80434
  μ-e decays, intensity meas. at various depths underground with fluid scintillation detector *(Russian)* 4−58189
cosmic ray geophysical effects *see geophysical aspects of cosmic rays*
cosmic ray jets *see cosmic ray showers and bursts*
cosmic ray mesons
  11-year variations rel. to solar wind large scale struct. 4−70855
  atmospheric effects on variations, 3200 m. a.s.l., temp. and press. corrections *(Russian)* 4−80437
  coupling coefficient calculations *(Russian)* 4−80445
  EAS, fireball model for muon spatial distrib. and hadron energy spectrum at 690 g.cm^{-2} *(Russian)* 4−58168
  pion interactions, high-energy and longitudinal behaviour of giant air showers 4−83165
  pion production in primary interactions, fast cluster model, fluctuations *(Russian)* 4−65030
  π, evaporation neutron production, 1-30 GeV/c 4−83166
  π, flux obs. at depth of atmosphere 4−61967
  π production, scaling at high and superhigh energies *(Russian)* 4−58185
  π^0 inclusive spectra, cosmic ray and ISR data, decay of uncorrelated clusters 4−77930
  π^0 plural production in atmospheric interaction, influence of plurality of γ-quanta *(Russian)* 4−65031
  $\pi^{\pm}$, production spectrum determ. from exptl. muon spectrum near geomagnetic equator 4−58161
  π^- interactions with Ag and Br in photoemulsion, 60 GeV, complete target disintegration *(Russian)* 4−65032
  π^-N inelastic, 20 to 70 GeV/c, multiparticle production reln. to cosmic-ray interactions *(Russian)* 4−58178
cosmic ray muons
  absolute vertical flux spectra meas. at 0.76 to 1.25 GeV/c 4−68307
  air shower, energy spectrum meas. with Sydney giant air shower array 4−50426
  charge ratios, anomalies in calculated values in secondary cosmic rays 4−65021
  coupling constant, twin telescope obs. of azimuthal variation of intensity, latitude effect 4−58190
  coupling functions calc., underground component var., 20-1000 hg. depth 4−70856
  differential energy spectrum at sea level, automodel behaviour of generation for energies up to 10^{13}eV *(Russian)* 4−65036
  EAS, computer simulations, fluctuations in shower development 4−58176
  EAS, fireball model for muon spatial distrib. and hadron energy spectrum at 690 g.cm^{-2} *(Russian)* 4−58168
  EAS, influence of primary nuclei fragmentation on characteristics *(Russian)* 4−65017
  EAS, multistemming problem *(Russian)* 4−58165
  EAS, number fluctuations and mean density of muon component at mountain level *(Russian)* 4−58170
  EAS, spatial distrib. and energy spectrum of muon component at mountain level *(Russian)* 4−58188
  EAS, spatial distrib. of electrons and muons *(Russian)* 4−58167
  e.m. interactions, possible multiparticle processes, differential energy spectra obs. *(Russian)* 4−65037
  energy spectra investigation of error sources ionisation calorimeter type device *(Russian)* 4−80444
  evaporation neutron production, 1-30 GeV/c 4−83166
  high energy, temp. effects on intensity 4−61969
  knock-on electron production cross section for relativistic muon in medium Z element, cloud chamber obs. 4−42874
  large ratio as function of zenith angle 4−61970
  lateral distrib. in large air showers 4−50428
  low energy, in EAS, recording equipment parameter calcs. *(Russian)* 4−58169
  magnetic spectrometer for underground muon obs. *(Russian)* 4−62535
  nuclear interactions, energies up to 10^{13} eV, apparatus *(Russian)* 4−65034
  response functions using accelerator data and Feynman scaling 4−65039
  sea level spectrum, near geomag. equator, 0.32-3 GeV/c 4−65038
  sea-level spectrum, influence of solar modulation 4−70857
  sidereal anisotropy in TeV region 4−80430
  spectrum meas. near geomagnetic equator, determ. of charged cosmic ray pion and primary nucleon spectra 4−58161
  streams, underground production of neutrino interactions with electrons and nucleons *(Russian)* 4−58187
  telescopes, instrumental variations, continuous determ. 4−65530
  telescopes, response functions at sea level and 60 m.w.e. 4−58921
  transition radiation photon flux using multiwire proportional chamber 4−71231
  μ-e decays, intensity meas. at various depths underground with fluid scintillation detector *(Russian)* 4−58189
  νN interactions, energies >10GeV, total cross section behaviour determ. from muon spectrum *(Russian)* 4−65033
cosmic ray neutrinos
  emission during relativistic collapse of star, recording method *(Russian)* 4−76931
  neutrino-nucleon cross-section, $\geqslant 10^{17}$eV, astrophys. limitations *(Russian)* 4−83167
  reactions in strong magnetic field 4−50427
  resonance interactions with electrons and nucleons, cross section for intermediate boson production *(Russian)* 4−58187
  solar, discrepancies between theory and Davis expt. *(French)* 4−50421
  solar, energy loss mechanism rel. to Davis experiment 4−61958
  solar, prod. by fusion and electron capture, comparison theory and expt. *(Russian)* 4−83181
  solar, rel. to resonance in ^{3}He(^{3}He,2p)^{4}He reaction 4−55857
  solar burnt out core rel. to neutrino problem 4−58226
  solar interior models with low neutrino fluxes lower bound of 0.5 SNU counting rate 4−46158
  solar neutrinos rel. to varying Fermi coupling constant in solar interior 4−50452
  νN interactions, energies >10GeV, total cross section behaviour determ. from muon spectrum *(Russian)* 4−65033
  ^{8}B solar neutrinos, Maxwellian relative energies 4−50420
cosmic ray neutrons
  annual cosmic ray variations 1958-1968, comparison with neutron monitor data *(Russian)* 4−83164
  atmospheric effects on variations, 3200 m. a.s.l., barometric coefficient *(Russian)* 4−80437
  barometric coefficient of neutron component, new procedure for measurement *(Russian)* 4−80433
  coupling coefficient calculations *(Russian)* 4−80445
  evaporation neutrons, production by charged particles in monitors at sea level, detection 4−83166
  events analysis using neutron moderated detector 4−77187
  intensity increase, solar flare December 10 1966, var. neutron component *(Russian)* 4−83153
  Sanae neutron monitor, effect of snow level on counting rate 4−77188
  solar rotation effect, anisotropy of cosmic ray neutron component, 27 day change *(Russian)* 4−83156
  supermonitor, multichannel, quality of data *(Russian)* 4−77170
cosmic ray nucleons
  see also cosmic ray neutrons; cosmic ray protons
  attenuation in atmosphere, calculation based on rising inelastic cross-section 4−65035
  EAS, fireball model for muon spatial distrib. and hadron energy spectrum at 690 g.cm^{-2} *(Russian)* 4−58168
  high-energy interactions, and longitudinal behaviour of giant air showers 4−83165
  inclusive reaction, ang-distribs. and scaling at very high energies *(Russian)* 4−65028
  inelastic interactions with air and Pb nuclei, energies >1TeV, cross section determ. *(Russian)* 4−65027
  interactions, fast cluster model, role of fluctuations in anal. of families of photons and hadrons *(Russian)* 4−65030
  interactions in atmosphere, limiting fragmentation, plurality of γ-quanta *(Russian)* 4−65031
  primary spectrum determ. from exptl. muon spectrum near geomagnetic equator 4−58161
  νN interactions, energies >10GeV, total cross section behaviour determ. from muon spectrum *(Russian)* 4−65033
cosmic ray origin
  see also cosmology; element origin
  diffuse gamma-radiation in MeV range, energy spectrum and extragalactic origin 4−73778
  electron energy spectrum above 0.5 GeV for 1972 4−50425
  extragalactic origin for rays above 10^{17} eV 4−83147
  galactic and extragalactic, energy-dependent diffusion eqn. from L/M ratio 4−73591
  galactic and extragalactic sources, model of production spectrum 4−70852
  galactic high energy charged particles, angular distrib. 4−50418
  gamma-ray emissivity and H_2 density rel. to extragalactic origin 4−73593
  massive star explosions, nucleosynthesis and evolutionary calcs. 4−68409
  nova envelopes, subcosmic ray generation by free-free radiation absorption 4−54348
  nuclei above 20 GeV per nucleon, charge composition and energy spectra 4−80440
  plasma penetration by magnetic waves rel. to low energy cosmic ray production 4−54360
  pulsar, position, correlation with arrival directions air showers, 10^{17} to 10^{18} eV 4−70851
  pulsars, accel. and radiation of cosmic ray electrons 4−73590
  solar energetic particle phenomena solar atmospheric and flare physics review 4−58157
cosmic ray photons
  see also cosmic ray X-rays; solar cosmic ray photons
  EAS, multistemming problem *(Russian)* 4−58165
  electron-photon shower, equilibrium spectra in Pb and air *(Russian)* 4−61968
  electron-photon showers, transitional effects in absorbers, cyclotron study *(Russian)* 4−55033
  e.m. cascades in Pb, 20-100 GeV *(Russian)* 4−58186
  families, review of recent investigations *(Russian)* 4−65023
  families, role of fluctuations in analysis, fast cluster model *(Russian)* 4−65030
  gamma quanta $\geqslant$100 MeV, meas. gamma telescope *(Russian)* 4−83262
  gamma-ray bursts, COS-B satellite modifications for observations 4−83246
  gamma-ray detection in shaped scintillation counters 4−46841
  plurality of γ-quanta, influence of hadron component composition following atmospheric interactions *(Russian)* 4−65031
  shower in stratified environment, electron spatial distrib. near axis from γ-quanta beams *(Russian)* 4−65020
  synchronous variations in energetic electron flux and gamma quanta during magnetic perturbation *(Russian)* 4−80434
  γ-quanta meas. in X-ray emulsion camera in range 8 to 35 TeV *(Russian)* 4−58179

cosmic ray photons continued
γ-ray differential energy spectrum in range 2 to 20 TeV *(Russian)* 4−58158
γ-ray flux, Apollo gamma-ray spectrometer meas. with Apollo spectrometer 4−62538

cosmic ray protons
abundances of positrons and antiprotons in primary flux 4−76765
albedo particles, motion in geomagnetic field 4−68253
convection of low-energy solar protons behind explosive wave front in interplanetary space 4−68301
EAS, proton initiated, computer simulations of average characteristics 4−58174
evaporation neutron production, 1-30 GeV/c 4−83166
extragalactic origin for rays above 10^{17} eV 4−83147
galactic, solar modulation during 1965 to 1968 4−68302
HEOS-2 obs. of MeV electrons, protons and alpha particles during 1972, August 2-12 events 4−61960
interplanetary particle fluxes from solar events, OV5-6 satellite obs. 4−62031
interplanetary proton events of 1972, August 2-9, Pioneers 9 and 10, and IMP 5 obs. 4−62030
interplanetary proton fluxes upstream from Earth's bow shock, satellite obs. 4−62092
interplanetary shock waves, proton and α-particle enhancements 4−83196
low energy, effect of solar activity on propagation, prod., interplanetary stations data anal. *(Russian)* 4−80423
magnetosphere, solar proton trajectory comp. for 3 models 4−61879
magnetospheric solar proton entry, satellite data interp. 4−50368
magnetospheric solar proton entry, trajectory comparison for two models 4−50369
magnetospheric solar protons during substorm activity, cutoff and pitch angles 4−61845
metagalactic protons, superhigh energy, transition from galactic cosmic rays *(Russian)* 4−83146
nuclear interactions, 10^{12}-10^{13}eV, meas. using photoemulsion piles on satellite *(Russian)* 4−65025
primary, energies $E_p \sim 10^{18}$ eV, from fluctuation studies of EAS 4−58173
primary energy spectrum above 10^{12} eV, intensities 4−58160
solar, flux at Earth during 1972 Oct 29-Nov 3 event 4−61963
solar activity effects, automatic interplanetary station meas. *(Russian)* 4−80424
solar electron, proton, and alpha-particle obs. during 1972 August event 4−61961
solar low energy events rel. to chromospheric flares *(Russian)* 4−70887
solar low-energy proton intensity profiles over polar cap, two-satellite study 4−50355
solar proton flux enhancements at auroral latitudes 4−46088
solar proton propagation in Earth's magnetic cavity, 5-300 MeV 4−61878
solar protons, acceleration to relativistic energy by interplanetary shocks 4−46139
solar protons, adiabatic cooling in interplanetary magnetic field of spiral form 4−50456
solar protons in 10-90 MeV range in magnetosphere, obs. in synchronous altitude region 4−50356
solar protons in near-Earth magnetotail 4−61882
solar wind, He^{2+} to H^{+} temp. ratio 4−68344
p^{-} nucleus collisions in photographic emulsions, 67 and 200 GeV, angular distributions 4−43521
pN interactions, at 200 GeV, ang. distrib. of secondary particles *(Russian)* 4−58181
Pb+p, 13 GeV, reln. to shower meas. in stratosphere *(Russian)* 4−58182

cosmic ray showers and bursts
see also cosmic ray electrons; cosmic ray X-rays
air showers, 10^{17} to 10^{18} eV, arrival directions correlation with pulsar positions 4−70851
air showers, muon component lateral distrib. meas. 4−50428
arrival direction isotropy of ultra high energy cosmic rays 4−61957
cascade in dense substance above 200 GeV *(Russian)* 4−58163
cascade shower, angular distrib. of electrons with allowance for ionization losses *(Russian)* 4−65019
cascade shower in thundercloud field, radio emission from ionization electrons 4−76767
charge ratios of muons and hadrons, anomalies in calculated values 4−65021
EAS, 10^{17}-10^{19} eV, fluctuations in electron density spatial distrib. *(Russian)* 4−65018
EAS, γ-ray bursts and positron annihilation 4−70854
EAS, central region obs. using scintillation detector of area 200 m^2 *(Russian)* 4−62520
EAS, computer simulations, fluctuations in shower development 4−58176
EAS, data recording and reading system for coordinated hodoscope-scintillation detectors *(Russian)* 4−58172
EAS, energy absorption in shower stem *(Russian)* 4−58164
EAS, fireball model for muon spatial distrib. and hadron energy spectrum at 690 g.cm^{-2} *(Russian)* 4−58168
EAS, fluctuation studies, composition of primary cosmic rays of energy $E_p \sim 10^{19}$ eV 4−58173
EAS, heavy primary particle initiated, computer simulation 4−58175
EAS, influence of primary nuclei fragmentation on characteristics *(Russian)* 4−65017
EAS, ionized radiation and low energy muon detectors, efficiency calcs. *(Russian)* 4−58169
EAS, magnetic spectrometer for underground muon obs. *(Russian)* 4−62535
EAS, multistemming problem *(Russian)* 4−58165
EAS, nuclear active particle energy spectrum, neutron monitor 4−83166
EAS, number fluctuations and mean density of muon component at mountain level *(Russian)* 4−58170
EAS, particle density meas. by thick fluid scintillation counter *(Russian)* 4−58171
EAS, pp collision total cross sections 4−55704
EAS, proton initiated, computer simulations of average characteristics 4−58174

cosmic ray showers and bursts continued
EAS, reln. between number of particles at sea level and primary particle energy *(Russian)* 4−65015
E.A.S., review of recent investigations *(Russian)* 4−65023
EAS, search for quarks using flash tube chamber 4−59667
EAS, spatial distrib. and energy spectrum of muon component at mountain level *(Russian)* 4−58188
EAS, spatial distrib. of electrons and muons *(Russian)* 4−58167
EAS, spectral distrib. of radioemission, 34-162 MHz *(Russian)* 4−58166
EAS atmospheric ionization, local changes of atmospheric elec. field 4−76766
EAS ionisation losses from height behaviour and Cherenkov radiation intensity *(Russian)* 4−46140
EAS radio pulses during thunderstorms rel. to atmospheric electric field 4−68305
electron nuclear cascades obs. of inelastic interaction with energies >100 GeV *(Russian)* 4−65024
electron spatial distrib. near axis of shower in stratified environment from γ-quanta beams *(Russian)* 4−65020
electron-photon shower, equilibrium spectra in Pb and air *(Russian)* 4−61968
electron-photon showers, transitional effects in absorbers, cyclotron study *(Russian)* 4−55033
e.m. cascades in Pb, from primary electrons and photons in 20-100 GeV region *(Russian)* 4−58186
energy spectrum meas. with Sydney giant air shower array 4−50426
fireball shower sorting, Monte Carlo calcs. *(Russian)* 4−58177
gamma-ray bursts, COS-B satellite modifications for observations 4−83246
giant air showers, longitudinal behaviour realistic model 4−83165
HAS characteristics, zenith and azimuth angles, particle density *(Russian)* 4−65016
integrated multiplicity and coupling coefficient calculations for neutron and meson components *(Russian)* 4−80445
ionisation calorimeter, liquid Ar, detection of e.m. and hadronic showers 4−77181
nuclear-electron cascades, photometric density of spots caused in hadron blocks of X-ray emulsion camera *(Russian)* 4−65029
nucleon attenuation in atmosphere, calculation based on rising inelastic cross-section 4−65035
secondary electron fluxes, energy spectra at various atmospheric depths *(Russian)* 4−80443
secondary electrons spectrum and intensity in upper atm. *(Russian)* 4−80442
showers, muon produced, obs. of nuclear interactions of energies up to 10^{13} eV *(Russian)* 4−65034
spectrum anal. at 1850 metres above sea level *(Russian)* 4−58159
stream structures, variability with solar activity cycle *(Russian)* 4−83157
γ-rays, satellite obs., 17 Jan 1972 *(Russian)* 4−65022
μ cascade, differential energy spectra meas., multiparticle processes *(Russian)* 4−65037
μ energy spectra investigation of error sources ionisation calorimeter type device *(Russian)* 4−80444
μ-e decays, intensity meas. at various depths underground with fluid scintillation detector *(Russian)* 4−58189
π^0 inclusive spectra, cosmic ray and ISR data, decay of uncorrelated clusters 4−77930
Pb+p, 13 GeV, shower production in stratosphere *(Russian)* 4−58182

cosmic ray solar modulation
anisotropy in neutron component due to solar rotation, 27 day change *(Russian)* 4−83156
diurnal anisotropy of cosmic ray fluxes in different solar activity periods *(Russian)* 4−83158
electron gradients, low energy implications 4−61966
galactic protons, He nuclei and electrons, modulation during 1965 to 1968 4−68302
intensity variations quasiperiodic, in solar-activity cycle (No.19) 4−73618
primary cosmic rays, relative intensity on function of particle hardness during 19th and 20th solar activity cycles *(Russian)* 4−83161
sea-level muon spectrum, influence of solar modulation 4−70857
sidereal anisotropy in TeV region 4−80430
solar activity cycles, 1957 to 1972, radius of modulation region *(Russian)* 4−83160
solar activity index, e.m. conditions in interplanetary space *(Russian)* 4−83152
stream structures, variability with solar activity cycle *(Russian)* 4−83157

cosmic ray variations
see also geomagnetism
11 year, energy spectrum, stratospheric spectrographic observations *(Russian)* 4−80427
1972, August 3-10, intensity var. of solar cosmic rays 4−80429
anisotropy and time variation of spectrum, neutron monitors worldwide data study *(Russian)* 4−83148
atmospheric effects, 3200 m. a.s.l., temperature and pressure corrections *(Russian)* 4−80437
density distribution, annual var. 1958-1968, comparison with neutron monitor data *(Russian)* 4−83164
diurnal anisotropy of cosmic radiation, mechanism 4−50423
EAS, 10^{17}-10^{19} eV, fluctuations in electron density spatial distrib. *(Russian)* 4−65018
Forbush decrease of 1972, August 4, cosmic ray intensity anisotropy 4−80438
Forbush effects, spectrographic analysis, geomagnetic cut off hardness *(Russian)* 4−80431
increase before Forbush decrease, December 10 1966, solar flare *(Russian)* 4−83153
intensity growth before Forbush decrease, theory, stationary effect condition *(Russian)* 4−83154
intensity increase, nonsolar origin and Forbush decrease of 1972 August 4 4−65012
intensity variations, use of scintillation detector of area 200 m^2 *(Russian)* 4−62520
interplanetary magnetic field, influence on cosmic ray modulation, comparison with 27 day var. *(Russian)* 4−83150

cosmic ray variations continued
- long repetition cycle, north-south asymmetry, solar activity *(Russian)* 4—83159
- magnetic storms, geomag. cutoff for Forbush decreases, shock waves *(Russian)* 4—83155
- mesons, 11-year variations rel. to solar wind large scale struct. 4—70855
- multidirectional intensity var. in Japan during 1972, August event 4—80439
- primary cosmic rays, relative intensity on function of particle hardness during 19th and 20th solar activity cycles *(Russian)* 4—83161
- propagation through random inhomogeneous interplanetary magnetic field *(Russian)* 4—80428
- short repetition cycle, extraterrestrial origin, rel. to interplanetary environment *(Russian)* 4—83151
- solar activity cycle, stream struct. var. at max., min. solar activity *(Russian)* 4—83157
- solar activity cycles, freq. spectrum in diurnal anisotropy *(Russian)* 4—83158
- solar activity index relationship *(Russian)* 4—80432
- solar rotation effect, anisotropy of cosmic ray neutron component, 27 day change *(Russian)* 4—83156
- synchronous variations in energetic electron flux and gamma quanta during magnetic perturbation *(Russian)* 4—80434
- μ underground coupling functions, range fluctuations, diurnal variation 4—70856

cosmic ray X-rays
- diffuse cosmic X-ray background from OSO-3 obs. in 7-100 keV range 4—65189
- diffuse X-ray background, multiple inverse Compton scattering 4—46267
- galactic electrons, e.m. radiation production rel. to X- and γ-ray astronomy 4—50419
- intensity distrib. over celestial sphere rel. to interaction with interstellar dust 4—46329
- nuclear-electron cascades, photometric density of spots caused in hadron blocks of X-ray emulsion camera *(Russian)* 4—65029
- solar soft X-ray flux, spectral dependence from SOLRAD 9 obs. 4—50466
- upper limits to flux of cosmic rays and X-rays 4—70848

cosmic rays
- *see also cosmic ray absorption; cosmic ray apparatus; cosmic ray composition; cosmic ray effects and interactions; cosmic ray origin; cosmic ray showers and bursts; cosmic ray solar modulation; cosmic ray variations; galactic cosmic rays; geophysical aspects of cosmic rays; high-energy cosmic ray interactions; nuclear reactions and scattering due to cosmic rays; primary cosmic rays; radiofrequency cosmic radiation; solar cosmic ray particles; solar radiation*
- diffusion theory, effects on nonlinear terms for interplanetary medium 4—76764
- review of recent knowledge and theories 4—46136
- visual observation 4—65256

cosmic X-rays *see cosmic ray X-rays*

cosmogony *see cosmology*

cosmology
- *see also black holes; element origin; general relativity; red shift*
- absorber theory, proposed experiment using time-asymmetric chopper 4—76776
- anisotropic spheres in general relativity, equations of state and quasars 4—50438
- anisotropically expanding universe and microwave background polarization 4—70865
- antimatter-matter separation, NN interaction *(Russian)* 4—83173
- Bianchi type-I models, ellipsoidal momentum distrib. function description 4—47182
- Bianchi universes admitting full groups of motions, topology 4—54363
- black holes, form. of early universe, quantum aspects of accretion 4—68436
- black holes, formation in early universe 4—68435
- black holes in early Universe 4—73715
- black-body background radiation 4—58381
- book, history and modern problems of physics 4—62361
- Brans-Dicke, general theorems based on Raychaudhuri-type eqns. 4—61990
- Brans-Dicke cosmologies, dynamical analysis 4—70864
- causality and metrical properties of matter in two-metric field theory of gravity 4—43165
- charged intergalactic gas of protons or electrons 4—65054
- closed universes containing sources of massive vector field 4—76779
- closed universes expansion 4—61989
- clusters of galaxies, cosmological implications of counts 4—71043
- cosmogony of asteroid belt from partially corotating plasma 4—70957
- cosmological constant and f-gravity, gravit. singularities removed in Trautman's model universe 4—70866
- CP violation, spontaneous, domain struct. of vacuum, cosmological implications 4—55581
- de Sitter's expanding universe, elementary particle explanation of time 4—71395
- De Sitter's spherical world, quantum mech. behaviour of particle *(Italian)* 4—80458
- direct interparticle action, stress energy tensors 4—65766
- double radio sources, redshift-angular size relation 4—58383
- dust-filled viscous universes, integration of Friedmann eqn. 4—58211
- Einstein-de Sitter universe, effect of linear rotational perturbation on cosmic microwave background isotropy 4—54538
- expanding universe, catastrophes, Parker's method 4—61988
- expanding universe, gravitational wave superadiabatic amplification, graviton creation *(Russian)* 4—77546
- f gravity inclusion in Einstein's field eqns., gravitational singularities 4—58214
- finite expanding universe with injection of both matter and radiation 4—54365
- formation from nonlinear gravitational instability theory 4—73800
- frozen Mixmaster universe, quantum mechanics of spinor fields 4—71368

cosmology continued
- galactic electrical charge, internal and cosmological consequences 4—50450
- galaxy distrib. in expanding universe, gravitational-instability picture 4—54546
- gravitation law implications 4—58212
- gravitational constant var. and effect on quadrature soln. of two-body problem 4—54355
- gravitonic mass rel. to cosmological const. 4—65804
- gravity equations, cosmological term constancy *(Russian)* 4—73608
- Hamiltonian, death and transfiguration 4—61987
- homogeneous models with circular polarised gravitational waves and eddies *(Russian)* 4—76781
- Hoyle's theory, geometrical interpretation, riemannian manifold 4—46152
- Hoyle-Narlikar general theorems based on Raychaudhuri-type eqns. 4—61990
- Hubble relation for nonstandard candles and quasar redshift origin 4—50443
- irregularities in expanding universe, effect of lumpy matter distrib. 4—61985
- isotropization of cosmological expansion due to particle prod. *(Russian)* 4—70870
- Jordan projective theory of relativity gravitational collapse of star 4—80453
- Klein-Gordon field, massless, in Friedman universe, quantisation in special canonical frame 4—68943
- Large Numbers hypothesis, possible models 4—50448
- local-scale-invariant gravitational theory applications 4—47205
- Lyra's geometry, class one cosmological model 4—73605
- Mach's paradox, principles of relativity, covariance, invariance, and the equivalence of frames 4—71394
- mini-bangs concept for matter creation 4—73607
- mixmaster universe, scalar wave equations, particle creation 4—76778
- neutrino rest masses from mass density and particle number density 4—50449
- nuclear energy in the cosmos *(Dutch)* 4—46150
- Olbers' paradox, relation of time direction of universe expansion to time direction of life 4—43137
- particle masses and spins in arbitrary isotropic, spatially homogeneous cosmological models 4—76777
- phase transitions at high fermion density, gauge theories 4—69111
- photon-photon interaction upper limit, microwave background 4—61986
- plane gravitational condensor, positive gravitational constant, eqn. of motion 4—62722
- polarisation by universal magnetic field, matter antimatter symmetry and baryon photon ratio 4—68325
- relative-distance Machian theories 4—50446
- Robertson-Walker models, tetrad field eqns. and generalized Friedmann eqn. 4—50445
- Robertson-Walker universe, adiabatic regularisation of energy-momentum tensor of quantised field 4—47433
- self-similar spacetimes, geometry and dynamics 4—74383
- sound generation from primordial turbulence in expanding universe 4—68324
- special relativity variant and long-distance astronomy 4—58215
- spontaneous violation of discrete symmetry, cosmological consequences *(Russian)* 4—76780
- substratum for energy propagation, compatibility with relativity 4—70867
- Swiss cheese models, locally inhomogeneous, extension to nonzero cosmological const. case 4—50444
- time passage rate var. rel. to galactic red shifts 4—46151
- uniform models from generalised relativistic field eqns. 4—73606
- Universal luminosity density and galaxy distrib. 4—46266
- universe, as unity of infinitude and finiteness 4—42681
- universe, oscillating models, applications of pulsation theory 4—50614
- Universe expansion and age, from general relativity and unitarian Einstein theory 4—50447
- Universe size estimation from topological viewpoint *(Russian)* 4—70869
- white hole conversion to black hole, homogenisation of early universe 4—70868
- D_2 abundance, scalar field postulation for speeding up expansion of Universe 4—58213

cosmotrons
- No entries

Costa Ribeiro effect *see dielectric phenomena; phase transformations*

Cotton-Mouton effect *see birefringence; magneto-optical effects*

Cottrell atmosphere *see dislocations*

Couette flow
- *see also jets*
- bentonite-water thixotropic suspension, time-depend. viscosity 4—67960
- eccentric laminar Couette flow, long cylindrical capsules 4—72287
- fluid with microstructure, channel flow 4—56398
- friction-reducing polymer additives effect on Taylor vortices 4—63579
- hydrodynamic stability, variational method 4—52341
- immiscible incompressible fluids, two, with uniform suction at stationary plate, plane Couette flow 4—48253
- incompressible fluid with temperature dependent viscosity 4—43967
- monoatomic gas, velocity slip at wall of rot. cylinder *(French)* 4—48326
- Orr-Sommerfeld equation, uniform asymptotic approx., plane Couette flow 4—78572
- plane turbulent flow, upper bound on stress 4—43977
- polyacrylamide soln., in Taylor cells, vortices 4—81866
- pressure-stabilized, with variable viscosity and mech. energy dissipation 4—43922
- small disturbances in plane Couette flow, mode-pairing phenomena 4—72333
- stability waves in plane shear layers 4—69597
- turbulent helical flow in fine clearance, leakage and frictional characts. 4—48235

Couette flow continued
- two-phase flow of orientable particles, transport mechanics 4−52523
- unsteady flow of viscous incompressible fluid between parallel plates 4−75073
- variable viscosity fluid, plane channel flow 4−56359
- viscous flow, two-dimensional computer studies 4−60531
- viscous heating in circular Couette and cylindrical Poiseuille flow 4−78575

counter accessories
- *see also counting circuits*
- No entries

counters
- *see also Cherenkov counters; counting tubes; crystal counters; fission counters; Geiger counters; proportional counters; radiation detectors; scintillation counters; semiconductor counters; spark counters*
- deadtime equations for paired source technique, exact 4−42877
- gamma telescope using scintillation, Cherenkov counters, spark chamber, cosmic gammas $\geqslant$100 MeV, meas. *(Russian)* 4−83262
- ion chamber, flow through, ^{3}H atmospheric concentration meas. 4−46838
- ion counting, photon-blind electron multiplier used with quadrupole mass filter 4−68804
- neutron coincidence method for accumulated Pu meas. in U boxes of power reactors 4−46803
- neutrons, sensitivity, with ^{3}He in hydrogenous media with air gap 4−77172
- radioactive samples in activation analysis, automatic counting system 4−55146
- reversible, difference decade in 8421 code 4−74139
- review of counters and particle detectors 4−80998
- telescope counter detection system, low-energy ion-beam surface anal. 4−68788

counters (circuits) *see counting circuits*

counting circuits
- *see also coincidence circuits; pulse height analysers; scaling circuits*
- asynchronous odd number counter with 50/50 duty cycle 4−65527
- avalanche transistor characteristics and applications 4−81017
- charged particles identification 4−77233
- comparator, tunnel-diode, with controlled hysteresis 4−51164
- construction and functioning, classroom demonstration 4−73965
- dead time calibrator based on time interval density measurement 4−68786
- delay line read-out for position sensitive proportional counter 4−68796
- delay lines for wire chamber readout, construction and characteristics 4−46870
- discriminators, triple const. fraction, for Ge(Li) detectors 4−74141
- electronic counter 5345A, interface bus expansion of instrum. utility 4−77232
- electrostatic energy analysers, interface electronics for data acquisition 4−55101
- gain control system, automatic for scintillation counters *(French)* 4−55083
- heterodyne freq. convertor, extends freq. range of 5345A to 4GHz 4−77231
- hodoscope counter, electronic circuit for elimination of two or more events 4−58934
- interference remover circuit to reject pulses due to closely following particles in nuclear interactions 4−58935
- microwave, with high sensitivity and f.m. tolerance, use of YIG technology 4−46746
- Mossbauer spectroscopy of gold, appl. of integrating counting method 4−55087
- multichannel time analysers, correction for dead-time losses 4−55085
- nuclear electronics book 4−81019
- nuclear reactor period measurement, digital method 4−55910
- pattern unit with fast discriminator inputs for radiation detectors 4−77234
- photon, biomedical applications *(French)* 4−42941
- portable four-decade logarithmic Geiger-Muller survey meter design 4−55088
- pulse shape discrimination circuit for n-γ discrimination 4−58936
- read-out system for multiwire proportional counter 4−55082
- readout methods, noise reduction and filtering techniques 4−46871
- reversible counters LR 600 design *(Polish)* 4−62533
- ring counter for high speed pulses, tunnel diode and transistor circuit 4−42908
- stabilisation of spectrometric paths 4−74140
- third input channel, increase of versatility of 5345A electronic counter 4−77230
- time interval averaging, use of 5345A counter 4−77229
- trigger circuit for timing in NaI(Tl) γ-ray spectrometers, for low incident energies *(French)* 4−77235
- wideband digital logic cct, use in electronic counter 4−77228
- Ge-detectors, design of constant fraction trigger with new integrated circuits 4−46876

counting tubes
- *see also dekatrons*
- No entries

country planning *see town and country planning*

county planning *see town and country planning*

coupled superconductors *see superconducting junctions*

couplers (waveguide) *see waveguide couplers*

coupling (process) *see joining processes*

CP invariance
- dynamic calculations for violation in phenomenological Lagrangian framework 4−62901
- gauge-invariant theory, CP violating, exptl. test 4−55582
- hyperon non-leptonic decays, departure from $\Delta I = {}^1/_2$ rule, CP violating effect 4−77796
- relativistic quark model anal. of CP violation through weak current phase angles 4−71631
- spontaneous symmetry breaking mechanism 4−43397
- spontaneous violation, domain struct. of vacuum, cosmological implications 4−55581

CP invariance continued
- spontaneous violation in generalised Georgi Glashow model 4−74578
- toy gauge model, Cabibbo angle generation by weak interaction effects 4−71646
- weak interaction violation in intermediate boson unitary triplet scheme 4−66018
- $K_l \to \pi^+\pi^-/K_s \to \pi^+\pi^-$ amplitude ratio, determ. of CP-noninvariance parameter $|\eta_{+-}|$ from $e^+e^- \to K^0K^0$ 4−62923
- $K_l^0 \to \pi^+\pi^-\gamma$, CP conserving transition 4−71654
- $K^0 \to \pi^+\pi^-$, phase φ_{+-} of CP violation 4−77800

CPT conservation *see CPT invariance*

CPT invariance
- *see also SU$_3$ theory*
- Haag-Araki theory of local observables, CPT operator introduction 4−74579
- Poincare group, uniqueness of group extensions 4−59517
- spin arbitrary, scatt. amplitude Lorentz-invariant expansion 4−55578
- weak interaction model, rel. to exptl. tests of CPT invariance 4−47458
- $K_l^0 \to \pi\mu(e)\nu$ decay spectra, comparison for ν and ν, test of CPT invariance 4−55596

crack detection
- *see also cracks*
- γ-ray method, sensitivity improvement by two-beam betatron 4−46917
- γ-ray scintillation flow detectors, smoothing filter time constant optimisation 4−46916
- acoustic emission detection of defects using multicollector detection systems *(French)* 4−73396
- aircraft wing plank slices, holographic NDT 4−46684
- brittle material, rupture toughness testing 4−67971
- brittle materials, failure prediction using fracture mechanics and acoustic emission 4−73394
- ceramic, acoustic emission generation, microstruct. aspects 4−64695
- ceramic, crack propagation rel. to acoustic emission monitoring 4−64697
- ceramic, failure prediction using acoustic emission 4−45882
- ceramic, fracture mechanics parameters eval. procedures 4−64619
- ceramic substrate, real time detection using stress wave emission 4−64699
- concrete cubes and cylinders, holographic detection 4−45883
- creep crack growth rate meas. by notch rate of expansion method 4−70593
- elec. detect. of circumferential crack in hollow metal cylinder wall 4−80155
- electrical fuel pin simulators used in LMFBR thermal hydraulic tests, i.r. inspection 4−43598
- electrodeposit, inspection of embrittlement by acoustic emission 4−67972
- failure prediction based on fracture mechanics, initial flaw size distribs. and crack detection probabilities 4−50112
- fatigue crack growth, loading variables effect on acoustic emissions 4−70592
- fatigue crack signallers 4−50063
- fault depth determ. methods *(French)* 4−73400
- fibre optics applic. to fatigue crack development 4−61574
- glass, microflaw origin and detection 4−64694
- liquid penetrant dwell modes 4−70596
- magnetic, fields of artificial open flaws, in uniform field, calc. and expt. 4−64686
- magnetic powder flaw detection, suspension concentration analyser 4−57811
- magnetic powder method, AKOR-1 surfactant additive for suspensions 4−50095
- magnetic powder method, MP-70 coloured mag. paste for suspensions 4−50096
- metal large object, holographic interferometry obs., appl. to trainwheels 4−45889
- nuclear control rods, eddy current eval. 4−81550
- nuclear fuel elements, thin-walled, u.s. inspection of end-cap welds 4−81608
- nuclear pressure vessels, acoustic emission monitoring 4−81611
- nuclear reactor components, cracks under cladding, u.s. testing *(German)* 4−50081
- nuclear reactor pressure vessel failure detection using acoustic emission 4−71977
- polymer, crack terminal region contour determ. using laser 4−61562
- propagation gauge, designs for centre and edge notch and cleavage type specimens 4−50087
- rails, defect dynamic field contributions of magnetisation and eddy currents, expt. 4−47278
- rails, defect field eddy-current component calc. 4−47277
- steel, mild, random lead fatigue damage accumulation, eddy current inspection 4−76571
- steel, notched specimens, stress wave emission and plastic work 4−61421
- steel, pressure vessel type, acoustic emission spectrum analysis 4−50071
- steel, surface cracks detection by microwave methods 4−50074
- steel, with protective coating, kinetics of crack development during corrosion-fatigue 4−67970
- steel 4140, fatigue crack growth, continuous monitoring by acoustic emission 4−45879
- u.s. signal processing concepts for thin layer thickness meas. 4−50076
- u.s. surface wave detection techniques 4−45878
- Al alloy, fatigue crack length meas. by NDT 4−50077
- Al alloy 7075-T6, fatigue growth, continuous monitoring by acoustic emission 4−45879
- Al_2O_3, alumina, acoustic emission meas. during crack propag. 4−67912
- SiC coating, UC spheres, flaw exam. by non-destructive microscopic technique 4−78269
- Si_3N_4, laser thermal shocking, surface eval. using acoustic emission 4−64696

crack inspection *see crack detection*

cracking *see fracture*

cracks

- *see also crack detection*
- alloy, notched, light, fatigue striation spacing rel. to cracks *(French)* 4–67868
- angled, fracture under complex stress, exact soln. 4–67983
- angled, pure bending 4–67980
- anisotropic media, thin inclusions and cracks 4–66979
- antiplane shear crack at bimaterial interface 4–65665
- b.c.c. polycrystal, microcrack propag., stat. criteria 4–49852
- bifurcated, propag. direction determ. 4–48685
- bonded half planes, stress intensity, strain energy release, cleavage angles 4–43051
- Borsic reinforced Al, delamination process, crack length and bond strength effect 4–61519
- boundary layers, highly anisotropic plane elasticity 4–74294
- α-brass, stress corrosion cracking in aliphatic amine solns. 4–49746
- brittle crack propagation, Japanese studies review 4–48692
- brittle crystalline solid, climb motion, jog props. 4–56804
- cast superalloys, effect of material characteristics, test variables 4–73322
- ceramic, crack extension and arrest in residual localised stress fields assoc. with second phase particles 4–73352
- ceramic, crack propagation by diffusion 4–73354
- ceramic, slow crack growth rel. to microstruct. 4–73355
- ceramic, subcritical crack growth, component lifetime prediction after proof testing 4–73353
- ceramic materials, inclusions, stress concs., fracture 4–70547
- ceramics and composites, elastic interaction between inclusions and cracks 4–64621
- chemical stress applied to creep and fracture theories, Griffith crack problem 4–60640
- circumferential crack in twisted round bar, stress intensity factor 4–65666
- cleavage crack extension, at. struct. discreteness effect 4–60543
- coatings, on heat resistant alloys, ductility 4–83006
- composite, debonding of rigid curvilinear inclusions in longit. shear deform. 4–67925
- composite, transversely loaded unidirectional, elastoplastic crack propag. 4–61518
- composite, two-phase, finite element analysis of cracks in interfacial region 4–64631
- composite reinforced cutouts and cracks, finite element analysis 4–49956
- constructional materials, corrosion cracking susceptibility determ. method *(Russian)* 4–53728
- corrosion cracking, device for static or pulsating loads 4–67975
- crack propagation, fatigue failure 4–53747
- cut-induced in elastic medium extension under antiplane loading 4–59125
- dislocation dynamics influence on crack stability and motion 4–48681
- double cantilever beam specimens, crack propag. dynamics 4–48683
- double cantilever beam test specimen, fast fracture and arrest meas. 4–50120
- double cantilever cleavage, energy determination equation 4–66977
- Dugdale model solutions, single edge cracked plate 4–65662
- dynamic cleavage, mech. model 4–48684
- dynamic crack propagation, conf., Bethlehem, USA (July 1972) 4–48676
- elastic body, stress anal. for shear deformation *(Russian)* 4–51332
- elastic fields for line force arrays parallel to planar crack 4–65683
- elastic half-plane, plain-strain soln. 4–59124
- elastic isotropic infinite body, dynamic problem for longit. shear strain case 4–60546
- elastic layer, local axially symmetric compression *(Russian)* 4–47085
- elastic medium propagation with variable velocity *(Russian)* 4–74299
- elastic plane problem, integral eqns. for randomly orientated rectilinear system *(Russian)* 4–74303
- elastic plate, stress singularity at non-uniformly moving crack tip 4–51342
- elastic solid, stress wave loading, crack propag. 4–69852
- elastic solid under general loading, plane crack motion analysis 4–48691
- elastic strip, periodic cracks, complex eigenfunction soln. 4–43076
- elastic wave diffraction, brittle fracture, crack extension 4–55272
- elastic-plastic media, dynamic crack propag., model 4–48686
- elasticity theory, triple integral eqns. 4–74291
- elliptical in finite-thickness plate, stress intensity anal. 4–74327
- epoxide resin, relax. technique to obtain stress versus crack velocity diagrams 4–80097
- explosion induced fracture of solids, theory 4–48678
- fast running crack tip, temp. rise 4–44596
- fatigue, push-pull, nonpropagating fatigue crack hypothesis applic. to plate with hole notch 4–50054
- fatigue crack growth, stress ratio influence, test procedure 4–57798
- fatigue crack growth of surface flaws from holes in thick plates, stress intensity factor 4–50111
- fatigue crack growth retardation under aircraft spectrum loads 4–45877
- fatigue crack length monitoring, liquid environments 4–83002
- fatigue crack propagation model based on inverse hyperbolic tangent function 4–50106
- fatigue crack propagation under cyclic loading, elastic-plastic analysis 4–50105
- fatigue cracks closure, kinematic hardening theory 4–66972
- fatigue failure model, probabilistic 4–45723
- fatigue life of notched plates, expt. and theoretical 4–65702
- fatigue notch factor dependence on plasticity and duration of crack growth 4–45884
- filament-reinforced matrix, elastostatic interaction problem for penny-shaped crack 4–51329
- filament-reinforced matrix, penny-shaped crack, elastic filament model 4–51328
- finite, in antiplanar deform. conditions, elastic wave diffr. *(Russian)* 4–75566
- foil, unstable phase of crack propag. 4–49854
- fracture development process in uniaxially compressed synthetic materials 4–66970

cracks continued

- fracture prediction, observations on Sih's strain energy density approach 4–66974
- fracture prediction, observations on Sih's strain energy density approach 4–66976
- glass, crack front curvature and fracture surface markings in transitional fracture vel. region *(German)* 4–76545
- glass, slow propagation 4–61547
- glass, thermally toughened, NiS induced cracking *(German)* 4–76544
- glass reinforced plastic, failure caused by stress concentrations 4–61530
- glass reinforced plastic, fracture toughness 4–61531
- graphite, notched beam test, fracture energy 4–73340
- Griffith, in infinitely long elastic strip, stress distrib. 4–51339
- Griffith type, subjected to three fundamental modes, of surface tractions 4–66971
- growth in rate-sensitive viscoelastic solid 4–66968
- growth of penny shaped crack, work hardening materials 4–67839
- half-space, cracked, under anti-plane shear, regular and singular elastic-plastic solns. 4–62688
- Hertzian loading, cone shaped fracture 4–65661
- heterogeneous solids, crack tip stress singularity problem soln. 4–64622
- high impact polystyrene, craze nucleation under biaxial states of stress 4–80117
- Homalite-100 plates, impacted edge-cracked, crack propag. and arrest 4–50121
- Homalite-100 sheets, crack branching 4–67936
- Incolloy 901, fatigue crack propagation, secondary microcracks 4–45593
- infinite body, nonsteady crack propag., deform. influence 4–48673
- infinite medium, elastic displacements due to propagating crack, exact soln. 4–48687
- infinite strip under antiplane shear, transient crack problem 4–48690
- interaction with rigid inclusions, longit. shear deformation 4–67926
- interface flaw extension due to static prestressing 4–81172
- internal, stress distrib. anal. by optical polarisation technique *(Russian)* 4–47113
- ionic crystals, supersonic crack propag. induced by strong laser pulses 4–48693
- Kapron, oriented monofilament, fractographic obs. of macrocrack propag. 4–45817
- laminate composite, stress distribution due to infinite row of parallel cracks 4–77416
- longitudinal shear crack propag. and cohesive force 4–48682
- macroscopic dynamic theory of stability and instability under impulsive loading 4–48680
- metal, cavitational surface failure *(Russian)* 4–53718
- metal, crack concentration and dimensions determ. by residual resist. method 4–63851
- metal, macroscopic factors, stress field *(French)* 4–76455
- metal, stress corrosion cracking, minor components mass transfer in crack 4–76465
- metal sheet, reinforcements effect on slow stable tear and catastrophic failure 4–49839
- microscopic theory, Peierls-Nabarro model, Griffith criterion 4–60545
- mixed oxide fuel elements of LMFBR, effects of cracks and granular structure on heat transfer 4–43600
- morphology in relatively brittle materials 4–63853
- multi-layered composites, interaction between parallel cracks 4–51327
- multiple circular inclusions, plane elastostatics 4–66980
- nonlinear fracture mechanics problems, crack propag. *(French)* 4–65672
- nuclear fuel cladding, propagation rate, various power conditions, viscoelastic model 4–81652
- nuclear reactor fuel, thermally stressed, crack propag. analysis 4–72001
- Nylon 6, glass fibre reinforced, notched specimen, crack propag. by bending fatigue *(Japanese)* 4–49922
- one dimensional model, crack tip phenomena 4–66973
- optical glass, indentation hardness and lapping hardness 4–45796
- orthotropic plates with longit. stiffeners, analysis of cracks 4–43078
- penny-shaped, in elastic half-space subjected to torsional deformation 4–65678
- penny-shaped crack lying on bimaterial interface, torsional wave scatt. 4–48688
- penny-shaped cracks, linear viscoelastic medium under shear 4–74295
- photoelastic studies of stress distrib. around crack tip, isoclinics influence 4–62420
- plane fracture waves, crack growth in borehole detonation *(Russian)* 4–52811
- plane weakened by two collinear cracks, thermoelastic state *(Russian)* 4–51319
- plastic, glass-reinforced, compliance calibration technique for crack growth relns. 4–53834
- plastic, stress/strain behaviour power hardening relation 4–68899
- plastic deformation around tip using stress/strain relations for Zircaloy 4–80036
- plastic deformation near cracks, review 4–48674
- plastic zone size, for a plate and a cylindrical shell 4–65664
- plate, partially debonded stringer effect on stress intensity factor 4–67818
- plates and shells, cracked, fracture criterion *(French)* 4–65671
- PMMA, crack acceleration meas. 4–50035
- PMMA, crack growth kinetics in static tension regimes 4–49997
- PMMA, crack stability 4–53893
- PMMA, dynamic crack propag. 4–50031
- PMMA, dynamic deform. at high rates of strain, fracture mechanics analysis 4–50032
- PMMA, long crazes fracture mechanics 4–50033
- PMMA, quasistatic cracking in hostile environments 4–67943
- PMMA, relax. effects and damage accumulation under static loads 4–45819

cracks continued
PMMA blocks, supersonic crack propag. due to giant laser pulses 4−50001
polycarbonate, fatigue crack growth law 4−70569
polycarbonate growth law for crack propag. under shock conditions 4−49860
polymer, cyclically loaded, local heating at ends of cracks, fractographic method 4−49995
polymer, dynamic toughness testing, crack vel. meas. 4−50119
polymer, failure mechanism assoc. with swelling 4−61544
polymer, kinetics of accumulation of microcracks and fracture 4−57776
polymer, loaded, deform. and stresses around submicroscopic cracks 4−80125
polymer, loaded, shapes of macro- and submicrocracks 4−53880
polymer containing spherical rubber particles, failure mechanism *(Russian)* 4−53903
polymers, oriented, submicrocrack form., hydrostatic press. effect 4−45832
polystyrene, dynamic crack propag. 4−50031
porous medium for liquid filtration, crack equil. geom. *(Russian)* 4−75193
pressure vessel, cylindrical, with initial surface crack, fracture initiation and propagation 4−47762
pressure vessels, reliability anal. using statistical linear elastic fracture mechanics 4−71328
pretensioned stiffened panels, dynamic photoelasticity, crack arrest capability 4−73995
propagation across interface, associated dynamic stress and displacement field 4−47076
propagation and arrest, machine and initial crack length influence 4−50122
propagation and cyclic deform. at crack tip, plate thickness, stress ratio, necking 4−67838
propagation in a strain ageing and a stabilized mild steel 4−79992
propagation in cyclic stress, cyclically ideal, Bauschinger effect, material *(Russian)* 4−81178
propagation under torsion, dynamic and quasi-static loading 4−43048
propagation under variable amplitude loading, Willenborg retardation model 4−50107
pyroceramics, microbrittleness determ. 4−49880
quasistatic crack propag. for const. strain energy release rate, stability conditions 4−50100
rapid propagation, accompanying average fracture energy 4−67986
reduced stress intensity factor considerations 4−60541
reinforced thin structures, prediction of fatigue crack growth *(French)* 4−67928
rigid polyurethane foam, fracture toughness 4−67942
rock, brittle crack growth under uniaxial compression 4−50248
rock, crack growth control and failure testing system 4−50250
rock, crack propag. and fracture of compression loaded specimens 4−50249
round bar, radial crack propag. during torsion *(Russian)* 4−56805
sandstone, microfracturing in uniaxial compression 4−64796
screw dislocation pile-up, inside circular inclusion, infinite medium 4−66917
screw dislocation pile-up inside circular inclusion 4−66918
shear, unsteady, viscoelastic wave generation 4−43134
similitude laws in crack propagation anal. 4−77449
slow growth in brittle materials, dynamic loading conditions 4−67982
stability in tapered DCB test pieces 4−67985
static strength loss due to presence of microcracks, model 4−45619
steel, 35 NCD 16, C.T. 15 specimen, stress and displacement fields, integral eqn. soln. *(French)* 4−67863
steel, austenitic, crack form. mechanisms *(Czech)* 4−80002
steel, austenitic 18-10 type, stabilised with Ti, weld cracks in heat affected zone, B comp. depend. *(French)* 4−45692
steel, constructional, crack resist. in short-term loading, water and water vapour influence *(Russian)* 4−45597
steel, crack propagation resistance decrease by embrittlement, stress wave attenuation test 4−49857
steel, embrittlement by hydrogen, stress intensities for slow crack growth 4−49787
steel, fatigue and brittle failure at low temp. 4−61451
steel, fatigue crack kinetics, thermal treatment influence *(Russian)* 4−53729
steel, fatigue crack propagation, effects of crack length, stress range and minimum stress 4−53931
steel, fatigue crack tip, crack closure behaviour *(Japanese)* 4−79997
steel, fatigue crack tip, microscopic plastic zone and slip band zone obs. 4−53685
steel, fatigue limit and nonpropagating microcrack correl. 4−49747
steel, ferritic, high temp. crack opening displacement meas. 4−82932
steel, fracture toughness meas., effect of tip crack radius *(French)* 4−67864
steel, hardened, fatigue failure duration, struct. and contamination influence *(Russian)* 4−45605
steel, low-alloy, stress corrosion cracking in acetate solns. 4−45589
steel, low-C, accelerated testing and hydrogen sulphide cracking susceptibility *(Russian)* 4−53731
steel, low-C, crack propag. by stress amplitude below fatigue limit 4−70589
steel, maraging, crack growth, cyclic freq. and corrosive environment effects 4−50115
steel, maraging, sustained load subcritical flaw growth characts. 4−50116
steel, mild plate, plastic flow at crack apex influence on transition to brittle condition 4−61467
steel, neutron irrad., tolerable embrittlement, crack arrest temp. and stress wave attenuation 4−49856
steel, Ni-Cr-Mo-V type, temp. influence on corrosion fatigue crack propag. 4−76475
steel, precracked, residual stress near crack tip, influence on applied stress under tensile loading *(German)* 4−67888
steel, rolled anisotropic plates, biaxial low-cycle fatigue 4−50055
steel, slitted tubes with patches, burst tests and fatigue crack growth rate 4−67984

cracks continued
steel, spring wire, ductility drop after low temp. tempering 4−82920
steel, stainless, austenitic, low C, 304L and 316L types, fatigue crack propag. obs. *(French)* 4−67869
steel, stainless, austenitic, low-cycle fatigue strength temp. depend. and fatigue cracks *(Japanese)* 4−70506
steel, stainless, Cr-Ni-Nb stabilized, freq. and strain range effect on environmental fatigue cracking 4−53758
steel, stainless, Types 304 and 316, neutron irrad. effect on fatigue crack propag. at high temp. 4−43679
steel, strain meas. near crack tips, thickness effects 4−67837
steel, strain meas. near crack tips, thickness effects 4−67840
steel, tubular specimens, stresses involved in tearing *(German)* 4−45875
steel, type 316 stainless, effect of carbide precip. on crack propagation 4−69301
steel, with protective coating, kinetics of crack development during corrosion-fatigue 4−67970
steel foil, unstable phase of crack propag. 4−49854
steel plate, crack form. facilitation using laser radiation *(Russian)* 4−53726
steel sheet, brittle crack formation, grain size effect 4−64589
stress corrosion cracking, hydrogen pump model 4−53764
strip weakened by crack and stretched by concentrated forces, limiting equil. *(Russian)* 4−44595
styrene-acrylonitrile copolymers, fractography, microcracks and banded struct. 4−61537
surface, rel. to holes and surface dislocations 4−66975
tensile crack in viscoelastic-plastic solid, quasi-static extn. 4−66981
thermal fracture, insulated penny shaped crack 4−65663
thermally activated fracture, statistical kinetics, crack development 4−72522
thermonuclear reactor first wall, irradiation swelling, creep, thermal shock and thermal cycling fatigue anal. 4−74798
thermoplastics, crazing and fracture, review 4−61542
three-dimensional solid bodies weakened by cracks, strength determ. *(Russian)* 4−44594
tip plasticity, small scale yielding approx. limitations 4−43085
velocity, thermal and pressure loaded rocket grains, viscoelastic fracture analysis 4−67981
viscoelastic solid subject to subcrit. stress intensity, accelerating crack kinetics 4−48679
wedged double cantilever beams, crack propag. 4−48672
work hardening model, appl. to post yield fracture mechanics 4−67836
Al, plastic strain distrib. at fatigue crack tip *(Japanese)* 4−79933
Al alloy, AU2GN, fatigue crack propagation related to fracture mode *(French)* 4−53762
Al alloy, critical crack tip opening displacement, difficulties in meas. *(French)* 4−67867
Al alloy, fatigue crack propagation, cyclic deform. at crack tip, necking 4−67838
Al alloy, fracture toughness 4−82942
Al alloy 1201, crack propagation resistance, preloading and environment influence *(Russian)* 4−53716
Al alloy 2024-T850, sustained load subcritical flaw growth characts. 4−50116
Al alloy 2024-T851, crack growth, cyclic freq. and corrosive environment effects 4−50115
Al alloy 2219-T87, fracture and cyclic flaw growth, effect of combined modes loading 4−50117
Al alloy 7050-T73, fatigue crack growth, compressive overload effects 4−50104
Al alloy 7075-T6, crack tip plasticity, specimen geom. effect 4−45590
Al alloy 7075-T6, fatigue crack growth rates, effect of specimen polarisation 4−45677
Al alloy AU2GN, Paris law, high temperature tests *(French)* 4−49809
Al alloy-steel wire composite, rupture of two-zone intermetallic layer *(Russian)* 4−70560
Al alloys, fatigue, low-cycle, crack distrib. in small specimens 4−61454
Al alloys, fracture toughness and stress corrosion cracking behaviour 4−49742
Al alloys 2024 and 2618, fatigue crack propagation, secondary microcracks 4−45593
Al-Cu (4.4 mass %) alloy, stress-corrosion crack initiation kinetics, soluted depleted zone effect 4−57752
Al-Cu alloys, fatigue cracks of precipitates *(German)* 4−61471
Al-Cu(4%), W wire reinforced, metal-matrix/metal fibre composites, crack propag., strength, toughness 4−73368
Al-Cu(4%), W wire reinforced, metal-matrix/metal fibre composites, crack propag., fatigue behaviour 4−73369
Al-Mg (7.2 mass %) alloy, stress-corrosion crack initiation kinetics, soluted depleted zone effect 4−57752
Al_2O_3, alumina, sintered bodies, microcrack form., stress intensity factor and healing processes *(German)* 4−45731
Al_2O_3, notched beam test, fracture energy 4−73340
Be S-200, growth law for crack propag. under shock conditions 4−49860
Co-Fe-Ni-Al-Ti alloys, annealed, titanium effect on β and β_2 phase props. 4−61441
Cu, fatigue limit and nonpropagating microcrack correl. 4−49747
Cu, high cycle fatigue crack propag. rates 4−76565
Fe, Armco, growth law for crack propag. under shock conditions 4−49860
Fe, electrochemical behaviour in crevices in chloride solns. 4−76466
Fe crystals plastic slip propagated by cleavage cracks, crystallographic parameters *(Russian)* 4−70485
Fe-Si bicrystals, crack growth resist. at boundary *(Russian)* 4−53717
$GaAs_xP_{1-x}$ lattice-mismatched deposits on GaAs, asymmetric cracking obs. 4−49607
$In_xGa_{1-x}P$ lattice-mismatched deposits on GaAs, asymmetric cracking obs. 4−49607
LiF, crack deceleration by deformation defects 4−79095
Mg-Mn(Zr) alloys, fatigue crack growth characts. 4−45591
MgO, cryst. fused periclase, struct. defects 4−44530

cracks continued
MgO, pressurization effects on microstruct. and mech. props. 4−61498
Mo, ductile fracture due to fragmentation of structure *(Russian)* 4−49763
NaCl, deceleration by deformation defects 4−79095
NaCl, due to heating of liq. inclusions, cine film obs. 4−48626
NaCl, rocksalt crystal, submicroscopic crack and void detect. under load, light scatt. obs. 4−79035
Nb_2O_5, polycryst. sintered, anomalous elastic behaviour 4−45746
$Pb_{1-x}Sn_xTe$, vapour grown crysts., defect sources and their elimination 4−48625
SiC, notched beam test, fracture energy 4−73340
Si_3N_4, hot pressed, high temp. strength, subcrit. crack growth 4−64606
Ti-Al-Mo-V, stress corrosion cracking, effect of H_2 4−82328
Ti-Al-Mo-V alloy, stress corrosion cracking in chloride containing liq. environment 4−61422
Ti-Al-V alloy, crack closure in fatigue 4−67816
Ti-Al-V alloy, fatigue crack propagation, secondary microcracks 4−45593
Ti-Al-V alloy, fatigue crack growth, compressive overload effects 4−50104
Ti-Al-V alloy, fatigue crack growth delay 4−67835
Ti-Al-V alloy, stress corrosion cracking in NaCl aqueous soln. obs. 4−53749
Ti-Al-V alloys, crack growth, cyclic freq. and corrosive environment effects 4−50115
Ti-Al-V alloys, fracture and cyclic flaw growth, effect of combined modes loading 4−50117
Ti-Al-V alloys, sustained load subcritical flaw growth characts. 4−50116
Ti-Al(8 wt.%) alloy, surface slip topography rel. to stress corrosion cracking 4−61411
Ti-Cu(2.5 wt.%) sheet, fatigue crack propag., environment and freq. effects, room temp. 4−49756
UO_2, thermally shocked, crack healing 4−51893
Zn, intergranular failure, role of solutes, isothermal and thermal cycling creep 4−82896
Zn-Al(0.16 at.%), intergranular failure, role of solutes, isothermal and thermal cycling creep 4−82896
Zn-Cu(0.14 at.%), intergranular failure role of solutes, isothermal and thermal cycling creep 4−82896
Zr_3Al-based alloys, oxidation process in CO_2 and CO_2-water vapour mixtures 4−82951
ZrO_2, partially stabilized with CaO, fracture toughness 4−53802

cranes
c.-a.d., double-link level luffing, optimal synthesis 4−81141

cranking model
fission asymmetry parameter, asymptotic behaviour 4−47737
rare-earth nuclei, depend. of moment of inertia on pairing correlation 4−55725
rotational bands in ^{159}Dy and ^{155}Dy in self consistent theory 4−55729

creation hypothesis, continuous *see cosmology*

creation of electron pairs *see electron pair production*

creep
see also anelasticity; plastic deformation; slip; stress relaxation
accelerated fatigue testing, determ. of critical stresses and number of cycles *(Russian)* 4−80153
alkali halide crystals, stacking fault energy determ. 4−60510
alloy, mag. and elec. field effects 4−61438
anelastic strain contribs. 4−53698
bending instability, pure bending of bar, Lyudvik's power law, creep law, Tresca conditions *(Russian)* 4−77398
α-brass, 70-30 type, sigmoidal transient creep behaviour 4−53765
cantilever plate of thin-wing type, analysis under unsteady creep conditions 4−47115
cast superalloys, effect of material characteristics, test variables 4−73322
cavitation creep, review 4−61425
ceramic, high temp. deform., review 4−61481
ceramic nuclear reactor fuels, in-pile meas. of fission enhanced creep 4−74780
chemical stress applied to creep and fracture theories, Griffith crack problem 4−60640
chemical stress applied to creep and fracture theories 4−60639
cladding material, fast breeder reactor fuel, Na corrosion, mechanical props. *(Spanish)* 4−78228
composite, discontinuous fibre reinforced, creep strength 4−61512
constituent relations between creep and plasticity for small deformations *(Polish)* 4−68901
core components of experimental breeder reactor II, fast-neutron swelling and creep significance 4−81571
corundum, deformational aftereffect arising from diffusional creep *(Russian)* 4−69849
crack growth rate meas. by notch rate of expansion method 4−70593
cyclic deformation, approx. calc. method 4−74319
cyclically loaded structures, creep deform. estimation method 4−43093
cyclically loaded structures, work bounds and assoc. deform. 4−43092
cylinders, thick-walled, large strain creep anal. 4−74318
cylindrical structures, influence on stresses due to external forces *(Italian)* 4−43038
deformation and initial anisotropy 4−82947
diffusion creep measurement from marker line displacements 4−49774
diffusive creep rel. to viscous flow 4−66966
discrete relaxation spectra determ. from viscoelastic functions 4−49989
dislocation climb model for irradiated non fissile material 4−56803
dislocations rel. to transient and reversible diffusional creep, calcs. versus UO_2 results 4−60540
elastoplastic solids, annealing model 4−59190
engineering damage parameters role 4−76476
Galerkin method of solution of nonlinear problems, convergence *(Russian)* 4−55260
glass ceramic, creep testing method 4−80156

creep continued
glass fabric reinforced plastic, static and vibr. creep in shear in reinforcement plane 4−45771
glass fibre epoxy laminate, unidirectional, tensile creep 4−49924
glass reinforced plastic cylindrical shells, creep buckling 4−45776
glass reinforced plastics, creep characts. rel. to instantaneous stress/strain curves 4−45772
glass reinforced plastics, oriented, creep and long-time strength in interlaminar shear 4−49941
glass reinforced plastics, unidirectional hollow fibres, compressive creep relations 4−45780
glassy amorphous plastics, ageing, recovery after creep 4−70583
graphite, neutron irrad. creep, dislocation pinning-unpinning model 4−74791
hereditary, finite-difference method for nonlinear integral eqn. soln. *(Russian)* 4−51375
high temperature deformation, interdependent processes 4−80065
Incoloy 800, irrad. influence on creep/fatigue behaviour at 700°C 4−43678
Inconel, X-750, creep fracture at 700°C 4−64584
inelastic high temperature materials, strain rate, varying stress, rel. to flow and creep 4−64591
irradiation-induced primary creep model, creep rate calcs. for reactor fuel cladding 4−81629
irregular loading, multiple step tensile strain, nonlinear creep and relax. 4−57780
long term strength and creep, material exposed to radiation in corrosive media 4−83007
mantle creep strength and low velocity zone specific attenuation factor 4−64732
metal, creep resistance enhancement by surface layer elimination 4−45662
metal, f.c.c., irrad. creep rel. to interstitial loop form. 4−59844
metal, low temp., thermal fluctuation analysis *(Russian)* 4−49758
metal, mag. and elec. field effects 4−61438
metal, structural parameters changes and set of differential eqns. *(Russian)* 4−49759
metal strips, symmetrically notched, yield pt. loads 4−45881
metallic glasses, mech. characts. 4−76453
metals, temperature aftereffect 4−82941
mobile dislocation density model 4−52757
αNi-Al solid solns., minimum creep rate, stress and temp. depend. *(Japanese)* 4−67849
Nimonic 80A, prestrain, cavitation, creep ductility 4−82933
nonlinear, unified iteration methods *(German)* 4−77462
notched bodies under longit. shear, mechanics approach to creep rupture strength *(Japanese)* 4−70505
nuclear reactor coated fuel particles, Walther model simplification without accuracy loss 4−74785
nuclear reactor components and systems, interaction with fatigue effects 4−81556
olivine single crystals, low-stress high-temp. creep 4−61676
oxides, interdiffusion and diffusional creep, obs. on cation vacancies 4−44697
plastics, bending creep meas. *(Polish)* 4−49985
plastics, structural appl., rel. to selection and design 4−67954
PMMA, prestressing influence on service life 4−80136
polycarbonate, strain-rate and temp. depend. of yield 4−82972
polyethylene, prestressing influence on service life 4−80136
polyethylene films, superposition principle in nonlinear strain range *(Japanese)* 4−80103
polymer, cryst., effect of thermoelastic stresses induced by temp. fluctuations 4−64644
polymer, crystalline, molecular model of creep and stress relax. 4−53879
polymer, cyclically loaded, inertia effect in deform. problem 4−45805
polymer, linear mechanics, anisotropy pot. 4−80122
polymer, mol. mobility and strength relationship at low temp. *(Russian)* 4−53899
polymer, nonlinear mechanics 4−80121
polymer, nonlinear viscoelastic behaviour, implicit eqn. approach 4−49981
polymer, rigid, acoustocreep and acoustic fatigue, electron-acoustic apparatus 4−53948
polymer monofilament, compressive deformability in radial direction, multiple apparatus 4−53947
polymer rod, creep stability theory applic. 4−80129
polyolefins, crystalline, deform. and fatigue props. relationship 4−45830
polystyrene, non-isothermal creep deflection process 4−53892
polystyrene, prestressing influence on service life 4−80136
pressurised tubes, effect of random temperature fluctuations, nuclear reactor design 4−81561
prestressed concrete pressure vessel, rupture analysis creep effects 4−78171
primary/tertiary creep eqn. development procedure 4−76515
pyrocarbon fuel cladding, burn up/dose limit, tensile stress, creep strain, particle life *(German)* 4−81634
recrystallisation in hot working and creep, model 4−70463
rheological curves approximation using distrib. theory 4−49994
rotating discs, creep rupture times prediction using biaxial damage relationships 4−43091
rupture of structures, failure times 4−68902
rupture strength data extrapolation and confidence *(Czech)* 4−50068
solid solution alloy, transition from dislocation climb to viscous glide 4−61401
sphere, viscoelastic, polar symmetrical deformations *(Russian)* 4−47110
spinal materials, deform. and failure characts. 4−54670
static strength loss due to presence of microcracks, model 4−45619
static testing and thermomech. treatment device for 4.2-1200K range 4−61563
steady-state dislocation creep eqn. development 4−61402
steel, austenitic, 20°C *(Czech)* 4−80000
steel, austenitic, service life under combined action of creep and thermal cycling 4−67880
steel, austenitic, structural singularities and thermal stability *(Russian)* 4−61412

creep continued
steel, austenitic Cr-Ni-Ti-B type, postirrad. creep rupture, neutron spectrum and microstruct. influence 4−43675
steel, austenitic stainless, irrad. influence on creep/fatigue behaviour at 700°C 4−43678
steel, austenitic stainless, stabilized, in-pile stress rupture strength 4−43677
steel, austenitic stainless, stress relax. and mech. eqn. of state 4−45657
steel, cast Cr-Mo-V type, creep rupture test, influence of slow temp. cycles *(German)* 4−45874
steel, cavitated creep-fracture surface, smoothing by surface self-diffusion 4−45686
steel, fine struct. and pore form. *(Russian)* 4−64546
steel, fine-grained high-temp., welding-simulation heat-treated specimens, stress-relieving effects *(German)* 4−64571
steel, high-temp., prior deform. influence on short-term creep resist. *(Russian)* 4−45711
steel, internal friction, effect of creep, ageing and reducing heat treatment 4−49825
steel, low-alloy high-temperature, creep curves and creep rupture strength, 550°C, additive effects *(German)* 4−61404
steel, low-C, notch creep rupture strength under torsion *(Japanese)* 4−70504
steel, low-C, plastic deform. after arrest of creep 4−61465
steel, low-C Cr-Ni type, high temp. short time creep deform., microstruct. changes *(Japanese)* 4−45635
steel, Mo spheroidized, during high temperature deformation 4−73323
steel, Ni-Mo-Cr type, temp. and holding time at stress relieving effects on internal stresses and mech. props. *(German)* 4−67812
steel, primary/tertiary creep eqn. 4−76515
steel, stainless, brazed joints, high temp. creep rupture props. 4−45705
steel, stainless, Type 316, irrad. effect on ductility 4−43672
steel, stainless, Type 316, irrad. effect on microstruct. and creep rupture props. 4−43671
steel, stainless 304L, swelling from helium pressurised tubes 4−69296
steel, stainless type 304, review of high-fluence duct swelling and mechanical props. in EBR-II 4−81572
steel, stainless type 316, grain boundary sliding meas. 4−82850
steel, stainless type 316, neutron irrad., stress effect on microstructure 4−73306
steel, tubular specimens stressed in torsion, creep after martensitic transform. *(French)* 4−49799
steel grain and grain boundary strengths effects on creep rupture strength 4−79993
strength improvement methods, combined solid soln. and dispersion hardening, fibre reinforcement *(German)* 4−45698
stress change effect on creep deformation 4−56800
stress gradients and Kirkendall shifts due to neutron damage 4−70516
superplastic deformation, grain size role 4−76496
superplastic deformation, grain size role 4−76497
tensile strips, singly-notched pin-loaded, yield pt. loads 4−45880
testing, high temp. vacuum unit 4−61575
thermal reactor fuel element deformation, appl. to beam, column and plate theory 4−47763
thermonuclear reactor first wall swelling, creep, thermal shock, thermal cycling fatigue 4−74798
time/temperature rupture parameters, graphical optimisation procedure 4−67852
tube, thin walled, biaxial creep meas. 4−80157
tube creep bending, differences in tensile and compressive props. 4−45893
tubes, thick-walled, effects of hydrostatic pressure and material anisotropy 4−51360
two-dimensional stress concentrated parts, transient creep problem 4−51359
tyre, thin solid, press-fitted on wheel 4−51365
Udimet 700, air environment effect on creep and rupture at 1200K 4−82910
variational principles, for creep, appl. to thin shells 4−71333
viscoelastic creep, relaxation, incompressible and linearly compressible media 4−66967
viscoelastic rod, Euler stability under longitudinal compression force *(Russian)* 4−47089
viscoelasticity, stress-activated and linear spectral models comparison 4−47094
yarn, continuous filament, tensile behaviour 4−82971
Ag, structural state, creep characts. *(Russian)* 4−66965
γ-AgZn, slip in intermediate phases 4−67795
Al, block boundaries formed in creep, stability *(Russian)* 4−76438
Al, creep deformed at 600°C, slip plane obs. in single crysts. *(French)* 4−45586
Al, internal friction change during creep, model of screw dislocation lateral glide *(Russian)* 4−79987
Al, polygonization substructure migration due to electromigration and creep *(French)* 4−45544
Al alloy, short-term formation at 450°C *(Russian)* 4−53746
Al-Cu alloy, eutectic, superplastically deformed, quantitative texture meas. 4−61362
Al-Mg(5.5 at.%) solid soln., effective stress in steady state creep 4−53702
Al-Mg(5.83 wt.%) alloy, discrete creep during repeated static loading 4−49830
Al-Mw alloys, high temp. steady-state creep, activation parameters 4−64585
Al-Ni-Si-Mn bronze, magnesium effect on struct. and mech. props. 4−61442
Al_2O_3, corundum, 1650-1970°C, pure bending 4−57761
Al_2O_3 mass transport equation for diffusional creep, 1200-1600 degrees C 4−49884
As-S(Se) system glasses, stress relax. *(Japanese)* 4−50028
Au-Cu-Zn, thermoelastic martensite, pseudoelasticity, stress-strain curves rel. to creep 4−82936
Bi-Sb alloy, spherical indentation tests 4−49786
Cd, low stress obs. of grain boundary diffusion, 267-309K 4−53760

creep continued
Cd, single crystal effective shear stress during creep deform. 4−61408
Cd-Zn(0.44 at.% Zn), single crystals, discontinuous creep curves, temp. dependence 4−67814
CdTe, $Cd_xHg_{1-x}Te$, single crystal *(Russian)* 4−44593
Co, polycryst., temp. and stress depend. of steady state creep rate 4−73321
Cu, film, creep and lifetime investigation under load 4−72656
Cu, notch creep rupture strength under torsion *(Japanese)* 4−70504
Cu, structural state, creep characts. *(Russian)* 4−66965
Cu bicrystal, oriented, intercryst. creep *(French)* 4−49711
Cu wire, applied pot. and surface dissolution effect 4−61399
γ-Cu-Al, slip in intermediate phases 4−67795
Cu-Al alloys, grain boundary sliding meas. 4−82850
Cu-Co alloys, particle size and spacing effect on steady state creep 4−64586
Cu-Zn solid solns., primary, high temp. creep and creep rupture *(Czech)* 4−80001
α-Fe, rapid thermal cycling effects 4−45642
α-Fe, X-ray dislocation substructure obs. and strengthening mechanisms, 123 to 196K 4−67841
Fe alloy, microinhomogeneous deformation mechanism, 20-850°C, single-phase specimens 4−61464
Fe cast, ductile, total elongation during pearlite ⇌ austenite transform. *(Japanese)* 4−61429
Fe_2O_3, polycryst., creep rate data, interdependent transition 4−80065
Ge, single crystal, effect of preliminary thermocyclic treatment *(Russian)* 4−44545
HgTe, $Cd_xHg_{1-x}Te$, single crystal *(Russian)* 4−44593
In, electroplastic effect *(Russian)* 4−69850
$KCl:Ba^{2+}$, low temp. study of deformation dynamics *(German)* 4−44592
Li_2O-ZnO-SiO_2 glass, ceramics, high temp. plasticity, model based on dilatancy and dissolution 4−49890
Li_2O-ZnO-SiO_2 glass ceramics, high temp. plasticity, const. strain rate tests 4−49889
Mg-Nd alloy, rel. to precip. hardening, effect of additions 4−61472
Mg-Th alloy, rel. to precip. hardening, effect of additions 4−61472
MgO, mass transport equation for diffusional creep, 1200-1600 degrees C 4−49884
MgO, polycryst., strain hardening and recovery during compressive creep 4−61491
MgO, transient and steady state creep 4−61496
Mo, coated with boron silicide, creep and long-term strength in vacuum, 1000-1400°C 4−53772
NaCl, activation energy, subgrain size creep rate relations 4−44591
Nb, activation energy, anomaly due to dynamic strain ageing 4−45659
Nb alloys, binary, solute interaction effects on creep strength 4−45674
Nb alloys, binary, solutes effect on creep strength 4−45673
Ni, struct. changes during alternate thermocyclical working and annealing *(Russian)* 4−82914
Ni, under cyclic loading, creep strain rel. to metallurgical recovery 4−45683
Ni alloy, dispersion strengthened with thoria, stress depend. of steady state creep 4−80035
Ni alloys, high temp. creep characts. from limited time tests 4−49833
Ni superalloy Mar M-200, long positron lifetime correl. with plastic deform. 4−75546
Ni-G(20 wt.%)(−Co(35 wt.%))-Al(4 wt.%) alloy, containing γ' particles, high temp. steady state creep, mech. *(Japanese)* 4−45627
Ni-W(6 wt.%) alloy, sample size and grain morphology effect on steady state creep characts. 4−80008
Pb, dispersion strengthened, recrystallised, with 1 wt.% PbO, room temp. creep 4−80039
Pb, stress relaxation in monotonic loading, mech. eqn. of state and grain boundary sliding 4−53704
Pb-In system, creep deform. increase at supercond. transition temp., comp. depend. 4−57209
Pb-Sb and Pb-Cd-Sb alloys, substruct. development and mech. props. improvement 4−45649
Pb-Sn(9%) obs. of transition from class I to class II creep behaviour at low stresses 4−45700
Se, amorphous, creep compliance 4−79093
SiO_2, vitreous, strength and deform, props. 4−80093
Sn-Pb alloy, eutectic, indentation creep 4−45620
α-Ti wire, low temp. deform. kinetics using stress relax. 4−49785
Ti/Mo fibre reinforced, creep and long-term strength 4−49948
Ti-Al-Zr-W-Si alloy, creep resist. and embrittlement 4−64551
TiB_2 powder, hot pressing characts., creep phenomena 4−49908
TiO_2, recovery of creep-resistant substruct. in air and vacuum under reduced stress 4−45747
UO_2, creep rate, plasticity, high temperature 4−64600
UO_2, dislocations rel. to transient and reversible diffusional creep 4−60540
UO_2, mech. eqn. of state and high temp. deform. 4−76520
W-Re-Hf-C alloys, comp. effects on mech. props. 4−80003
W-ThO_2(2 wt.%), improved material 4−64577
Y_2O_3 granular ceramics obtained by sintering and h.f. fusion, characteriz. 4−61506
Zn, intergranular failure, role of solutes, isothermal and thermal cycling creep 4−82896
Zn, temp. depend. and activation parameter in range 1.5 to 80K 4−45702
Zn containing ZnO particles, high temp. texture strengthening 4−53763
Zn-Al(0.16 at.%), intergranular failure, role of solutes, isothermal and thermal cycling creep 4−82896
Zn-Cu (up to 2.0 wt.%) alloy, heat treatment, ageing, microstruct., creep resist. 4−70494
Zn-Cu(0.14 at.%), intergranular failure role of solutes, isothermal and thermal cycling creep 4−82896
ZnTe, single crystal *(Russian)* 4−44593
α-Zr, creep deformed at 500 and 600°C, hydride particles and dislocation struct. *(Czech)* 4−49698

- **creep** continued
  - Zr-O alloy, polcryst., stress relax. behaviour, 573-773K 4−64582
  - ZrO_2:Y_2O_3, hardening during high temp. creep *(Russian)* 4−53792
- **crestatrons** *see travelling-wave-tubes*
- **crevices** *see cracks*
- **crimping**
  - No entries
- **critical constants, thermal** *see thermal critical constants*
- **critical mixtures** *see solutions*
- **critical opalescence**
  - correlation function, close to critical point, angular and temp. dependence meas. *(Russian)* 4−81263
  - double scattering approximation, possibility of experimental investigation *(Russian)* 4−81285
  - liquid, critical phenomena in strong electric field 4−77581
  - liquid, Rayleigh scatt. theory *(Russian)* 4−79740
  - methanol + cyclohexane, phase separation near critical point 4−44676
- **critical phenomena**
  - *see also magnetic transitions of substances; phase equilibrium; phase transformations*
  - anisotropic systems, renormalization group analysis 4−59316
  - Ashkin-Teller model, phase transitions 4−43179
  - Bose gas, charged, critical behaviour, self-consistent theory 4−59297
  - critical point, scaling theory 4−71452
  - cross-over exponent up to $\varepsilon^3(\varepsilon=4-d)$ using Callan-Symanzik equations 4−81260
  - crossover exponent of anisotropic n-vector model 4−43186
  - decorated lattice gas, coexistence curve properties, critical behaviour 4−51468
  - divergent transport coefficients at critical points, renormalization-group calcs. 4−51498
  - dynamic, renormalisation group theory 4−71438
  - dynamic scaling law determ. using Kadanoff's cell anal. and coarse graining of time 4−62769
  - effective critical and tricritical exponents, scaling field theory 4−51499
  - effective density-of-states distribution, infinite divisibility and stability 4−71450
  - Feynman graph calcs. of (0,l) critical exponents 4−77578
  - Fisher's droplet model, three dimens., Monte Carlo calc. 4−74445
  - Fisher renormalization in constrained systems with finite sp. ht. 4−43213
  - fluids, thermodynamic props. near critical point, accurate representation 4−51493
  - free energy, inequalities and estimates using perturbation theory with variational parameter 4−68984
  - general n-vector model, fixed points 4−77580
  - Ginzberg criterion, rationalized 4−82510
  - Ising model, calc. of critical index η using field-theory methods 4−68961
  - Ising model, spin flip 2-D, crit. slowing down 4−77567
  - Ising model, tricritical scaling laws 4−43181
  - Ising model problem, use of Chisholm approximants 4−55382
  - Ising system, two dimensional triangular lattice, four cell approximation, critical surface determination 4−81246
  - Landau theory, critical phenomena in 3.99 dimensions 4−68981
  - liquid-vapour system, density fluctuations and specific heat near critical pt. 4−65855
  - long-range interactions, cubic vs. isotropic behaviour 4−65853
  - many-electron problem anal. 4−74444
  - normal-product formalism 4−43219
  - one third power law, mol. field model, temp. depend. 4−43220
  - order parameter fluctuations, decay rate 4−55410
  - phase transformations *(German)* 4−48728
  - point transformations of multipoint correlation functions of local fluctuating quantities 4−59295
  - renormalisation group simplification 4−71456
  - renormalisation group theory, gradient flow 4−68982
  - renormalisation-group calcs. of exponents for crit. points of higher order 4−74449
  - renormalised crossover exponent for anisotropic cubic systems 4−81245
  - renormalization group equation, invariance properties 4−59317
  - renormalization group equations, nonlinear solns. 4−59321
  - renormalized perturbation theory, scaling law corrections 4−43188
  - review of theoretical methods 4−68983
  - scattering parameters in critical regions, for Ising-like system 4−77566
  - second-order transition, critical exponent self-consistent screening calc. 4−65833
  - self-avoiding walk, self consistent soln. 4−55377
  - specific heat, discontinuities of critical amplitude 4−59320
  - square Ising spin lattice, critical surface renormalisation transforms 4−81248
  - subcritical exponent, scaling corrections calcs. 4−71457
  - symmetric traceless tensor field theory model, crit. exponents 4−59319
  - thermodynamic stability theory and relationships between crit. indices *(Russian)* 4−55415
  - three-state Potts model, high-field expansions, critical isotherm study 4−71432
  - two-scale-factor universality and ε expansion 4−47255
  - universality of critical exponents, new proposal, definition through inverse correlation length 4−74447
  - Wilson's theory, Callan-Symanzik eqns. in 4-ε dimensions 4−59323
  - Wilson's theory, higher order corrections to crit. exponents 4−65860
  - Wilson model, critical relaxation of nonlinear Fokker-Planck eqn. 4−74448
- **CRO** *see cathode-ray oscilloscopes*
- **crocidolite** *see asbestos*
- **crops** *see farming*
- **cross-sections (nuclear)** *see nuclear reactions and scattering*
- **crosstalk**
  - multiaxial force/moment transducer design and crosstalk problems 4−73992
- **crowdions** *see interstitials*
- **CRT** *see cathode-ray tubes*
- **crushing strength** *see compressive strength*
- **cryogenic pumps** *see cryopumping*
- **cryogenics**
  - *see also cryopumping; cryoscopy; cryostats; cryotrons; Joule-Thomson effect; liquefaction of gases; low-temperature phenomena; low-temperature production; low-temperature techniques; magnetic cooling; refrigeration; superconductivity*
  - bubble chamber, protection from contamination by solidified gases 4−77053
  - calorimetry use *(French)* 4−46611
  - coils, field, toroidal, liquid-cooled, thermal insulation influence 4−56544
  - conference, technology arising from high-energy physics, Geneva (April 1974) 4−77138
  - contact resistance in liquid N 4−70061
  - container, gas-cooled support temp. distrib. and power loss 4−65402
  - cryobiology, laboratory equipment, report 4−46929
  - cryogenic liquid, mobility, conduction, and breakdown, review 4−82666
  - cryogenic liquids, effect of thermodynamic props. on erosion during cavitation 4−75722
  - dewar, bubble no. reduction in liq. N_2 4−77055
  - explosion due to heating to thermodynamic metastability limit, shock wave overpress. prediction 4−52895
  - fusion device, ORMAK, in vacuum environment 4−55966
  - glued multicore sealed leads for low temp. apparatus 4−62444
  - heat transfer research at Oxford, flow boiling of He I 4−50989
  - high-energy physics applications 4−77058
  - inert gas purification and meas. of low residual impurity levels 4−74175
  - insulation, design for h.v., electrical props. 4−80856
  - liquid container, heat influxes through neck determ. 4−50995
  - liquid He vacuum pumping system for Baseball II plasma machine 4−59866
  - mass spectrometer, positive ion, for lower ionosphere studies 4−80399
  - microrefrigerator, Joule-Thomson, for i.r. detector cooling, crit. CO_2 conc. 4−68653
  - ORMAK system operation 4−56545
  - pressure transducer, low temperature application 4−50994
  - protection of surfaces from contamination by solidified gases 4−77053
  - reservoir suitable for liquid nitrogen, easily made from Eccofoam 4−42758
  - semiconductor device characterisation for use at 4.2K 4−77052
  - semiconductors thermometry *(Russian)* 4−74021
  - shock waves in liquid He II 4−72298
  - superconducting r.f. separator, development and testing of prototype for Nimrod 4−77155
  - superconducting system, current lead optimisation 4−68649
  - temperature control system, optimum performance 4−50990
  - transfer lines dimensioning 4−50991
  - ultrasonic measurement apparatus at low temperature 4−68624
  - vacuum sealing of optical windows for operation at low temp. 4−68656
  - VT-200 adhesive, low temperature vacuum joins 4−68652
  - Ge diodes, low temp. thermometric characteristics 4−70062
  - He II target, pion cross section precise measurements 4−77160
  - Si diodes, low temp. thermometric characteristics 4−70062
- **cryopumping**
  - adsorption isotherm and pumping speed meas. of He on mol. sieve at 4.2K, 10^{-11}-10^{-7} torr 4−74025
  - for balloon-borne mass spectrometer 4−42769
  - condensation cryopumping, performance data for liquid He boil off 4−54853
  - condensation surface temperature evolution in cryopump rel. to time investig. *(Spanish)* 4−80861
  - intersecting storage rings applic. 4−51135
  - liquid He cryopumping system operating with electron beam gun 4−74027
  - CO_2 condensation on cooled panel, supersonic flow, efficiency 4−56418
  - He superhigh vacuum pump for investigating autoelectronic cathodes *(Russian)* 4−68657
- **cryoscopes** *see cryoscopy*
- **cryoscopy**
  - cell, for hygroscopic materials 4−65405
- **cryosorption** *see sorption*
- **cryostats**
  - for collection of three-dimensional diffractometer data at liquid He temps. 4−54852
  - continuous flow, limited space application 4−68648
  - He, liquid, efficient filling and re-filling aid 4−68647
  - image extraction by fibre optic from very low temp. cryostat 4−80872
  - neutron diffraction, 4.2-300K cryostat to function at 40 kilobars 4−54854
  - neutron diffractometer cryostat with goniometer 4−44444
  - nuclear polarisation expt. computerised system 4−46827
  - radiation shields, enthalpically cooled, adaptability to neck of cryostats *(German)* 4−54851
  - single beam i.r. spectrometer appl., for refl. and transmission expts. *(Russian)* 4−42806
  - superconducting closed magnetic system of complex config. investig. for plasma generation *(Russian)* 4−69656
  - superconducting solenoids operation w.r.t. cooling and heat transfer methods for stellarators *(Russian)* 4−69657
  - temperature controller cryostat, 4 to 300K with low He consumption 4−80854
  - temperature-controlled, optical, elec. glow curve meas. 77 to 800 K 4−46607
  - thermal insulation model, for liquid He containers *(German)* 4−77057
  - thermoelastic power meas. of semiconductor in 80-400K range 4−80953
  - window sealing method using Teflon ring 4−77056
  - Cu nuclear demagnetisation cryostat for liq. ^{3}He between 0.7 and 2.5 mK 4−72612

cryostats continued
- He, meas. of H_c in Nb-Ti alloy, high field supercond. method *(Russian)* 4−79438
- He storage dewar experimental cryostat *(German)* 4−46610
- ^{3}He cold finger cryostat for e.p.r. expts. 4−65403
- ^{3}He precooling stage in adiabatic demagnetisation cryostat 4−77054
- ^{3}He-^{4}He dilution refrigerator, design details 4−71174

cryotrons
- No entries

crystal atomic structure
- *see also crystal atomic structure of alloys; crystal atomic structure of elements; crystal atomic structure of inorganic compounds; crystal atomic structure of organic compounds; crystal electron states; electron diffraction crystallography; lattice constants; neutron diffraction crystallography; space groups; X-ray crystallography*
- base-centred monoclinic lattice, Brillouin zone *(Russian)* 4−72534
- crystal point groups, invariant functions and homogeneous bases of irreducible representations 4−78940
- dense layers, loose packing, theory 4−48536
- Edgeworth series applics. 4−69741
- Euler angles space, symm. 4−75471
- generalized geometry, mol. models 4−44503
- isomorph replacement, artificial, using phasing model *(Spanish)* 4−44504
- LEED, intensities for surface struct. anal. *(Japanese)* 4−44736
- merohedrally twinned crystals, refinement with least-squares programs 4−56569
- particles scattered from atomic surface rows, ang. intensity distrib. 4−73229
- phase transitions, syncretist classification 4−63917
- Phillips ionicity, covalent and ionic cryst. radii 4−75475
- point group, tetrahedral, Kronecker product of representations, reduction, lower symmetry functions 4−52716
- point group representation, reduction of Kronecker product, spectra for multielectron systems 4−75472
- point groups, Kronecker product for representations 4−48535
- point groups, single and double, symm. coupling coeffs., time-reversal symm. 4−69742
- point groups, symmetry coupling coeffs., Racah's lemma for phase standardization 4−56642
- space groups, isosymbolic subgroup properties *(French)* 4−63781
- substitution by isomorphous elements, nature of filling of positions 4−48587

crystal atomic structure of alloys
- atomic ordering in magnetic field, thermodynamical and statistical approaches *(Russian)* 4−67363
- bibliographic list of references for Landolt-Bornstein 4−60465
- binary, ordering theory, anisotropic interatomic interaction *(Russian)* 4−60430
- γ-brass, long period superlattice form. in Cu rich alloy 4−52720
- multicomponent replacement solid solution, short range order, elastic distortions *(Russian)* 4−67004
- one dimensional long period superstructures, valence electron conc. depend. 4−56650
- rare earth arsenides, nonstoichiometry in rocksalt phases 4−63794
- rare earth cobaltides, R_5Co_{19}, R=Ce, Pr, Nd, CeMM, cryst. struct., parameters determ., RT_x (T=Fe, Co, Ni) lattice parameters calc. 4−56648
- rare earth hexaaurides, RAu_6, packed polyhedra 4−60428
- rare earth intermetallics, $R_2(Co_{1-x}T_x)_{17}$, R=Sm, Er, T=Fe, Ni, mag. characts. and lattice const. meas. 4−53260
- rare earth-indium intermetallics, Ln_5In_3, X-ray obs. 4−63792
- rare earth-Pd compounds, R_5Pd_2, cryst. struct. and lattice const., X-ray obs. 4−75480
- simple structures, relative cohesive energies 4−60426
- stacking variation of brass-like two atom replacement structures containing Mg, model 4−56649
- transition metal alloys, lattice const. and mag. moment, correlation 4−70145
- transition metal alloys, stability of Al_2Cu-type phase 4−76418
- valence electron concentration effects 4−64007
- Ag-Cd(52 wt.%), at vol. expansion and lattice const., 17°C to 560°C 4−78949
- Al-Ge, metastable phases 4−73284
- Al-Pt solid soln., non-equil. phase behaviour 4−49651
- Al-Si-Mg, occurrence of metastable β'' phase 4−70469
- Au-Cu-Zn, thermoelastic martensite, pseudoelasticity, crystal structure, axial ratio meas. 4−82936
- Au_2Ga, cryst. struct. and lattice consts. *(German)* 4−72443
- $AuSb_2$, forbidden spots in electron diffr. *(French)* 4−69753
- Ca-Ni, growth and struct. of four intermetallic compounds 4−76419
- $Ca_2Al_2SiO_7$-$Sr_2Al_2SiO_7$, ordering obs. 4−44517
- Cd-Mg (up to 10 at.%), lattice parameter, rel. to Hall effect 4−48967
- Cd-Mg alloys, distorted struct. formation 4−64533
- $Ce_{15}Ni_4Si_{13}$, X-ray obs. 4−48541
- $CeZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
- Co-Fe, X-ray diffraction and electron microscopy exam., double h.c.p. phase 4−76416
- Co-Fe-Ru in f.c.c. and h.c.p. phases, magnetisation, Mossbauer and cryst. struct. meas. 4−82588
- $(Co_{3.5}Cu_{1.5})Pr_{1-x}Y_x$, lattice parameters and coercivity 4−63793
- Co_cGa (C=0.85-1.46), cobalt clusters, struct. rel. to mag. props. 4−45098
- $(Co_3Ni_2)Pr_{1-x}Y_x$, lattice parameters and coercivity 4−63793
- $Co_{1-x}V_x$, comp. depend. of lattice parameters and mag. moments 4−48540
- Cu-Te, β''' hexagonal phase, cryst. struct., electron diffr. 4−82135
- CuAu, superlattice form. in order-disorder reaction 4−79897
- Cu_2GeSe_3 based alloys, nonstoichiometric, investigation of struct. and props. 4−44674
- CuPt, multi-ion interactions and $L1_1$ ordering 4−61328
- Cu_5Zn_8, Cu_5Cd_8, γ-brass types, cryst. structs. determ. 4−56647
- $DyFe_{3-x}Ni_x$, comp. depend. 4−82641
- Dy_5Pd_2, cryst. struct. and lattice const., X-ray obs. 4−75480
- $DyZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
- Er_3Ni_2, cryst. struct. determ. 4−75478
- $ErZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
- Eu-Pd system, phase diag., divalent and trivalent Eu 4−76417
- α-Fe, solute effects on lattice parameter and density 4−45511
- Fe-Al, ordering kinetics 4−49678

crystal atomic structure of alloys continued
- Fe-Al-N, neutron irradiation effects, internal friction and torsion tests 4−76464
- Fe-Co films, vacuum-deposited, atomic ordering, electron diffr. obs. *(Russian)* 4−60429
- Fe-Ge, quenched from liq. state, struct. obs. *(Russian)* 4−79902
- γ-Fe-Mn, mag. transform. *(Russian)* 4−67362
- γ-Fe-Mn, proton diffraction patterns obs., shadow effect 4−56651
- γ-Fe-Ni, proton diffraction patterns obs., shadow effect 4−56651
- Fe-Ni-C martensite, thermally activated deform., electron microscope obs. *(Russian)* 4−73320
- Fe-Si, ordered and disordered, lattice consts., degree of order *(German)* 4−49634
- Fe-Zn system, cpd. Γ_1 formation and cryst. parameters 4−82840
- Fe_6Ge_5, cryst. struct. determ. *(French)* 4−75477
- Fe_6Ge_5 cryst. struct. determ. *(French)* 4−75477
- $Fe_{3-x}Mn_xSi$ alloys, structural and mag. props. 4−76091
- Fe_3Zn_{10}, γ-brass type, cryst. struct. determ. 4−56647
- Gd-La, lattice parameters meas., exchange interactions investigation 4−57266
- $Gd_{0.9}Y_{0.1}$, coherent nucl. scatt. amplitude determ. by epithermal neutron diffr. 4−66860
- $GdZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
- Hf-Al-M, (M=group VIII metal), ternary Laves phases 4−63891
- Hf-Cu-Hg systems, X-ray anal., $HfCuHg_2$ struct. *(German)* 4−75479
- Hg-As system *(German)* 4−66859
- HoPd, cryst. struct. 4−82132
- In-Mg alloys, distorted struct. formation 4−64533
- Li-Ag, lattice parameters by X-ray diffraction 4−78948
- Li-Mg, disordered alloy, binding energy of equilib. lattice parameter calc. 4−72444
- Li-Mg lattice parameters, by X-ray diffraction, comparison with other results 4−78948
- Mg-Cd (up to 10 at.%), lattice parameter, rel. to Hall effect 4−48967
- Mn-Pd, cryst. and mag. struct., neutron diffr. obs. 4−70162
- Mn_3Si, degree of ordering, X-ray obs. *(Russian)* 4−82136
- Mo-Re alloy, rel. to electron struct. *(Russian)* 4−82351
- $MoSi_2$ type intermediate phases, struct. relationships 4−63784
- Nb-Ga system, phase relations *(French)* 4−67022
- Nb-Pb intermetallics prep. and characteriz. 4−53784
- $Nb_{14}Co_{50}Si_{36}$, lattice parameters *(French)* 4−53647
- $NdZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
- Ni-Al(6.3 at.%), ordering energy depend. on interatomic spacing *(Russian)* 4−53648
- Ni-Co, lattice parameter conc. depend. w.r.t. ordering in Ni_3Co 4−75481
- Ni_2MnGa, Heusler alloy, lattice parameter by X-ray examination, magnetic properties meas. 4−79510
- $NpAl_3$, X-ray obs. 4−69750
- NpPt, $NpPt_3$, X-ray obs. 4−69750
- Np_3Si_2, X-ray obs. 4−69750
- Np_3Sn, $NpSn_3$, X-ray obs. 4−69750
- Np_3Tl, X-ray obs. 4−69750
- Pb-Bi thin films grown from vapour *(French)* 4−53011
- Pd_5Ga_2, orthorhombically distorted cubic close-packed array of atoms *(German)* 4−61340
- PdMnTe Cl_b type intermetallic, crystallographic and mag. characts. 4−48543
- $PrZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
- Pt-Rh(40 wt.%), high temp. thermal expansion, X-ray diffr. obs. 4−69925
- Pt_3CO, FIM image interpretation, atom probe investigation, comment 4−63790
- Pt_3Co, FIM image interpretation, atom probe investigation, reply 4−63791
- Sm-Cd system, partial phase diag. and cryst. structs. 4−63892
- Sm-Ce-Co-Fe-Cu, permanent magnet props., cryst. structures 4−79541
- $SmAu_6$, cryst., automatic X-ray absorpt. correction using intensity meas. from azimuthal scans 4−56575
- $(Sm_{1-x}R_x)_2Co_{17}$, R=Pr, Gd, Y, mag. characts. and lattice const. meas. 4−53260
- $SmZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
- Sn-Pb(5-30 at.%), growth from melt and struct. 4−82131
- TbPd, cryst. struct. 4−82132
- $Th(Co_xFe_{1-x})_5$, intermetallic compounds, and mag. struct. 4−70167
- Y_5In_3, X-ray obs. 4−63792
- $Y_xLa_{1-x}(Co_yFe_{1-y})_5$, neutron diffr., substitution effects 4−70166
- $Ya_yTi_{1-y}D_x$, short- and long-range order in interstitial atom arrangement, neutron diffr. obs. 4−48542
- YbPd, cryst. struct. 4−82132
- Zr-Al-M, (M=group VIII metal), ternary Laves phases 4−63891
- Zr-Cu-Hg systems, X-ray anal., $ZrCuHg_2$ struct. *(German)* 4−75479
- $Zr_{0.8}Nb_{0.2}$, diffuse ω-phase, number and displacement of atoms, neutron diffr. obs. 4−48539

crystal atomic structure of elements
- alkali metal, existence of f.c.c. lattices, Krasko-Gurskii model potential 4−56645
- metals, stability of b.c.c. phase at high temperatures 4−52719
- Al, powder, mech. activated, lattice distortion and Debye temp. investigations *(German)* 4−57737
- Au small crystallites indexing, computer simulation of ion images 4−63732
- B, I-tetragonal, evidence against being polymorph of elementary B 4−75499
- $B_{48}B_2$, I-tetragonal boron, comparison with $B_{48}B_2C_2$, $B_{48}B_2N_2$ 4−60447
- Cd, splat-cooled, small-angle X-ray meas., lattice parameter reduction, vacancy clusters 4−79928
- Cf metal, crystal structure and melting point 4−82133
- Co, polycryst., struct. effect on creep 4−73321
- Cr, fine particles, cryst. habit and struct. 4−75482
- Cu, expt. X-ray form factors, charge distrib. model 4−60432
- Cu, lattice parameter calc., comparison of anharmonicity theories 4−44639
- Fe, γ-phase particles, quenched at room temp. 4−61325
- Fe, X-ray scatt. meas., analysis of 3d element scatt. factors 4−63795
- Ge, X-ray and neutron diffr., (2,2,2) refl. anal. 4−60462

crystal atomic structure of elements continued
Ge, X-ray struct. factors, from half-widths of Bragg refl. curves 4−72460
^{4}Hd, close packed structures, high press., X-ray diffr. 4−82304
Mg, X-ray atomic scattering factor meas. 4−66861
Mo:MoO_2, from Mo oxidation at 110 surface at 1000K, LEED and RHEED investigations *(German)* 4−57003
α-N_2, crystal structure, space groups 4−75490
Na, lattice parameter near melting point, neutron diffr. 4−69752
Na, static structure function S(q) meas. by thermal diffuse X-ray scatt. 4−60431
Nb, obs. of lattice parameter changes due to neutron radiation 4−44891
Nd, temperature dependence, 87−1073K *(Russian)* 4−82137
Ne, X-ray struct. factors, self-consistent Hartree-Fock calc. 4−75754
α-O_2, solid, structure and antiferromagnetism anal. using spin-dependent intermolecular potential 4−67325
Pr, temperature dependence, 87−1073K *(Russian)* 4−82137
γ-S_3, cryst. struct. determ., mol. packing, mol. configurations and dimensions determ. 4−56659
Si, atomic scattering factor, calc. of imaginary parts, using Hartree-Fock and H-like wavefunctions 4−78986
Si, Kikuchi structures, contrib. of plasmon and quasielastic scatt. 4−56686
Si, wedge, cryst. struct. factors determ., electron diffr. technique 4−56655
Si, X-ray and neutron diffr., (2,2,2) refl. anal. 4−60462
Si:B(P), lattice parameters, dopant conc. depend. 4−60453
Sm, temperature dependence, 87−1073K *(Russian)* 4−82137
TC thin films, h.c.p. structure obs. by electron diffraction 4−49108
Zn, phonon struct. factors determ. 4−63869

crystal atomic structure of inorganic compounds
ABX_3 type, systematic derivation of structure 4−63811
alkali metal halide anomalous solid soln. crystallophosphors *(Russian)* 4−82731
alkali titanosilicate, labuntsovite, struct. soln. by Patterson minimisation 4−52734
alkaline earth halides, cryst., interionic forces, ionic polarisation cryst. struct. calc. 4−82142
bibliographic list of references for Landolt-Bornstein 4−60465
biotite, variability of interlayer spacing, X-ray reflection obs. 4−48574
chernykhite, struct, refinements from p.m.r. obs. 4−75508
3α,6α-dihydroxy-5β-cholan-24-oic acid, cryst., mol. struct., parameters determ., hydrogen bonding investig. 4−56698
effective ionic radii of tetravalent elements 4−75488
epidote, $Ca_2Al_2(Fe, Al)Si_3O_{12}(OH)$, ^{27}Al n.m.r. obs. 4−79606
ferrocyanides, $A_2BFe(CN)_6.xH_2O$, (A=alkali, B=alkaline earth or transition metal), rel. to cation mobility 4−48991
fluoride phosphate apatites, rare earth substituted 4−72449
garnet, substituted, synthesis, distortion of coordination polyhedra of O_2 4−48576
garnet structures, oxygen coordinates 4−44519
halides and complex halides, space groups and lattice constants, collection of data 4−60464
harmotome, $Ba_2Co_{0.5}Al_5Si_{11}O_{32}.12H_2O$ 4−78978
heavy cation-containing O_2 compounds, intercation distance analysis 4−82145
ice, O-H distance 4−72459
ice II crysts., CNDO/2 hydrogen bonding calcs. of struct. parameters 4−72446
III-V compounds, core radii and lattice fitting *(German)* 4−75498
ionic crystal, complex, interatomic interaction determ. from struct., lattice-dynamical data 4−60569
isoelectronic divalent ions in crystals, ionic radii and electronic polarizabilities 4−78945
Jahn-Teller orbitally degenerate materials, superexchange 4−79506
leucophoenicite, $Mn_7[SiO_4]_2[(SiO_4)(OH)_2]$, structure 4−82148
molybdotellurate complex, $(NH_4)_6(TeMo_6O_{24}).Te(OH)_6.7H_2O$, cryst., mol. struct. of $(TeMo_6O_{24})^{6-}$ ion determ. 4−75484
orthopyroxene from lunar rock, low symmetry structure of new pyroxene polymorph 4−83190
periodates with ordered perovskite struct. 4−53420
phillipsite, $K_2Ca_{1.5}Na_{0.4}Al_5Si_{10}O_{32}.12H_2O$ 4−78978
rare earth cobalt borides, RCo_4B, $R_3Co_{11}B_4$ and $R_2Co_7B_3$ 4−48586
rare earth complexes with β-diketones, stereoisomers of tetraligand complexes, struct. by vibrational spectrum method *(Russian)* 4−48624
rare earth compounds, RVO_3 4−79501
rare earth ferrites, $LnFe_2O_4$ and $LnFe_3O_7$ type, lattice parameters *(French)* 4−48567
rare earth gallium oxide perovskites, $RGaO_3$ type, synthesis and lattice consts. 4−60458
rare earth germanomolybdates and germanotungstates, flux growth, mag. and crystallographic characteriz. 4−61287
rare earth hydroxychlorides, hydrothermal synthesis, X-ray diffr., thermogravimetric obs. 4−82150
rare earth molybdenum oxides, R_2MoO_6, flux growth and powder patterns 4−79871
rare earth sesquioxides, electron diffr. and microscopy *(French)* 4−60463
rare earth trifluorides, polymorphism and cryst. struct. 4−48589
Rh(III) complex, tetrachloro-μ-dichloro-tetrakis(tri-n-butylphosphine) dirhodium(III) 4−69760
SiC coating, structure var. thermal cond. 4−70405
spodiosite analogues, vibr. spectra assignments and cryst. struct. effects 4−64378
stishovite, pressure effects on lattice parameters 4−44586
tochilinite, acicular variety, obs. of unusual electron diffraction patterns 4−52737
β-UOF_4, formed by slow crystn., X-ray diffr. 4−60435
UPSe, neutron diffraction meas. of magnetic moment at 4K and crystal structure parameters 4−79526
wenkite, $(Ba,K)_4(Ca,Na)_6(Si,Al)_{20}O_{41}(OH)_2(SO_4)_3.H_2O$ 4−48552
$AgBF_4$, polymorphic behaviour at elevated temps. and press., phase transitions investig. *(German)* 4−69909
$AgClO_4$, polymorphic behaviour at elevated temps. and press., phase transitions investig. *(German)* 4−69909
β-Ag_2HgI_4, single crystals, struct. and β-α transform. 4−56681

crystal atomic structure of inorganic compounds continued
AgI, polytypism, X-ray diffr., layer sequences 4−44510
$Ag_2Mo_3O_7$, cell dimens., space group 4−60448
α-Ag_2Se, electron microscopy, polymorphic transition 4−56687
$Ag_{4-x}V_4O_{12}$ (x=1.05), cryst. struct. using Shenk method 4−75502
$Ag_2W_2O_7$, cell dimens., space group 4−60448
Al_2O_3, α and γ forms, charact. freqs. of AlO_n groups *(Russian)* 4−45314
β-Al_2O_3, X-ray diffraction obs. 4−66879
β-Al_2O_3-Na_2O, conducting cation organisation, X-ray scatt. *(French)* 4−44509
$Al_2(SO_4)_3.18H_2O$ alumogen, crystallographic data *(French)* 4−75487
Al_2SiO_5, α and γ forms, charact. freqs. of AlO_n groups *(Russian)* 4−45314
$Al_2(WO_4)_3$, atomic parameters, temp. factors 4−63797
AmO_2, coherent neutron scatt. amplitude of ^{243}Am 4−69755
Au complex, elec. cond., crystal struct. depend. 4−57091
AuCl cryst., vapour-transport growth and struct. 4−76371
$AuTe_2Cl$, lattice parameters and space group determ. 4−60457
$AuTe_2I$, lattice parameters and space group determ. 4−60457
BN, shock compressed, X-ray diffr. obs. 4−56879
BN, X-ray struct. factor and Compton profile, self consistent Hartree Fock calcs. 4−57033
BN electron momenta distribs., Compton obs. on cubic and hexagonal samples 4−57032
BN; wurtzite type, synthesized by shock compression, crystal structure 4−64635
$(Ba,Sr)UO_3$ and $(Ba,Sr)ZrO_3$ pseudo-fission products in oxide fuel, phase study and lattice parameters 4−51886
$Ba_2AgNb_5O_{15}$, ferroelectric cryst. lattice consts. determ. by X-ray diffraction 4−70409
Ba_2Bi, X-ray diffr. 4−66869
$Ba_4Bi_3LiO_{12}$, X-ray data, cubic stacking 4−60436
$Ba(ClO_3)_2$, anhydrous sample, hydration effect, X-ray diffr. *(French)* 4−69777
$Ba(Fe_xGa_{1-x})_2O_4$, critical concentration for para- to antiferromagnetic arrangement *(French)* 4−53240
$BaLaBB'O_6$, B=Li, Na, K, B'=Mo, W new ordered perovskites 4−72455
$Ba_xLi_{5-2x}Nb_{5(1-y)}Ta_{5y}O_{15}$, crystallographic, dielectric and nonlinear opt. props. *(French)* 4−64353
$Ba_5M_3Li_2O_{15-x}$ (M=Te, U), X-ray data, cubic stacking 4−60436
$BaNb_2O_6$-$SrNb_2O_6$ pseudo-binary system, new crystalline form., struct. 4−75493
$BaNb_{0.8}S_3$, prep., elec. and mag. props. 4−60455
Ba_2NiTeO_6, i.r. spectrum, vibr. assignments 4−64375
BaO-Al_2O_3-SiO_3, lattice constants, anisotropic thermal expansion coeff. *(German)* 4−44684
BaPd, struct. determination, comparison with EuPd 4−76417
$BaS_3(S_2)$, struct., at. positions, bond lengths *(German)* 4−66884
$Ba_4Sb_3LiO_{12}$, powder neutron diffr. 4−60436
$(Ba_xSr_{1-x})FeO_{3-\delta}$ solid solns., high oxygen press. effects 4−48590
$Ba_{0.97}Sr_{0.03}TiO_3$, growth, struct., dielec. and opt. props. 4−49573
$Ba_4Ta_3LiO_{12}$ prep., powder neutron diffr. obs. of struct. 4−56682
$BaTa_{0.8}S_3$, $BaTa_{0.8}Se_3$, prep., elec. and mag. props. 4−60455
$BaTi_2Fe_4O_{11}$, (R block), synthesis, cryst. struct. determ. *(German)* 4−56665
$BaTiO_3$, neutron powder diffr., low temp. rhombohedral phase 4−69763
$BaWO_4$-II, high pressure form. 4−69761
α-$Ba[AlO(OH)_2]_2$, and deuterated analogue, i.r. spectra, H-bonds, vibr. 4−45282
$BiBr_3$, n.q.r. Zeeman effect 4−57423
$BiCl_3$, n.q.r. Zeeman effect 4−57423
$Bi_3(FeO_4)(MoO_4)_2$, $Bi_3(GaO_4)(MoO_4)_2$, new compounds with scheelite related struct. 4−72453
BiI_3, n.q.r. Zeeman effect 4−57423
Bi_2O_3-PbO system, solid phase identification and evolution with temp. *(French)* 4−52859
α-CO_2, crystal structure, space groups 4−75490
(Ca, Cd)S phosphors, structural and luminescence properties 4−49427
Ca_2As *(German)* 4−72445
Ca_2BO_3Cl, unit-cell consts. determ. 4−56676
Ca_5Bi_3, X-ray diffr. 4−66870
$CaCO_3$(II), (III), high pressure phases, X-ray diffr. obs. 4−46614
$Ca_3(CrO_4)_2$, single cryst., unit cell dimensions and mol. struct. 4−66872
$Ca_5(HAsO_4)_2(AsO_4)_2.9H_2O$, guerinite 4−60439
$Ca_8La_2(VO_4)_6O_2$, apatite structure, lattice parameters *(French)* 4−44514
$Ca_{18}Mg_2H_2(PO_4)_{14}$, synthetic Mg-whitlockite 4−63803
$CaMn_7O_{12}$, high press. synthesis, perovskite type cpds. 4−75495
Ca_2MnO_4:Pb, superstructure deform. due to Pb substitution, X-ray diffr. obs. 4−56683
$Ca(NO_3)_2.4CH_3OH$, cryst., mol. struct. determ. *(French)* 4−78968
$Ca(NO_3)_2.4H_2O$, effect of water of crystallisation on Raman spectra *(Russian)* 4−70315
$CaNaHSiO_4$, cryst. struct. calcs. using rhomb method 4−75501
CaO-HfO_2 system, fluorite related phases 4−48740
β-$Ca_3(PO_4)_2$:Mg, crystal structure 4−63813
$Ca_{10}(PO_4)_6F_2$, interatomic interaction determ. from struct., lattice-dynamical data 4−60570
CaPd, struct. determination, comparison with EuPd 4−76417
$CaSO_3.0.5H_2O$ 4−63805
$CaSO_4.2/3H_2O$ *(Japanese)* 4−52744
Cd phosphates, preparation, Laue symmetries and unit cell parameters 4−52714
Cd-Hg-S system mixed sulphide phases *(French)* 4−48730
$CdCl_2.2NaCl.3H_2O$, cryst. struct. determ. *(French)* 4−78959
$CdCr_2Se_4$, prep. and basic props. exam. 4−79878
$CdGeAs_2$ crystal struct., microhardness and sublattice distortion 4−75492
$CdIr(OH)_6$, prep. and characterisation 4−60456
$CdMn_7O_{12}$, high press. synthesis, perovskite type cpds. 4−75495
CdO-GeO_2-H_2O system, hydrothermal synthesis, X-ray exam. 4−52738
CdO-GeO_2-NaCl-H_2O system, hydrothermal synthesis, X-ray exam. 4−52738

crystal atomic structure of inorganic compounds continued
$CdO-GeO_2-NaOH-H_2O$ system, hydrothermal synthesis, X-ray exam. 4−52738
$Cd_2P_4O_{12}$, anhydrous, chem. prep. and crystallographic data *(French)* 4−75486
CdP_2S_4, single cryst. growth and characteriz. 4−61301
Cd_2PbO_4, $CdPb_2O_5$, hydrothermal synthesis, petrographic and X-ray anal. 4−49569
CdS, hot-pressed, investigation of thermal and ultrasonic props. 4−63877
$CdSiAs_2$ single cryst., growth and phys. props. 4−49570
$CdSn(As_xP_{1-x})_2$, $0 \leqslant x \leqslant 0.6$, lattice parameters and microhardness determ. *(Bulgarian)* 4−57693
CdTe, heat treatment effects, surf. cond., lattice ordering ion implantation studies 4−45479
$CdVO_3$, preparation, characterisation, crystallographic, electrical and magnetic properties 4−66880
CdV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4−72448
$Cd_3[GeO_4](OH)_2$, structure 4−82148
Ce-Cr-B system phases 4−69888
Ce-N-O system, binary Ce-N system, oxygen component, 950°C 4−72454
$CeD_{2.99}$, non-stoichiometric tetragonal superstruct., neutron diffr. obs. at room temp. 4−66875
$Ce_6Ni_2Si_3$, cryst. struct. X-ray diffr. obs. 4−75504
$Ce_2Zr_3O_{10}$, X-ray characteriz. 4−44523
Cn_2O_3, coherent neutron scatt. amplitude of ^{244}Cm 4−69755
Co complex, $Co(CO)_2NOSb(C_6H_5)_3$, cryst., mol. struct., parameters determ. by Patterson and Fourier methods 4−56663
$Co_{6.95}As_{3.62}O_{16}$ 4−48561
$(-)_{589}-(Co(C_{11}H_{30}N_6))(Co(CN)_6)$ cryst., mol. struct. configuration, $3H_2O$, conformation determ. 4−56664
$CoFe_{2(1-c)}Cr_{2c}O_4$, lattice parameter, comp. depend. *(Russian)* 4−67356
Co(II) complex, $Co(C_{11}ON_2H_{12})_2(NO_3)_2$ *(French)* 4−78965
Co(II) complex, dibromobis-[5-(2-hydroxyethyl)-4-methylthiazole]Co(II) 4−78973
Co(II) complex, hexaaquocobalt bis(hydrogen-2,2'-dithiobisbenzoate)-hexahydrate-tetrakismethanol 4−48549
Co(III) complex, $(+)_{510}$-oxalatobis-(R,S-2,4-diaminopentane) cobalt (III) perchlorate monohydrate, cryst. mol. struct., absolute configuration determ. 4−78967
Co(III) complex, $(+)_{589}$-tris(biguanide)Co(III) trichloride monohydrate 4−60443
Co(III) complex, bis(pyridinealdehydethiosemicarbazonato)cobalt chloride 4−75517
Co(III) complex, cis-[adeninato-chloro-bis(ethylenediamine)cobalt(III)]bromide monohydrate, cryst., mol. struct., parameters determ., conformation 4−56669
Co(III) complex, mer-triazidodiethylenetriaminecobalt(III) 4−78976
Co(III) complex $(+)_{589}$-$[Co(R-pn)_3][Co(Cn)_6].2H_2O$, cryst. struct., complex cation conformation investig. 4−75485
$Co_{1-x}Ni_xAsS$, solid soln. series, prep. and characterization 4−69771
CoP_xS_{2-x}, prep., mag. props. 4−72965
CoV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4−72448
Cr_2AlB_2, Cr_3AlB_4 4−69892
$(Cr_{1-x}Co_x)_2As$ solid solns., ordered *(French)* 4−48563
$Cr_3Ge-V_{3.04}Ge_{0.96}$, binary and ternary alloys, struct. anal., mutual solubility 4−48761
Cr(III) complex, diaquo-μ-triethylenetetraminehexaacetatodichromium(III) hexahydrate, cryst., mol. struct. determ. 4−66868
Cr_2N, non-stoichiometric, statistical model, bonding 4−76523
$(Cr_{1-x}Ni_x)_2As$ solid solns., ordered *(French)* 4−48563
CsBr, interionic pots. from cryst. data at different temps. 4−69747
CsCl, interionic pots. from cryst. data at different temps. 4−69747
Cs_2CrCl_4, ionic ferromagnet, neutron powder diffraction obs. 4−67379
$CsFeBr_3$, structure and magnetic properties 4−72956
CsI, interionic pots. from cryst. data at different temps. 4−69747
$Cs_3In(SO_4)_3$, X-ray obs. *(French)* 4−63807
$Cs(M_{0.5}Al_{1.5})F_6$, pyrochlore, M=Li, Na, K, Rb, 1/3 cation ordering *(French)* 4−48580
$Cs_2Mg(MoO_4)_2.4H_2O$ *(French)* 4−69772
$Cs_2Mo_5O_{16}$, $Cs_2Mo_7O_{22}$, cell dimens., space group 4−60448
$Cs_2O.3B_2O_3$, 3-D refinement 4−48547
$Cs_3(Sb_3F_{12}O_3)$, X-ray diffr. anal. *(German)* 4−78982
Cs_2SnCl_6, rel. to cryst. field effect in n.q.r. and vibr. spectra 4−52730
$Cs_3Tl(SO_4)_3$, X-ray obs. *(French)* 4−63807
$Cs_2UO_2F_4.H_2O$, X-ray obs. 4−69765
$Cs_2Zn[Fe(CN)_6]$ 4−69773
$Cs_2[Re_2Cl_8].2H_2O$, complete cryst. structure determ. 4−66882
Cu (II) complexes, 1,8-bis-(2'-pyridyl)-3,6-diazaoctanecopper(II) perchlorate, cryst., mol. struct. determ. 4−78952
Cu (II) complexes of N,N'-dimethylethylenediamine 4−52721
Cu_2-II-IV-$S_4(Se_4)$ tetrahedral quaternary chalcogenides, synthesis and crystallographic characteriz. 4−60459
CuB_{24}, single cryst. growth and struct. 4−66877
CuB_{28}, solubility of Cu in rhombohedral B, single crystal diffractometry, rel. to structure 4−63812
CuCl, asymm. anharmonic vibr. of Cu atom, neutron diffr. 4−69754
$CuCr_2S_4(Se_4,Te_4)$, exchange strictions, temp. depend. 4−45110
$Cu_yCr_2Se_{4-z}Br_x$ spinels, prep., stoichiometry, rel. to Curie temp. 4−64214
CuF_2, mag. and cryst. struct. 4−82569
$CuGaSe_2$, crystal struct., microhardness and sublattice distortion 4−75492
Cu(I) complex, dichloroethane solvate of 2:1 derivative of CuCl and bis(diphenylphosphine)methane 4−48560
Cu(II) complex, [5-(2-hydroxyethyl)-4-methylthiazolium] tribromo-[5-(2-hydroxyethyl)-4-methyl-3-thiazolo]Cu 4−78983
Cu(II) complex, bis{dichloro-[2,6-diacetylpyridinebis(picolinoylhydrazonato)]dicopper(II)}dihydrate, cryst. struct., spectroscopic props. determ. 4−78953
Cu(II) complex, $Cu(C_{11}ON_2H_{12})_2(NO_3)_2$, cryst. struct. determ. *(French)* 4−78966

crystal atomic structure of inorganic compounds continued
Cu(II) complex, dichlorobis-(9-methyl-6-oxypurine)diaquo Cu(II) trihydrate, cryst., mol. struct. 4−69757
Cu(II) complex, dinitratobis(antipyrine)Cu(II) *(French)* 4−82139
Cu(II) complex, tetraaquo-(9-methyladenine)copper sulphate monohydrate 4−78980
Cu(II) complex, thiamine hydrochloride-$CuCl_2$ 4−60433
$Cu_2Li_2P_6O_{18}$ *(French)* 4−63806
$Cu_2Li_2P_6O_{18}$, cryst. struct. determ. *(French)* 4−78951
$Cu_3LnS_3(Ln=Sm, Gd, Dy, Yb, Y, Sc)$, synthesis, X-ray diffr. exam. 4−44520
$CuO-MgO-GeO_2$ system, thermodynamic relations among olivine, spinel and phenacite structs. 4−72555
$Cu_{2-x}S(Se)$ and solid solns., lattice struct. and consts., X-ray investig. 4−48575
CuV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4−72448
$Dy_5Ge_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases 4−63810
$Dy_5Si_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases 4−63810
$Er_{15}C_{19}$, X-ray obs. *(French)* 4−63809
$ErFe_2O_4$, synthesis of new compound, unit cell parameters determ. 4−82144
Eu complex, nitrato-bis-isonicotinate tetrahydrate 4−82154
Eu complex, with dibenzoylmethane in cryst. state, isomeric, struct. by vibrational spectrum method *(Russian)* 4−48624
Eu-W-O system, prep., phase relns., cryst. chemistry and Mossbauer spectra investigation 4−60596
Eu_2TaCrO_6, Eu_2TaAlO_6, $Eu_3Ta_2MgO_9$ and $Eu_3Ta_2MnO_9$ perovskites *(French)* 4−44512
$(Fe, Al)_2O_3$ cryst. precip. from borate melts, lattice parameters and Neel temp. *(Japanese)* 4−70410
Fe complex, iron(III)bisdithiocarbamates rel. to mag. interactions 4−53222
Fe-Ge alloys, quenched and annealed, ordering of phases, Mossbauer study 4−49270
Fe-Si(Ge), electron structure, X-ray spectral investigation 4−67673
$FeCl_3.4H_2O(4D_2O)$, Raman spectra anal. 4−45294
$Fe_2(SO_4)_3$, rhombohedral form *(French)* 4−63800
Fe_2Si, high temp. form *(German)* 4−66876
Fe_2WO_6, new struct. type, struct relationships *(French)* 4−56679
GaAs:Se solid solutions, and elec. props. investigation 4−45450
GaAs-Te, effect of heat treatment on struct. perfection 4−48759
Ga(III) complex, tris(acetylacetonato)gallium(III) 4−48558
$Ga_yIn_{1-y}As_xP_{1-x}$, band gap and lattice constant as function of alloy comp. 4−72697
GaN, growth from vapour, hexagonal wurtzite struct., struct. stability 4−45478
GaP, annealing effect on lattice constants obs. by X-ray diffraction 4−49012
Gd_5Ge_3Bx (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases 4−63810
$Gd_3Sc_xGa_{5-x}O_{12}$, distrib. coeff. of Sc in Czochralski grown garnets 4−66874
$Gd_5Si_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases 4−63810
GeH_4, four solid phases, determ. from i.r. and Raman spectra 4−49335
$H_3PO_4.{}^1/_2 H_2O$, cryst., mol. structure and parameters determ. by neutron diffr. 4−56661
H_2TeO_4, X-ray data, bond distances *(French)* 4−60441
$Hg_{2.86}AsF_6$, X-ray obs. 4−52723
HgI_2, yellow and red phases, Raman scatt. anal. 4−53431
$Hg_3O_2Cl_2$, cryst. struct., bond lengths determ. 4−66864
$HoFe_2O_4$, synthesis of new compound, unit cell parameters determ. 4−82144
InAs, grown from gaseous phase, morphology and struct. perfection *(German)* 4−49618
$In_2Ge_2O_7$, X-ray anal. 4−78988
$InMCrS_4$, M=Mn, Fe, Co, Ni, synthesis and mag. props. investigation 4−76083
InSb, grown from gaseous phase, morphology and struct. perfection *(German)* 4−49618
In_2Te_5, single crystals, growth by chemical transport, struct. and props. 4−72457
K_3AlO_3, monoclinic *(French)* 4−52724
$KAlOCl_2$ 4−44524
$K_2(As_2F_{10}O).H_2O$, X-ray data *(German)* 4−60437
K_3AsS_4, X-ray diffr. *(French)* 4−78975
KBr, interionic pots. from cryst. data at different temps. 4−69747
$KBr:Sm^{2+}$, Zeeman anisotropy fluoresc. investig. of site symmetry 4−53501
KCl, interionic pots. from cryst. data at different temps. 4−69747
$K_2CuCl_4.2H_2O$, polycryst., i.r. spectra of water mol. 4−64368
$KDCO_3$, X-ray diffr., hydrogen-bonding 4−48545
$KEu(MoO_4)_2$, prep. and cryst. struct. of α- and β-phases, X-ray diffr. obs. 4−75506
KF, X-ray powder diffraction photograph, student experiment 4−58715
$KF-ErF_3$, system, F type struct. phases *(French)* 4−66881
$KF-YbF_3$ system phases, X-ray single crystl. and powder data *(French)* 4−60597
$KFeCl_3$, neutron diffraction investigation 4−64223
$KFe(CrO_4)_2.H_2O$, cryst. struct. determ. *(French)* 4−78957
$KHCO_3$, X-ray diffr., hydrogen-bonding 4−48545
$K_2H_6Mg_4Mo_4O_{20}$, non-stoichiometry meas. 4−60449
$KHoBeF_6$ and isotypic compounds *(French)* 4−69758
$K_3In(SO_4)_3$, X-ray obs. *(French)* 4−63807
$K_2LiNbO_2F_4$, hexagonal *(French)* 4−44511
K_6MgO_4, hexagonal, space groups, lattice parameters *(French)* 4−48571
$K_2Mn(C_2O_4)_2.2H_2O$, average and superstructure 4−48556
$K_2O-3.8B_2O_3$, X-ray data, bond lengths 4−60442
$KSmF_4$, appl. of method of rhombs 4−48584
K_2SmF_5, X-ray diffr., peak rhomb method 4−48585
$K_2SnCl_4.H_2O$, i.r. study of location of H atoms in cryst. and evidence of bifurcated H bond 4−79712
K_2SnCo_6, rel. to cryst. field effect in n.q.r. and vibr. spectra 4−52730
$K_3Tl(SO_4)_3$, X-ray obs. *(French)* 4−63807
$K_3(UO_2)_2F_7.2H_2O$, polynucl. ions existence *(French)* 4−52726
$K_2[Pt(CN)_4]X_{0.3}.3H_2O$, X=Cl,Br, struct., K^+ ordered layers 4−82143

crystal atomic structure of inorganic compounds continued
$K_4[Si_8O_{18}]$, cryst. struct. determ., layer struct. investig. *(German)* 4—78960
$K_4[Si_8O_{18}]$, cryst. struct. determ. *(German)* 4—78961
La metaniobite, i.r. spectra, electrophysical props. 4—67511
$La_{32.66}Fe_{11}S_{60}$, X-ray diffr. *(French)* 4—48544
$La_5Ge_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases 4—63810
$La_2Mg_3(NO_3)_{12}.24H_2O\text{-}Nd^{3+}$, neutron diffr. from polarised protons 4—78870
$LaMnO_3$, formation in air and vacuum 4—66873
$LaMn_7O_{12}$, high press. synthesis, perovskite type cpds. 4—75495
$La_{32.66}Mn_{11}S_{60}$, X-ray diffr. *(French)* 4—48544
$LaNi_{5.3}H_6$, p.m.r., structure and diffusion 4—76171
$La_6Ni_2Si_3$, X-ray diffr. study of $R_6Ni_2Si_3$ structs. 4—75504
La_2SnS_3, X-ray diffr., co-ordination *(French)* 4—78969
$La_2Sr_3(BO_3)_4$, structure determ. from Weissenberg camera data 4—52742
$LiBH_4$, melting and polymorphism investig. rel. to temp., press., phase transitions investig. *(German)* 4—72563
γ-Li_2BeSiO_4, tetrahedral struct. 4—78979
Li_6CoO_4, prep. and characteriz. *(French)* 4—48569
$Li_2Cr_2O_7.2H_2O$, neutron diffr. studies, cryst. struct. and state of water mols. 4—75507
$Li_2Cr_2O_7.2H_2O$, p.m.r. study of localization of protons, hydrogen bonding 4—52740
LiF, X-ray struct. factors, self-consistent Hartree-Fock calc. 4—75754
LiH, X-ray diffr., up to 120 kbar 4—63798
α-$LiIO_3$, struct., neutron diffr. refinement 4—82146
α-$LiLa(MoO_4)_2$, hydrothermally grown 4—49557
Li_2MgGeO_4, orthorhombic *(French)* 4—48565
$Li_xMn_{1-x}V_2O_4$, X-ray, thermoelectric and IR spectroscopy of spinels *(German)* 4—63814
H-$Li_2Mo_4O_{13}$, cell dimens., space group 4—60448
$LiNaGe_4O_9$, X-ray diffr., comp. depend. 4—56689
$Li_6[Al_2(BO_3)_4]$, X-ray diffr., analogies 4—82153
$LuFe_2O_4$, synthesis of new compound, unit cell parameters determ. 4—82144
$Lu_2Fe_3O_7$, lattice parameters *(French)* 4—48567
MgF_2, hot-pressed, investigation of thermal and ultrasonic props. 4—63877
$Mg_{1.12}Fe_{0.88}Si_2O_6$, nature of filling of positions by isomorphous elements 4—48587
$Mg(NO_3)_2.6H_2O$, Raman spectra of dehydration products 4—57513
$Mg(NO_3)_2.nH_2O$; effect of water of crystallisation on Raman spectra *(Russian)* 4—70315
MgNi ferrites, high-temp. X-ray structure anal. 4—79165
MgP_4, semiconducting, prep. and cryst. struct. 4—49616
Mg_3Sb_2, X-ray diffr., La_2O_3 type, α-phase 4—66871
MgV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4—72448
$Mg_2V_2O_7$, bridged chain struct. 4—78984
MgZn ferrites, high-temp. X-ray structure anal. 4—79165
$Mg[B_3O_3(OH)_5](H_2O)_4.H_2O$, kurnakovite, cryst. struct., hydrogen-bonding investig. 4—78958
Mn complex, tricarbonyl-1-syn-(1',2'-dihydro-2'-oxo-azulen-3'-yl)-h^5-pentadienylmanganese, cryst., mol. struct., parameters determ. 4—56673
Mn_2AlB_2, Mn_5AlB_{11} 4—69892
MnB_{23}, solubility of Mn in rhombohedral B, single crystal diffractometry, rel. to structure 4—63812
MnB_4O_7, and thermal extinction depend. 4—44521
$Mn(CH_3COO)_2.4H_2O$, cryst. struct. determ. 4—78964
Mn_2F_5, synthesis and characterization *(French)* 4—48570
$MnFe_2O_4$, cation distrib., temp. depend. 4—48562
$Mn_{1-x}Fe_{2+x}O_{4+\delta}$, lattice const. and nonstoichiometry obs. 4—69769
Mn(II) complex, catená-μ-dichlorobis(pyrazole)manganese(II) 4—63796
Mn(II) complex, dichloro-2-(2'-pyridyl)-3-(N-2-picolylimino)-4-oxo-1,2,3,4-tetrahydroquinazolineMn(II) 4—78977
α-MnO_2, X-ray diffr., monoclinic 4—45430
$Mn_3O_4\text{-}Mn_2SnO_4$, cooperative Jahn-Teller effect, cryst. distortion by Mn^{3+} ion *(French)* 4—45074
MnV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4—72448
MnZn ferrite, In_2O_3 additions effect 4—49912
Mo compounds, conf. Reading, Berks., England (Sep. 1973) 4—61601
Mo:MoO_2, from Mo oxidation at 110 surface at 1000K, LEED and RHEED investigations *(German)* 4—57003
$MoGd_2Pb_4O_{10}$ and $Mo_3Gd_6Pb_4O_{22}$, flux growth and powder patterns 4—79871
Mo(IV) complex, bent bis-π-cyclopentadienyl complexes 4—78971
Mo(IV) complex, bis[bis-(π-cyclopentodienyl) molybdenum(IV)-bis-μ-methanethiolato]nickel(II) tetrafluoroborate 4—78972
MoO_2, crystal structure, magnetic susceptibility, electrical conductivity of pure and NiO doped single crystals 4—63817
α-$MoO_3\text{-}H_2O$, white isomer, counter data *(German)* 4—60440
$MoSi_2$ type intermediate phases, struct. relationships 4—63784
Mo(V) complex, $[Mo_2S_2O_2(L\text{-histidine})_2].1^1/_2H_2O$ 4—60450
Mo(V) complex, $Cs_2[Mo_2S_2O_2EDTA].2H_2O$ 4—60450
Mo(V) complex, $Mo_2[NC(CH_3)_3]_2(h^5\text{-}C_5H_5)_2(\mu\text{-}S)_2$ 4—60451
Mo(V) complex, tetrachlorobis-[o-phenylenebis(dimethylarsino)]Mo(V) triiodide, cryst., mol. struct. determ. 4—66862
N_5H_5, cryst., mol. struct. determ., conform. investig. *(French)* 4—78963
NH_4Br, phase transforms., Raman scatt. temp. and press. depend. 4—79715
NH_4ClO_4, and decomposition 4—52722
$NH_4F\text{-}InF_3$ system phases, lattice parameters *(French)* 4—44513
$(NH_4)_4H_2P_4O_{13}$, unit-cell parameters and space groups determ. 4—56678
$NH_4H_3(SeO_3)_2$, neutron diffr., H bonding 4—82138
$NH_4HgCl_3.H_2O$, cryst., mol. struct. determ., X-ray diffr. meas. 4—56668
$(NH_4)_2Mg(MoO_4)_2.2H_2O$ *(French)* 4—69772
NH_4NO_3:K,Cs, thermal transformations, rot. disorder 4—69905
$NH_4NbO(SO_4)_2$ 4—82149
NH_3OHClO_4, hindered rotation 4—48546

crystal atomic structure of inorganic compounds continued
$(NH_4)_5P_3O_{10}.2H_2O$, $(NH_4)_5P_3O_{10}.H_2O$, unit-cell parameters and space groups determ. 4—56678
$(NH_4)_6P_4O_{13}.2H_2O$, unit-cell parameters and space groups determ. 4—56678
$(NH_4)_2SnCl_6$, rel. to cryst. field effect in n.q.r. and vibr. spectra 4—52730
β-NH_4UF_5, cryst. growth, struct. investig. 4—66866
Na complex, 1,4-anhydroerythritol. $NaClO_4$, cryst., mol. struct., parameters determ. 4—56667
$NaAlO_2$, relationship between β and γ polymorphs 4—48581
$NaAl_3(PO_4)_2(OH)_4$, brazilianite 4—48555
$NaB^{II}PO_4$, (B^{II}=Co, Fe, Mn, Cd), vibr. spectra and structure type *(French)* 4—75500
$Na_{0.9}Ca_{2.05}Co_2V_3O_{12}$, refinement of cryst. struct., X-ray diffr. obs. 4—75505
$NaCd(PO_4)$, X-ray data 4—82152
$NaCd_4[Ge_5O_{14}(OH)]$, chemical and crystallographical anal. 4—78990
NaCl, interionic pots from cryst. data at different temps. 4—69747
$NaCl.2H_2O$, X-ray diffr., electron distrib. 4—78974
$Na_2Cr_2O_7.2H_2O$, p.m.r. study of localization of protons, hydrogen bonding 4—52740
$Na_6Cu(P_2O_7)_2.16H_2O$ 4—82141
$NaFeO_2$, relationship between β and γ polymorphs 4—48581
$NaHCd_2(Si_3O_9)$, synthetic P-phase 4—52733
$NaHCd_2[Ge_3O_9]$, pectolite analogue 4—82151
$Na_3H_3[PMo_9O_{31}(OH)_3]$, cryst. isolation and X-ray data *(German)* 4—48582
$Na_3In(SO_4)_3$, X-ray obs. *(French)* 4—63807
$NaInSi_2O_6$, cell dimens., constraints 4—60446
$Na_2KP_3O_9$, lattice parameters *(French)* 4—44648
$NaLnTiO_4$, vib., spectra, struct. Raman and infrared spectra 4—64379
$Na_7Mg_{4.5}(P_2O_7)_4$, three-dimens. X-ray data 4—56680
$Na_2Mg_2Ti_6O_{14}F_2$, low temp. form *(French)* 4—48566
$NaMn_7O_{12}$, high press. synthesis, perovskite type cpds. 4—75495
$Na_6Mo_{17}O_{33}$, cell dimens., space group 4—60448
$NaNbO_3$, cation displacements, octahedral tilts, X-ray differnce refl. 4—69764
$NaNbO_3$, rel. to birefringence, para- and antiferroelec. 4—70277
$Na_2PO_3F\beta$, cryst., mol. struct., parameters determ., X-ray diff. meas. *(French)* 4—56666
$Na_{3-x}Ru_4O_9$, $x\simeq0.9$, phase type ruthenium bronze, cryst. struct. determ. *(French)* 4—56660
$Na_2S\text{-}Sb_2S_3$, and phase composition 4—69768
$Na_4SnBe_2.[Si_6O_{18}].2H_2O$; sorensenite 4—56688
$NaSrVO_4$, struct. evolution, cryst. chem. study, $NaSrCrO_4$ analogy *(French)* 4—56881
$NaTl_3(SO_3)_2$, crystal structure determ. by method of crystallograms 4—52743
α-$NaVO_3$, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4—56671
Na_2WO_4, normal spinel 4—60445
$Na_6(XO_4)_2.NaF.19H_2O$, X=PO_4, AsO_4, cryst. struct. determ., computer simulation of VO_4 salt 4—78962
$Na_5YSi_4O_{12}$, Laue and rot. pattern obs. 4—78989
$NaZn_2[PO_4][PO_3(OH)]$ 4—52732
$Na_8[Al_6Si_6O_{24}](OH)_2.6H_2O$, ^{23}Na n.m.r. study of hydroxyl group positions 4—52741
Nb(IV) complex, bent bis-π-cyclopentadienyl complexes 4—78971
NbN_x, single cryst. and polycryst. films, T_c and struct. comp. depend. 4—60902
$Nb_{12}O_{29}$, lattice image in 1000 kV electron microscope 4—75489
Nb_3Te, β-W-type, high pressure synthesis 4—66878
Nb(V) complex, bis[bis-(π-cyclopentadienyl) niobium(V)-bis-μ-methanethiolato]nickel(0) tetrafluorate dihydrate 4—78972
$NdH_2\text{-}NdH_3$ system, hexagonal to f.c.c. phase transition, 25-700°C 4—72568
$NdMn_7O_{12}$, high press. synthesis, perovskite type cpds. 4—75495
$NdNa_5(WO_4)_4$, crystal structure and fluorescence lifetime, laser material 4—63815
$Nd_6Ni_2Si_3$, X-ray diffr. study of $R_6Ni_2Si_3$ structs. 4—75504
$Nd_5Si_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases 4—63810
Nd_2WO_6, $Nd_4W_3O_{15}$, $NdWO_4OH$, intercation distance analysis 4—82145
Ni (II) complex, bis(acetylacetonato) nickel(II)diethanol, cryst. and mol. struct. 4—69774
Ni complex, diaquo-2,2'-bipyridylnickel sulphate *(French)* 4—78970
$NiC_4O_4.2H_2O$, structure, X-ray and i.r. spectral study, mag. susceptibility 4—75491
Ni(II) complex, $[(CH_2H_5)_4N]_2[C_6H_4N_2C_2S_2]_2Ni(II).2H_2O$, cryst., mol. struct. determ. 4—78956
Ni(II) complex, $[(CH_3CH_2)_2B(C_3N_2H_3)_2]_2Ni(II)$, cryst., mol. struct. determ. 4—78955
Ni(II) complex, hexaaquocobalt bis(hydrogen-2,2'-dithiobisbenzoate)-hexahydrate-tetrakismethanol 4—48549
Ni(II) complex, hexakis(pyridine-N-oxide)nickel(II)bis(tetrafluoroborate) 4—60434
NiO-ZnO(CuO) solid solns., struct. and antiferromag. props., influence on reactivity 4—72969
γ-NiOOH, K^+ ion stabilized, electron diffraction exam. 4—52739
$Ni(PO_3)_2\text{-}LiPO_3(KPO_3)$ systems, new phase parameters *(French)* 4—44647
γ-Ni_2SiO_4, cryst., electron-density distrib. determ., X-ray diffr. method 4—66863
$Ni_{1+x}Te_2$, (x=0-0.82), struct., order-disorder transition, neutron diffr. obs. 4—72548
NiV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4—72448
NpTe, $NpTe_{2-x}$ and Np_2Te_3 *(French)* 4—52728
PBr_5IBr, laser Raman spectra, ionic struct. 4—57547
P_2Cl_9Br vibr. spectra and n.m.r. obs. 4—52729
$P_3N_3(NH_2)_6.H_2O$, and decomposition 4—63804
PO_4 tetrahedra, distortion geometry, predictive relationships 4—48550
Pb complex oxides, perovskite struct., isomorphism substitutions 4—75633
$PbCl_2(Br_2)$, localised dipoles, dielec. relax. losses 4—67526
$(PbGeS_3)_n$, cryst., struct. determ. *(French)* 4—56658

crystal atomic structure of inorganic compounds continued
$PbHPO_4$, $PbDPO_4$, rel. to ferroelec. props. 4−70260
PbI_2, polytypism, annealing effect 4−60609
Pb_2MoO_5, flux growth and powder patterns 4−79871
α-$Pb(N_3)_2$, anisotropic thermal expansion, single crystal X-ray obs. 4−52913
$Pb_2P_2S(Se)_6$, $Sn_2P_2S(Se)_6$, and mixed crysts., growth and cryst. data 4−49567
$PbTi_3O_7$, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4−56672
PdCrAs and PdTiAs, lattice parameters *(French)* 4−48564
Pd_5ICl, laser Raman spectra, ionic struct. 4−57547
Pd(II) complex, $[Pd(C_{10}H_{22}N_2OS_2)](NO_3)_2$, cryst., mol. struct. determ. *(French)* 4−69756
Pd(II) complex, μ-N,N'-ethylenebis(salicylaldiminato)bis-[2-methylallylpalladium] 4−78981
Pd(II) complex, tetraamminepalladium pyrazine-2,5-dicarboxylate 4−48559
$Pd_6Ni_2Si_3$, X-ray diffr. study of $R_6Ni_2Si_3$ structs. 4−75504
PrH_2-PrH_3 system, phase stability, 25-700°C 4−72568
$Pr_2Sr_3(BO_3)_4$, X-ray meas. of crystal structure 4−78987
$Pr_3WO_6CL_3$, interaction distance analysis 4−82145
Pt complexes, $(PtenX_4)(PtenX_2)$, X=Cl, Br, I, cryst. struct., parameters determ., X-ray diffr. meas. 4−56675
Pt(II) complex, trans-
I), cryst., mol. struct., parameters determ. 4−56670
PuF_4-TlF system phases, lattice parameters and space groups *(French)* 4−52725
PuO_2, lattice defects and atomic radii, ionic model failure 4−59850
$Rb_2(As_2F_{10}O).H_2O$, X-ray data *(German)* 4−60437
$RbBi(MoO_4)_2$, cryst. struct. 4−82147
RbBr-TlBr system, X-ray diffr. obs. 4−48588
$Rb_2Cr_3O_{10}$, structure refinement 4−48573
$RbH_3(SeO_3)_2$, superlattice struct., ferroelec. phase 4−57481
$Rb_3In(SO_4)_3$, X-ray obs. *(French)* 4−63807
$Rb_2LiNbO_2F_4$, hexagonal *(French)* 4−44511
$RbNbO(SO_4)_2$ 4−82149
RbO_3, twinned cryst., X-ray diffr. obs., calc. of single cryst. struct. 4−75503
β-Rb_2SO_4, low temp., cryst. growth, cryst., mol. struct., parameters determ. 4−56674
$Rb_2(Sb_2F_{10}O)$, symm., bond lengths and angles *(German)* 4−82140
Rb_2SnCl_6, rel. to cryst. field effect in n.q.r. and vibr. spectra 4−52730
$Rb_3Tl(SO_4)_3$, X-ray obs. *(French)* 4−63807
$Rb_2UO_2F_4.H_2O$, X-ray obs. 4−69765
Re-Co-B system, newly established ternary compounds 4−67019
Re(V) complex, bent bis-π-cyclopentadienyl complexes 4−78971
Rh (III) complexes, $[Rh(NH_3)_5Cl]Cl_2$ and $[Rh(NH_3)_5Br]Br_2$, cryst. and mol. struct. 4−69776
RhCrAs, RhFeAs, RhNiAs, RhTiAs and RhVAs, lattice parameters *(French)* 4−48564
Rh(III) complex, $(+)_{589}$-tris-[(−)-trans-1,2-diaminocyclohexane]rhodium (III) nitrate trihydrate 4−69759
RuCrAs and RuMnAs, lattice parameters *(French)* 4−48564
$Sb_3Ge_2O_7$, obtained from crystn. in GeO_2-Sb_2O_3-KF-H_2O hydrothermal system 4−48741
Sb_2Te_3, Sb_2Te_2Se, substitutional positions 4−48554
Sc_2O_3, elec. cond. and X-ray diffr. anal. investigation 4−44914
SiC, struct. families, growth mechanism 4−72452
α-Si_3N_4, re-exam. 4−72451
SmH_2-SmH_3 system, hexagonal to f.c.c. phase transition, 25-700°C 4−72568
SmP_5O_{14}, X-ray anal. *(French)* 4−60438
$Sm_{0.81}Y_{0.19}S$, $SmAs_{0.18}S_{0.82}$, valence mixing and lattice consts., X-ray photoemission obs. 4−78942
Sn_2F_3Cl, 3-D network *(German)* 4−48557
$Sn_2P_2S(Se)_6$, $Pb_2P_2S(Se)_6$, and mixed crysts., growth and cryst. data 4−49567
$Sn_{1-x}Pb_xTe$:Se, changes with impurity conc., local environment characts. 4−44557
α-$SnWO_4$ props., cryst. struct., relationship with $SbTaO_4$ type compounds investig. 4−75483
Sr_2EuFeO_5 4−67023
SrF_2-EuF_3 system, solid soln. region with fluorite struct. 4−82553
$Sr_3(FeF_6)_2$, quadratic, space group, lattice parameters *(French)* 4−48572
$SrLaBB'O_6$, B=Li, Na, K, B'=Mo, W new ordered perovskites 4−72455
$SrMn_7O_{12}$, high press. synthesis, perovskite type cpds. 4−75495
$7SrO.5Fe_2O_3$, X-ray characteriz. 4−48577
$SrO.(6-x)Fe_2O_3.xAl_2O_3$ solid soln. cryst., cryst. growth and characteriz. *(Japanese)* 4−49575
$Sr_5(PO_4)_3Cl$, cryst., struct. refinement, random error anal. 4−56657
SrPd, struct. determination, comparison with EuPd 4−76417
$SrRFeO_4$ and $SrR_2Fe_2O_7$, (R=La→Dy), prep. and cryst. struct. *(Italian)* 4−78950
$SrS_3(S_2)$, struct., at. positions, bond lengths *(German)* 4−66884
Sr_2SiO_4:Eu, luminesc. synthesis conditions effect, struct. depend. *(Russian)* 4−82725
$Sr_2[Al_2F_8(OH)_2].2H_2O$, tikhonenkovite, structure refinement 4−44525
$Ta_3C_2S_4$, product of reaction of CS_2 gas and Ta, 800-1000°C *(French)* 4−63808
1s-TaS_2, superstructure X-ray diffraction 4−63816
$Tb_5Ge_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases 4−63810
$Tb_5Si_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases 4−63810
$Te_{2.0}Br_{0.75}I_{0.25}$, crystn. and glassy, prep., thermal, struct. and photoelec. props. 4−56620
Te_yX, X=Cl, Br, I, electrical cond. in reln. to cryst. struct. 4−53098
ThO_2, determ. of lattice parameter 4−69770
Ti oxides, reduced, anion coordination geometry in crystallographic shear 4−63786
$TiNb_2O_7$, powder neutron diffraction exam., total profile anal. 4−48583
o-$Ti_2Nb_{10}O_{29}$, powder neutron diffraction exam., total profile anal. 4−48583
TiO film, on NaCl cleavage plane, electron diffr. obs. 4−57008

crystal atomic structure of inorganic compounds continued
Tl_3AsSe_3 4−48578
$Tl_2LiNbO_2F_4$ *(French)* 4−44511
$Tl_2Mo_3O_{10}$, triclinic, lattice parameters *(French)* 4−48568
$TlNbB_2O_6$, X-ray diffr. data *(French)* 4−48548
$Tl_{1+\alpha}(Nb_{1+\alpha}W_{1-\alpha})O_6$, growth and struct. *(French)* 4−72456
$Tl_4P_4O_{12}$, cryst., mol. struct. determ. 4−66867
Tl_2TiO_3, double chains of edge sharing TiO_5 trigonal bipyramids *(French)* 4−72450
$TmCeS_3$, monoclinic system *(French)* 4−63801
$TmFe_2O_4$, synthesis of new compound, unit cell parameters determ. 4−82144
U (VI) complex, bis(tropolonato)-dioxo(ethanol)uranium(VI), cryst. and mol. struct. 4−69775
UAsS, neutron diffraction meas. of magnetic moment at 4K and crystal structure parameters 4−79526
UCl_6, cryst., mol. struct., parameter determ. by X-ray, neutron diffr. meas. 4−56662
U(IV) complex, $UO_6(O_8)$ type, struct. for O donor ligands, i.r. spectra obs. 4−61138
γ-$U_3Mo_{20}O_{64}$ 4−66883
α-$U_3Mo_{20}O_{64}$ double oxide, X-ray struct. anal. 4−52736
α-U_2N_3, nonstoichiometric, X-ray and density studies 4−63276
UO_2, lattice defects and atomic radii, ionic model failure 4−59850
UTeS, orthorhombic, single crystal X-ray diffraction *(French)* 4−63802
U(VI) complex, bis(protonated thiamine)tetrachlorodioxouranium(VI), X-ray diffr. 4−52731
$VC_{0.75}$, diffuse scatt. meas. by neutron diffr., short range parameters calc. 4−56654
VO, superstruct. disordering by electron beam, electron microscope obs. 4−56685
VO_2, metal semiconductor transition, stoichiometry influence 4−60834
VO_2, metallic, X-ray diffr. obs., rel. to metal-insulator transition mechanism 4−79132
V_2O_3:Cr, high and low temperature rhombohedral form, crystal struct. 4−72458
V_2O_5, single cryst. prep. and struct. props. 4−82800
V_2O_5-Fe_2O_3 system, phase comp. investigation 4−44675
β-WCl_6, powder neutron and X-ray diffr. 4−48551
WO_2, crystal structure, magnetic susceptibility, electrical conductivity of pure and NiO doped single crystals 4−63817
WO_3, W_2O_3, thin film, cubic struct., electron diffr. obs. 4−44518
WRh_2O_6, rutile type *(French)* 4−44515
XeF_6, cubic phase, 193K 4−52727
YF_3, polymorphism and cryst. struct. 4−48589
$Y_{3(1-x)}Gd_{3x}Al_{5y}Fe_{5(1-y)}O_{12}$, cluster component method calc. *(Russian)* 4−67364
$(Y_xGd_yDy_{1-x-y})_3Fe_5O_{12}$, cluster component method calc. *(Russian)* 4−67364
$Y_{3-c}Pr_cScFe_4O_{12}$ garnet, structural variation investigation, reln. with mag. anisotropy and cryst. chemistry 4−60454
$Y_3Sc_xGa_{5-x}O_{12}$, distrib. coeff. of Sc in Czochralski grown garnets 4−66874
$(Yb,Eu)Fe_2O_4$, lattice parameters *(French)* 4−48567
$YbFe_2O_4$, synthesis of new compound, unit cell parameters determ. 4−82144
YbOCl, prep., powder data and cryst. struct. 4−49572
YbP_3O_9, X-ray diffr., laser material 4−60444
$Yb_3(SiO_4)_2Cl$ 4−48579
(Zn, Cd)S-Cu, Cl phosphors, wurtzite and sphalerite phases 4−53490
Zn ferrite, preference of Fe and Zn ions for octahedral or tetrahedral sites, theoretical calc. 4−69767
Zn-Cd-S system mixed sulphide phases *(French)* 4−48730
Zn-Hg-S system mixed sulphide phases *(French)* 4−48730
$ZnCO_3$, X-ray study, lattice parameters, thermal expansion 4−79167
$ZnF_2.4H_2O$, determ. by X-ray diffraction and Patterson minimisation, hydrogen bonds 4−52735
$Zn_2HK(PO_4)_2.2H_2O$, triclinic unit-cell dimensions *(French)* 4−56677
$Zn(H_2PO_4)_2.2H_2O$ and $ZnH_2P_2O_7$, X-ray obs. *(French)* 4−78985
Zn(II) complex, Zn(II) bis-(5,5'-diethylbarbitrato)bispicoline complex, cryst. struct. determ. 4−66865
Zn(II) complex, $Zn[SC(NHCH_2)_2]_2S_2O_3$, cryst., mol. struct. determ. 4−78954
Zn(II) complex, dichlorobis-(N,N-dimethylacetamide)zinc *(French)* 4−48553
$ZnIr(OH)_6$, prep. and characterisation 4−60456
β-ZnS, X-ray powder diffraction photograph, student experiment 4−58715
ZnS(Se)-$CuAlS_2(Se_2)$, solid solns., cell dimensions 4−44915
ZnV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4−72448
Zr complex, bent bis-π-cyclopentadienyl complexes 4−78971
ZrCuSiAs, filled PbFCl type 4−75497
Zr_xWO_3 bronzes, perovskite type, formation 4−72557

crystal atomic structure of organic compounds
π-cyclopentadienyl Co complexes, cryst., mol. structs. investig. 4−78991
(5RS,6RS,7SR)-3,7-dimethyl-4,4,7-tricarbomethoxy-Δ2-cephem, cryst., mol. struct., parameters determ. *(German)* 4−56719
(5RS, 6RS, 7RS)-7-phenylacetamino-3-methyl-4,4,7-tricarbomethoxy-Δ2-cephem. cryst., mol. struct., parameter determ. *(German)* 4−56718
1-p-(oximinoethyl)phenoxyacetylpiperidine, cryst., mol. struct. determ. *(French)* 4−78996
$(xanthotoxin)_2.KI_3$, neutral molecule-salt complex 4−48620
acetic acid solvate of $C_{23}H_{23}BrCl_2N_2S_2$ 4−79014
acetone semicarbazone 4−79019
4-acetyl-2'-nitrobiphenyl, cryst., mol. struct. determ. from X-ray diffr. meas. 4−56711
N-acetyl-alanine-N-methylamide, L and DL compounds, cryst., mol. structs., isomerism, stereochem. determ. 4−56700
N-acetyl-L-proly-D-lactyl-methylamide *(French)* 4−79012
N- acetyl-L-propyl-L-lactyl methylamide, solid state mol. conformation *(French)* 4−66894
acetylglycine-N-methylamide 4−82157
acrovestone, X-ray obs. 4−79031

crystal atomic structure of organic compounds continued
adenine dihydrochloride, cryst., mol. struct., parameters determ., hydrogen bonds, investig. 4—56706
D,L-alanyl-L,D-methionine, cryst., mol. struct., parameters determ., hydrogen bonds investig. 4—56707
alkanes, even-n, X-ray powder diagram prediction 4—60487
t-amyloxycarbonyl-L-prolyl-L-prolyl-L-proline 4—63820
2,5'-anhydro-2'-3'-isopropylidene cyclouridine 4—48600
1,6-anhydro-3,4-O-isopropylidene-β-D-talopyranose cryst. struct. determ., lattice, mol. parameters determ., conformation investig. 4—56692
anthracene-tetracyanobenzene, charge transfer complex, cryst., mol. arrangement 4—70212
1-I-anthraquinone, X-ray determ. 4—48622
apigeninidine chloride monohydrate, cryst., mol. struct., parameter determ., hydrogen bonding investig. *(French)* 4—56699
9-β-D-arabinofuranosyladenine hydrochloride 4—79005
avicennin, hypersymmetry in space group P1, mol., cryst. struct. determ. 4—56712
3-azabicyclo[3,2,2]nonane, low temp. phase 4—79029
6-azauracil, cryst., mol. struct. and parameters determ., intermol. hydrogen bonding 4—56696
Δ^6-6-azidobetamethasone-21-acetate 4—79020
1,1-azobiscarbamide, X-ray diffr. obs., struct. refinements using generalized scatt. factors 4—52748
B,B-bis-(p-fluorophenyl)boroxazolidine, cryst., mol. struct. determ. 4—75511
barium myristate and stearate, multilayer systems, low angle X-ray diffr., electron-density functions determ. 4—66889
benzaldehyde semicarbazone 4—79019
benzenesulphonamide-p-(tetrahydro-2H-1,2-thiazin-2-yl)-S,S-dioxide 4—48598
benzidine-TCNQ complex containing benzene 4—60475
benzimidazole, cryst., mol. struct., parameters determ. *(French)* 4—56729
benzotriazole, cryst., mol. struct., parameters determ. *(French)* 4—56703
biphenyl-tetracyanobenzene charge transfer complex, cryst., mol. arrangement 4—70212
bis(chlorocyclopentadienylzirconium)oxide, cryst., mol. struct. determ. 4—79004
1,2-bis(methoxycarbonyl)-3-phenylpropen-2-yliden-1-triphenylphosphoran *(German)* 4—60472
bis(tricyclo[6.3.0.0^{2,7}]undeca-3,5-diene)dicarbonyl molybdenum 4—60479
bis(trimethylsilyl)diimine, X-ray data *(German)* 4—60483
bis-π-cyclopentadienylmolybdenum-(μ-bis methanethiolato)-bis-π-allylrhodium hexafluorophosphate, $C_{18}H_{26}MoRhS_2PF_6$, cryst., mol. struct. determ. 4—78998
breynolide, cryst. struct. 4—48611
p-brom-benzimino methyl ether, X-ray structure investigation by heavy atom method 4—79030
4-bromo-2,3-dicarbomethoxy-2-cyclohepten-1-one 4—69789
5-bromo-2,3-diemthylbenzo[b]thiophen 4—66900
5-bromobrevianamide A, cryst., mol. struct., absolute configuration determ. 4—79000
2-p-bromophenylindane-1,3-dione, cryst., mol. struct., parameter determ., conformation investig. *(French)* 4—56704
N-t-butyl-5,6-dihydro-7H,12H-dibenz[c,f]azocine 4—60468
N-butyloxycarbonyl-L-proline, X-ray diffr. 4—60481
N-t-butyloxycarbonyl-S-benzylcysteinylglycine methyl ester 4—69791
cadmium (II) formate dihydrate 4—60486
calcium hydrogen citrate trihydrate 4—66899
9-carbomethoxy-4,6,6-trimethyl-trans-decal-3-one 4—82161
2-chloro-2-phenoxyamalonylamide-amidinium hydrochloride monohydrate 4—79024
1-chloro-3-hydroxyisoquinoline 4—48593
2-chloro-9-(ω-dimethylaminopropylidene)thioxanthene, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4—56728
9α-chlorocortisol, active derivative 4—82160
9-chloromethylacridine hydrochloride 4—66898
1-p-chlorophenyl-4-(α-D-erythrofuranosyl)-4- imidazoline-2-thione 4—79013
cholesterol ethers in dicarboxylic acid, X-ray anal. of short-range order 4—52690
cobalt acetate, X-ray obs. *(Spanish)* 4—52750
copper salicylate adduct with dioxane 4—82169
coumarin, mol. packing, pot. energy calc. 4—48612
coumarin, X-ray obs. 4—48621
cyclododecane, single crystal, organic dopant acceptability, lattice distortions 4—44560
cyclohexaamylose-1-propanol-4.8 hydrate complex 4—66896
π-cyclopentadienyl Co complexes, cryst., mol. structs. investig. 4—78991
cyclotetra-μ-lithio-tetra[hydrido{bis-(π-cyclopentadienyl)}Mo(W)] 4—79008
cyproterone acetate, anti-androgen, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4—56714
L-cystine dihydrochloride, neutron diffr. 4—48597
3,6-diaminoacridine dihydrochloride dihydrate, cryst. struct., lattice, mol. parameter determ. 4—56693
diammonium vanadyl oxalate dihydrate, cryst. struct. determ. by X-ray anal. 4—60489
diazoaminobenzene, 1-dimens. disorder 4—82167
3,4,10,11-dibenzo-1,8-diazacyclotetradeca-1,3,8,10-tetraene, 14-membered ring 4—78391
dibenzo-p-dioxin, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4—56723
dibutylacetamide *(French)* 4—48610
D,L-dicarbomethoxy-3a,7-methano-3aH-decahydrocyclopentacyclooctene-2,10-dione, cryst., mol. struct., parameter determ., conformational anal. 4—56710
,3-dichloracetone 4—48615
dichloro-2,6-phenol, X-ray diffr. data *(French)* 4—66897
μ-dichloro-bis-[(π-benzene-π-allyl) molybdenum (II)], cryst., mol. struct. determ. 4—75515
cis-1,2-dichloroacenaphthene, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4—56716
2-2',6'-dichlorobenzyl-1-isoquinolone 4—48593

crystal atomic structure of organic compounds continued
3,7-dichlorophenoselenazine 4—48609
9-dicyanomethylene-2,4,5,7-tetranitrofluorene, cryst., mol. struct., parameter determ. 4—56702
2′,3′-dideoxy-2′,3′-didehydroadenosine, mol. geometry 4—60480
4,4-diethyl-3,5-dioxo-1,2-pyrazolidine *(French)* 4—79022
2-diethylamine-2',6'-acetoxylidide, lidocaine 4—79027
5,5-diethylbarbituric acid-caffeine complex 4—48596
5,6-dihydro-2-thiouridine, cryst., mol. struct., parameters determ., hydrogen bonding investig., conformational anal. 4—56709
7,8-dihydro-8-hydroxy-3H,6H-(1,3)thiazino(3,2-b)(1,2,4)triazine-3-one, cryst., mol. struct., parameters determ., hydrogen bonding 4—56720
9,10-dihydroindeno[1,2-a]indene 4—69787
dihydroxyisoasatone, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4—56722
1,4-diiodobicyclo[2,2,2]octane, disorder 4—48608
3α,3β-dimethoxy-5α-oestran-17β-ol toluene-p-sulphonate 4—69785
7-dimethoxyphosphoryl-7-phenylnorcaradiene 4—48592
6,6-dimethyl-2,3-benzo-2,4-cycloheptadienone photodimers 4—82155
2,5-dimethyl-3-hexene-2,5-diol, −160°C, with cis- and trans- molecules 4—66895
1,6-dimethyl-8,8-dicyanoheptafulvene 4—48603
6,7-dimethyl-cis-anti-cis-tricyclo[5,3,0,0^{2,6}]decane-3,10-dione, cryst., mol. struct., parameters determ. 4—56726
6-N,N-dimethylamino pentafulvene, dipolar reson. form., bond lengths 4—60474
9,10-dimethylanthracene, cryst., mol. struct. investig. 4—78994
11,11-dimethyltricyclo [4,4,1,0^{1,6}] undeca-2,4,7,8-tetraene, thermal motion, lattice dynamical anal. 4—56846
2,4-dinitrobenzyl p-tolyl sulphone, cryst., mol. struct. determ. 4—79002
dinitropentamethylenetetramine, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4—56713
3,5-dinitropyridine 4—69790
diphenyl-d$_{10}$:diphenyl-h$_{10}$, e.p.r. and ENDOR, crystal struct. 4—49264
disodium acetylide, neutron diffr. determ. 4—56730
disodium deoxyguanosine-5′-phosphate tetrahydrate 4—69783
disodium moleate monohydrate 4—48602
n-dodecylammonium bromide 4—60476
durene, constrained struct. refinement, wagging vibrs. 4—79016
2-ethoxy-6-acetylnaphthalene, cryst. struct., lattice, mol. parameters determ., layer struct., forces investig. 4—56694
3-ethyl-2-methylbenzothiazolium tetrafluoroborate, mol. struct. determ. *(French)* 4—66886
ethylene, model cryst., bonding maxima reduction by systematic errors in struct. parameters 4—56573
ethyne, model cryst., influence of thermal mol. vibrs. on electron density distrib. 4—56822
fatty acid multilayers, X-ray diffr., angular width of reflections determ. 4—66890
2,3-exo-ferroco-4, 4-dimethylbicyclo[3,2,1]octa-2,6-diene 4—48613
ferrous acetate, X-ray obs. *(Spanish)* 4—52750
fluorotrichloromethane, polycrystalline film, Raman spectrum 4—57523
formycin hydrobromide monohydrate, cryst., mol. struct., parameters determ., configuration, conformation investig. 4—56705
2-formyl-6-(N,N-dimethylamino)pentafulvene, dipolar reson. form., bond lengths 4—60474
glyceraldehyde-3-phosphate dehydrogenase, heavy atom positions 4—69694
guanidium carbonate, cryst., mol. struct. determ. 4—78993
guanosine 3',5'-cyclic monophosphate sodium tetrahydrate 4—48599
gymnemagenin, triterpene, cryst., mol. struct., mol. parameters, hydrogen bonding determ. 4—56697
hen egg-white lysozyme, morphology and optical props. *(French)* 4—69778
heptacyclic molecule $C_{28}H_{39}O_4Br$, containing cage system, cryst. struct. determ. 4—75512
2,3,6,7,7,8-hexamethyl-1,5-diphenyltetracyclo[33,0,0,^{2,8},0^{3,6}]octan-4-one 4—48594
hexamethylphosphoramide-5,5-diethylbarbituric acid, triclinic 1:2 complex 4—48607
hydroxy-16α prednisolone, bonding mechanism *(French)* 4—69788
2-hydroxy-4-methoxybenzophenone 4—82162
p-hydroxyacetanilide, orthorhombic form 4—82159
6-(p-)hydroxyphenylazo uracil, cryst., mol. struct. determ. 4—78992
2-cis-4-hydroxyretinoic acid γ-lactone 4—60471
iminodiacetic acid hydrofluoride monohydrate 4—48595
indazole, X-ray diffr. scan method *(French)* 4—69782
exo-2-iodomethyl-2,4,4-exo-6-tetramethyl-3-azabicyclo[3,3,1]nonan-7-on-3-oxyl 4—48616
iodostrychninesulphonic acid 4—82163
iprindole hydrochloride monohydrate, cryst., mol. struct. determ., X-ray diffr. 4—69781
i.r. spectroscopy, appl. to obs. of low temp. phases 4—48758
isoleucine, cryst. struct., configuration and conformation of stereoisomers investig. 4—79003
1-isopropyl-8,8-dicyanoheptafulvene 4—48604
α-isosparteine diperchlorate 4—82156
lithium formate monohydrate, neutron diffr. anal., H bonding 4—69792
D(−)-luciferin, from firefly 4—82164
lumiflavin-bis(naphthalene-2,3-diol), yellow mol. complex 4—48591
lumisterol$_3$, −170°C, orthorhombic phase 4—60470
DL-lysine hydrochloride, cryst. and mol. structs. 4—52747
magnesium stearate, multilayer system, low angle X-ray diffr., electron-density functions determ. 4—66889
maleic acid, refinement, H bonding 4—48601
melamine, X-ray diffr. obs., struct. refinements using generalised scatt. factors 4—52749
metallocenes, mol. crysts., vibr. spectra assignments 4—70294
methane, solid, spin nuclear conversion, phase transitions 4—72574
N-methyl-2-(N-methylamino)-3,5-dinitrobenzamide 4—79017
1-methyl-4,5-(D-glucofurane)imidazoline-2-thione 4—60482
1-methyl-4-phenylperhydro-1,4-azaphosphorine 4-sulphide, cryst., mol. struct. determ. 4—75509

crystal atomic structure of organic compounds continued
- N-methyl-5,6-dihydro-7H,12H-dibenz[c,f]azocine 4–60467
- N-methylphenothiazine, bond lengths and angles 4–79028
- myo-inositol-2-phosphate monohydrate, cryst., mol. struct. determ. 4–66893
- naloxone, narcotic antagonist, conformation 4–59984
- naphthalomide, cryst. and mol. struct., X-ray diffr. obs. 4–82165
- octabromopentafulvalene 4–79021
- octafluoroanthraquinone, cryst. and mol. struct. 4–82166
- oleanolic acid diacetate, bromo-γ-lactone derivative cryst., mol. struct., absolute configurations determ. 4–79001
- oxalic acid, anhydrous α and β forms, cryst. struct. determ. 4–78997
- 2-oxo-2,7-diphenyl-4,5-dimethyl-1-aza-2-phosphacyclohepta-4,6-diene, cryst., mol. struct., parameters determ. 4–56724
- 3-oxo-5α-androstan-17β-ol toluene-p-sulphonate 4–69784
- n-paraffins, soln.-crystallized, paracrystalline order, n.m.r., X-ray scatt. data 4–44527
- pentachloronitrobenzene, cryst., mol. struct. parameters determ. by X-ray diffr. meas. 4–56708
- pentamethylglycerol, cryst., mol. struct. determ. *(French)* 4–78995
- perchlorobenzocyclobutene, crystal structure, Patterson projection method *(German)* 4–48623
- perfluorocyclobutane, gaseous and solid, vibr. spectra, mol. struct. investig. 4–66432
- phellihiline, cryst. alkaloid, mol. and cryst. struct. determ., X-ray methods *(French)* 4–56691
- phenmetrazine hydrochloride 4–79025
- 3-phenoxy-3-dimethylcarbamoyldimethylamino-2-azirine 4–78390
- 2-phenyl-1,3,2-benzodioxaborol *(German)* 4–60485
- 4-phenyl-2,4,6-triazatricyclo[5,2,2,$0^{2,6}$]undecane-3,5-dione, cryst., mol. struct., conformation determ. 4–66891
- 3-phenyl-2-cyclopentenone, photodimer, X-ray diffr. 4–59983
- 1-phenyl-2-methyl-3-isoquinolone 4–48593
- 1-phenyl-3,3-biphenylene-allene dimer, $C_{42}H_{28}$ 4–69786
- 1-phenyl-4-t-butylcyclohexane-1-carboxylic acid, cryst., mol. struct. determ. 4–66887
- N-phenyl-(5-anilino-2,4-pentadienylidene) ammonium bromide hemihydrate, cryst. struct., mol. parameters determ., hydrogen bonds investig. 4–56701
- o-phenylenediamine dihydrochloride, cryst., mol. struct., parameters determ., hydrogen bonds investig. 4–56715
- β-1-phenylsilatrane 4–79010
- picrylsulphonic acid tetrahydrate, neutron diffr. studies of cryst., mol. struct., hydrogen bonding investig. 4–69780
- 2,2,6,6-piperidine N-oxide nitroxide radical, cryst. struct. of tetragonal disordered phase investig., transitions *(French)* 4–75514
- 2,2,6,6-piperidine N-oxide nitroxide radical, polymorphism and phase transitions investig. *(French)* 4–75513
- 1-piperidino-1-benzylcyclohexane, X-ray diffr. *(French)* 4–60469
- poly-p-xylylene, alpha form mol. conformation, crystal structure, X-ray diffraction data 4–44528
- polyisobutylene, X-ray analysis 4–66901
- potassium D-gluconate monohydrate, A and B forms, cryst. mol. struct. refinement by neutron diffr. 4–56695
- N-propyl dipropylacetamide *(French)* 4–48610
- 10-propylisoalloxazine-bis(naphthalene-2,3-diol) 4–60478
- pseudoivalin bromoacetate, cryst., mol. struct. determ. 4–66885
- 5H-pyrazolo[3,4-d]pyrimidine-4-thione, cryst., mol. struct., parameters determ., bonding investig. *(French)* 4–56717
- pyridine-2,3-dicarboxylic acid, neutron diff. obs. of short asymmetrical intramolecular H bonds 4–60488
- pyridino-anthraquinones, unit-cell parameters and space groups 4–82168
- ruthenocene iodide, Mossbauer spectra, struct. 4–57432
- satellite tobacco necrosis virus, cryst., interpretation of 10Å rotation function 4–56690
- L-serine, crystal and molecular struct. determ. using rotation and translation functions 4–48619
- spiro[cyclohexane-1,2'-(4',4'-dimethyloxazolidine)], cryst. struct. determ., e.p.r. meas., g tensor determ. *(French)* 4–75510
- D(+)-tartaric acid, systematic intensity dependent struct. factor differences 4–69689
- $TCNQ_2^-.TEA^+$ complex *(French)* 4–52746
- TCNQ, sodium salt, low temp. modification 4–48606
- TCNQ complex, cryst. and mol. struct. 4–75518
- p-terphenyl, ordered phase at −160°C *(French)* 4–48618
- tetra-(2-thienyl)silane, orient. disorder 4–48617
- tetrachlorocuprates with organic cations, unit cells and space groups *(French)* 4–52745
- tetracyanomethane, donor-acceptor interactions 4–63818
- tetracyanoquinodimethane complexes and salts, struct. and spectra 4–75519
- tetracyclic bromobenzoate 4–79011
- 2,2,4,4-tetramethyl-3-thio-1,3-cyclobutanedione, cryst. struct. determ. 4–66892
- 1,3,3,5-tetramethyl-6-(1',2'-naphtho)- bicyclo[3,2,1]octenechromium(0) tricarbonyl 4–79015
- 1,3,5,7-tetranitro-1,3,5,7-tetraazacyclooctane, cryst. struct. determ. 4–66888
- tetrathiotetracene, disulphide bond angle 4–79026
- 1,3,4-thiadiazole, 220 K, cryst., mol. struct., parameters, density determ., X-ray diffr. meas. 4–56727
- thiazolidine-2-thionepentacarbonyl tungsten, cryst., mol. struct. determ. 4–78999
- thiophene, i.r. spectra and structure of low-temperature cryst. phases 4–67575
- thiosemicarbazones, antitumour agent 4–79018
- thioxanthene 10,10-dioxide, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4–56721
- thiphenamil hydrochloride, anticholinergic agent 4–79006
- threonine, cryst. struct., configurations and conformation of stereoisomers investig. 4–79003
- L-thyroxine, thyroid hormone stereochemistry 4–63381
- N-tosyl-2,12-ethano-2-ethyl-8-methoxy-1,4-methylene-1,2,3,4,5,6,12,13-octahydrophenanthridin-3-one, cryst., mol. struct. determ. 4–69779
- 3,4,6-tri-O-acetyl-1,2-O-[1-(exo-ethoxy) ethylidene]-α-D-glucopyranose 4–79009
- tricyclo[5,3,0,$0^{2,6}$]decane-4,9-dione, X-ray diffr. 4–60473

crystal atomic structure of organic compounds continued
- 3,5,3'-triiodo-L-thyranine, thyroid hormone stereochemistry 4–63381
- 1,1,1-trimethylhydrazinium 3-carbomethoxy-5-pyrazolecarboxylate 4–82158
- 2,4,6-trioxo-5,5-diallyl-N,N-dicyclohexyl-1,3-diazine *(French)* 4–79023
- 2,4,4-triphenyl-1,2-diazetidine-3-one-1-carboxylic acid ethyl ester, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4–56725
- triphenylmethane, X-ray anal. *(French)* 4–60484
- trisilver diethylsulpho-diamine nitrate *(German)* 4–48614
- trisodium 6-phospho-D-gluconate dihydrate 4–60477
- n-tritriacontane, paraffin chain packing, phase transitions 4–48605
- tryptamine picrate, indole donor-acceptor complex 4–63819
- D,L-tryptophan picrate-methanol, indole donor-acceptor complex 4–63819
- L-valine hydrochloride cryst., mol. struct. determ., neutron diffr. studies, hydrogen bonding 4–75516
- $[Mo(C_5H_4)_2Al_2(CH_3)_3]_2$ 4–79007
- $[MoH(C_5H_5)(C_5H_4)]_2Al_3(CH_3)_5$ 4–79007
- acetonitrile(-d), cryst. film, i.r. spectra, polarisation and intensity measurements, cryst. struct. 4–70310
- 9-β-D-arabinofuranosyladenine 4–60466
- 2,2'-bifurane, i.r. and Raman spectra, fundamentals assignment, cryst. struct. 4–70309
- O...C=O interactions, correlations between struct. and chem. react. 4–57813
- TTF-TCNQ, salt, crystallography investigation at reduced temps. 4–66902

crystal binding
- *see also binding energy; lattice energy*
- alkali and alkaline earth halides, electron density calc., polymorphism 4–63788
- alkali halides, fractional ionic character and effective ionic charge 4–66851
- alkali halides, Hugoniot curves, Gruneisen parameter, high press., lattice model calc. 4–72545
- alkali halides, ion electronic polarisability and radii, cryst. pot. effects 4–66852
- alkali halides, second neighbour interaction, rel. to dielec. props. 4–64322
- alkali halides interionic pot. using rigid-ion models 4–72441
- alkali metal halide, dynamic model, diatomic mol. props. 4–66400
- alkali metal halides, fractional ionic character 4–44508
- alloy, charge transfer, effect of electronegativity, component Fermi energies and atomic vol. 4–78943
- anthracene, rel. to positron annihilation 4–48652
- atomic pseudopotentials, ionicity parameter 4–48907
- 1,1-azobiscarbamide, X-ray diffr. obs., struct. refinements using generalized scatt. factors 4–52748
- covalent surfaces, back, dangling and multiple bonds 4–63789
- cubic spinel structures, Madelung consts. and local pots. calc., field strengths determ. 4–69748
- diatomic molecular solids, structure anal. 4–66856
- dielectric theory for diamond like crystals, calc. of ionicity and energy gaps using nonlocality factors 4–48538
- effective charge for piezoelectricity, calc. 4–79677
- fluorides, ionicity, covalent and ionic cryst. radii 4–75475
- Hartree-Fock localised canonical wavefunction, nonexistence effect 4–64005
- h.c.p. metal, Fuchs model of metallic binding forces 4–78947
- hydrogen bonds, proton vibrations investig., cryst. system *(German)* 4–66849
- II-IV-V_2 semiconductors electronegativity and tetragonal distortions 4–66854
- inter- and intramolecular forces, packing and vibr. calc. 4–63783
- intercalated materials, props. and applications, educational paper 4–58703
- ionic crystal, effective charge parameter, three-body-force shell model 4–78944
- ionic crystal electrostatic potential, orthorhombic Bravais lattice 4–60427
- ionicity rel. to elatic consts., A_nB_{8-n} type 4–75559
- ionicity scale of Pauling 4–72442
- isoelectronic divalent ions in crystals, ionic radii and electronic polarizabilities 4–78945
- lithium ammonium tartrate, potential field acting on H, calc. 4–66853
- metal, h.c.p. lattice, approximate quantum statistical theory *(Russian)* 4–66850
- molecular crystal, hydrogen bond geom. and van der Waals interact. at O-H...O contacts 4–78946
- molecular tight-binding method in solids with Pa3 symmetry 4–60722
- noncentral forces, cryst. struct. stability 4–56646
- oxides, ionicity, covalent and ionic cryst. radii 4–75475
- phenanthrene, rel. to positron annihilation 4–48652
- Phillips ionicity, covalent and ionic cryst. radii 4–75475
- potential construction for band struct. calcs., computer program 4–57017
- rare earth oxides, oxyfluorides, and fluorides, effective ionic charges determ. from i.r. spectra 4–52718
- rocksalt structure, empirical pseudopotential method 4–63787
- rocksalt structures, ionicity as function of valence band gap 4–72695
- semiconductor, transverse effective charge calc., tight binding 4–48908
- semiconductor with diamond struct., bond-charge model of phonon dispersion 4–69870
- semiconductors, tetrahedrally coordinated, bond orbital model, cohesive energy calc. 4–82130
- silver halides, fractional ionic character 4–44508
- spinel structure compounds, dipole polarisability of O ion, rel. to ionic radius 4–82634
- tetrahedral solid, angular forces, bond-orbital method 4–69746
- transition element dichalcogenides, charge transfer and optical absorption spectra 4–82371
- transition metal, multi-ion interactions 4–72688
- transition metal alloys, stability of Al_2Cu-type phase 4–76418
- zinc blende structure, empirical pseudopotential method 4–63787

crystal binding continued
zincblende structures, ionicity as function of valence band gap 4−72695
Ag halides, fractional ionic character and effective ionic charge 4−66851
Al, model pseudopotential, appl. to calc. of interionic pot., force consts. 4−82129
Al_2O_3, α and γ forms, charact. freqs. of AlO_n groups *(Russian)* 4−45314
Al_2SiO_5, α and γ forms, charact. freqs. of AlO_n groups *(Russian)* 4−45314
α-$Ba[AlO(OH)_2]_2$, and deuterated analogue, i.r. spectra, H-bonds, vibr. 4−45282
Be, Fuchs model of metallic binding forces 4−78947
Cr_2N, non-stoichiometric, statistical model, bonding 4−76523
CsBr, interionic pots. from cryst. data at different temps. 4−69747
CsCl, interionic pots. from cryst. data at different temps. 4−69747
CsI, interionic pots. from cryst. data at different temps. 4−69747
Cu, origin of cohesion, s- and d-electron models 4−75476
Cu, volume depend. of total energy and eqn. of state 4−63785
Eu-Pd system, phase diag., divalent and trivalent Eu 4−76417
α-Fe:Xe, vacancy clusters, lattice relax. 4−82170
Fe-Si(Ge), electron structure, X-ray spectral investigation 4−67673
Ge, bond-charge model of phonon dispersion 4−69870
GeO_2, GeS_2, $GeSe_2$, K absorpt. edge obs. of bonding 4−82764
H_2, base pare potential and multicentre terms 4−60133
o-H_2, isotropic Compton profile molecular tight binding method 4−79816
HgI_2, yellow and red phases, Raman scatt. anal. 4−53431
KBr, interionic pots. from cryst. data at different temps. 4−69747
KCl, impurity ions substitution energies calc. *(Russian)* 4−52779
KCl, interionic pots. from cryst. data at different temps. 4−69747
KH_2PO_4, effect of polar state of H bonds on phase transition *(Russian)* 4−44644
Li (001) surface electronic struct., initial forces of ionic relax. 4−69745
Mg, Fuchs model of metallic binding forces 4−78947
α-and γ-N_2 crystals and aggregates, LCAO calcs., electronic and dynamical props. 4−69744
Na, effects of extra atomic relax. 4−53562
NaCl, interionic pots from cryst. data at different temps. 4−69747
NaF, effects of extra atomic relax. 4−53562
NbC, Debye-Waller factors, comparison of expt. with force model calcs. 4−79131
Sb-S-I systems, vitrification region, elec. props., bonding 4−44476
Se, electronic density of states and bonding charges, interpretation of photoemission data 4−64475
Si, bonding electrons, vibr. amplitude, pressure and temp. depend. 4−52837
SmS-based solid solutions Sm valence state, lattice press. effects 4−69743
$TaSe_2$, photoelectron spectra, ang. depend. of photoemission at Ta atomic orbitals 4−53575
Te, electronic density of states and bonding charges, interpretation of photoemission data 4−64475
TiNi, binding character inferred from additivity of Compton profile 4−61253
$TiNi_3$, binding character inferred from additivity of Compton profile 4−61253
Ti_2Ni, binding character inferred from additivity of Compton profile 4−61253
VS, hexagonal phase electronic struct. 4−60735
Zn, effects of extra atomic relax. 4−53562
ZnF_2, effects of extra atomic relax. 4−53562
ZrCuSiAs, filled PbFCl type 4−75497

crystal chemistry
see also crystallography
alkali metal-bismuth molybdate (tungstate) 4−82147
1-I-anthraquinone, cryst. chem. analysis of struct. 4−48622
cadmium formate dihydrate:Cd^+, γ-irrad., electron trapping, and Mn^{2+} e.s.r. obs. 4−57364
coordination polyhedra, distortion evaluation 4−56564
effective ionic radii of tetravalent elements 4−75488
multicomponent compounds, defect struct. and stoichiometry, vibr. spectroscopy obs. 4−48465
perovskites, oxidative nonstoichiometry, powder neutron diffraction, defect structure, oxidised lanthanum manganite 4−63825
rare earth arsenides, nonstoichiometry in rocksalt phases 4−63794
rare earth borates, influence of composition on luminesc. *(Russian)* 4−73153
rare earth compounds, enthalpies of form. calc. 4−44682
wustite, solid-state coulometric titration 4−58991
β-Al_2O_3, substitution of Al by Ga 4−66879
$B_{48}B_2$, I-tetragonal boron, comparison with $B_{48}B_2C_2$, $B_{48}B_2N_2$ 4−60447
$(Ba_xSr_{1-x})FeO_{3-\delta}$ solid solns., high oxygen press. effects 4−48590
$Ca_2Fe_2O_5$, Fe replacement by group III B elements *(French)* 4−69762
Cd phosphates preparation and chemical compositions 4−52714
CeO_2 and CeO_2:ZnO, effects of heating in vacuum, CO, and H_2, e.s.r. determ. 4−57353
Eu-W-O system, prep., phase relns., cryst. chemistry and Mossbauer spectra investigation 4−60596
FeV_2O_4-Fe_3O_4, cation distrib., Mossbauer obs. 4−67496
$Hg_3Y_2X_2$, where Y=halogen, X=chalcogen, synthesis and physicochem. investig. 4−50218
$Ir(CO)_3Cl$, one-dimens. conductor, stoichiometry, Mossbauer spectrum, mag. susceptibility 4−57433
$KClO_3$, in glassy H_2O and NH_3, vib. spectra of ion pairs 4−79718
$LaFe_{12}O_{19}$, Mossbauer effect obs. 4−82644
$LiClO_3$, in glassy NH_3, vib. spectra of ion pairs 4−79718
$LiFe_5O_8$, cation stacking faults, nonstoichiometry effects 4−66927
$LiNbO_3$, congruently melting composition, controlled crystal growth 4−73252
$Mg(NO_3)_2.6H_2O$, Raman spectra of dehydration products 4−57513
$Mn_{1-x}Fe_{2+x}O_{4+\delta}$, lattice const. and nonstoichiometry obs. 4−69769
$NaClO_3$, in glassy H_2O, vib. spectra of ion pairs 4−79718
$NaSrVO_4$, struct. evolution, $NaSrCrO_4$ analogy *(French)* 4−56881
$NaTl_3(SO_3)_2$, crystal structure determ. by method of crystallograms 4−52743

crystal chemistry continued
$NiCr_xFe_{2-x}O_4$, effect of chem. uniformity on mag. props. 4−49168
Ni(II) complexes with quadridentate Schiff bases, spin state and stereochem., electronic spectra 4−57569
Ti_xWO_4 system, crystallographic shear phases 4−60461
WO_3, nonstoichiometric, electron and optical microscope study 4−75522
YF_3, stoichiometric change, MX_3 to MX_2 to M_2X_3, struct. rel. 4−75632
Y_2O_3, stoichiometric change, MX_3 to MX_2 to M_2X_3, struct. rel. 4−75632
$Y_{3-c}Pr_cScFe_4O_{12}$ garnet, structural variation investigation, reln. with mag. anisotropy and cryst. chemistry 4−60454

crystal classes *see crystal symmetry*

crystal cleavage
b.c.c. polycrystal, microcrack propag., stat. criteria 4−49852
crack morphology in relatively brittle materials 4−63853
dynamic cleavage, mech. model 4−48684
fracture energy determination by double cantilever cleavage 4−66977
LEED-Auger apparatus, u.h.v. cleavage device 4−52665
metal, b.c.c., cleavage fracture due to twin passing through free surface, dislocation model 4−76499
rock, brittle crack growth under uniaxial compression 4−50248
steel, mild, plastic yielding and fracture props., specimen thickness and temp. effect 4−61468
steel, milk, sulphide cracking, fractographic obs. 4−67846
steel, pearlitic 1080, cold worked, deform. struct. and tensile fracture characts. 4−45675
steel, tempered martensite, orientation of cleavage facets, single surface trace analysis 4−45553
talcum powder contamination on handling *(German)* 4−72640
β-Al_2O_3, alumina, strength and fracture mechanisms 4−61499
Al_2O_3, Lucalox, SEM fractographic obs. rel. to testing temp. and grain size 4−67922
$Ba(VO_3)_2.H_2O$ crystals, optical consts. and differential thermal anal. 4−53389
$BaWO_4$, by flux evaporation, morphology, cleavage, perfection, growth of crystals 4−76385
$Ca(VO_3).4H_2O$, optical consts. and differential thermal anal. 4−53389
$CaWO_4$, dislocation etching on cleaved {001} and {100} planes 4−63993
Fe-Co-V alloys, mag. and mech. props. correl. with microstruct. 4−80014
GaAs junction, anisotropic etching behaviour 4−60694
Li-In binary alloy, growth of single crystals, Bridgman method 4−73249
$Mg(VO_3)_2.6H_2O$, crystals, optical consts. and differential thermal anal. 4−53389
Mo, single cryst., fracture surfaces, selected area electron channelling obs. 4−70492
NaCl cleavage faces, evap. of edge dislocations in vacuum, model, 350-500°C 4−48748
$Sr(VO_3)4H_2O$, optical consts. and differential thermal anal. 4−53389
$SrWO_4$ by flux evaporaton, morphology, cleavage, perfection, growth of crystals 4−76385

crystal counters
see also particle detectors; radiation detectors
radiation induced thermally activated current devices, high sensitivity dosimetry 4−80768

crystal defects
see also crystal impurities; crystal microstructure; disclinations; dislocations; grain boundaries; point defects; semiconductor defects; stacking faults; twinning
alkali halide, solid solns., nature of bulk defects 4−79033
alkali metal halide, defect detection using luminol chemiluminesc. *(Russian)* 4−82722
alkali metal halide, exciton dissociation on defects of cationic sublattice *(Russian)* 4−72726
alkali metal halide, V_k-centre dissoc., unrelaxed holes *(Russian)* 4−82186
anthracene, cryst. reflect. line shape anal. rel. to exciton dynamics, distortion effects investig. 4−48940
apatite halophosphates, Sb^{3+}, Mn^{2+} activated, extrinsic absorption bands, 140 to 190 nm, obs. 4−57605
atomic chain discontinuity effects on channelling 4−72509
diamond, growth-sectorial dependence of defects 4−69793
diamond, H3 cathodolum., decay time reduction rel. to defect interactions 4−53538
diamond, natural, formation of trigons at {111} faces during etching 4−82326
diamond, natural and synthetic, linearly polarised luminescence from linear defects 4−79804
dielectric film coating, laser damage mechanism 4−55498
diffraction topography, eqn. for dynamical diffr. in imperfect crysts. derived 4−56565
dipole-lattice interacting system, susceptibilities, piezoelec. and strain defect coupling models 4−60571
garnet, l.p.e., rapid detection by stripe domain scanning 4−70190
graphite, atomic displacements by irradiation review *(Japanese)* 4−78233
graphite microstrains and paracryst. distortions, X-ray-Fourier transform anal. *(German)* 4−69698
growth from solution, comparison of single and suspension growth 4−44501
habit plane calculations using Bollmann method and applic. to martensitic transform. *(French)* 4−49655
imperfect crystal, force constant changes, defect induced freq. shifts 4−56825
ion beam damage, total cross-section corresponding to Lindhard-Nielsen-Scharff differential cross-section 4−72497
ionic conductivity, solute inhomogeneity effect 4−56911
KCl=Ba^{2+}, Ba^{2+} distrib., lattice defects, distortions investig. using X-ray diffuse scatt. 4−56762
long range strain field, de Haas-van Alphen effect dephasing connection to electron scattering 4−79273
magnetic materials, disorder effect on phase transitions 4−64208
metal, positron trapping meas., labelling technique 4−48648

crystal defects continued
metal, rheological behaviour, review 4−44589
molecular crystal, energy spectrum of localised excitons in presence of flat defects 4−60762
molecular crystal, phosphoresistence, heat pulse modulation obs. 4−76294
multicomponent compounds, defect struct. and stoichiometry, vibr. spectroscopy obs. 4−48465
multiple scattering of X-rays and neutrons, recurrence formula for Taylor series expansion in intensity calcs. 4−82085
muscovite, defect form. due to high energy Kr, Ar, Ne and O ions *(French)* 4−66946
naphthalene, cryst. growth, i.r. spectra rel. to struct. defects 4−73142
nonuniform distribution of defects around dislocations in acoustic wave field *(Russian)* 4−66915
one-electron level systems, formation in imperfect crystal 4−72707
organic molecular crystals, detection *(German)* 4−75521
oxides, stoichiometry deviations and effects on phys. and chem. props. 4−60490
polybutene I, microstrains and paracryst. distortions, X-ray-Fourier transform anal. *(German)* 4−69698
polyethylene, microstrains and paracryst. distortions, X-ray-Fourier transform anal. *(German)* 4−69698
polymers in irregular conformation, simplified B-matrix 4−75060
positron annihilation, trapping model 4−72485
positron dynamics in solids, appl. to meas. of solid state props. reviewed 4−82190
positronium, momentum distribution in ice, narrow component temp. dependence, rel. to excited defects 4−82194
semiconductor, charge and interaction of disordered regions produced by irradiation of particles 4−66904
solid solution, long-range order rel. to cluster model *(Russian)* 4−44516
solidifying ingot, temp. field estimate, quality criteria *(Russian)* 4−76518
steel, critical defect size, prediction from plastic fracture mechanics *(French)* 4−67866
thin crystals, simultaneous diffusion, capture of protons, review *(Russian)* 4−79081
three-dimensional solids localised defects, appl. of generalised Wannier function concept, perturbation theory 4−64030
X-ray diffraction, sensitivity enhancement, asymm. Bragg case 4−44439
X-ray step scanning topography, distrib. determ. 4−56585
X-ray topography, spectrometer technique 4−82088
Ag, film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
Ag, thin film, chemically deposited, X-ray obs. of lattice defects 4−67129
Ag-Zn alloy, irradiated with 2.3 MeV electrons, effect of temperature on rate of formation of defects and recovery *(Russian)* 4−69825
β-AgI, pure and Cu-doped, optical emission and absorption obs. 4−57604
Al, near threshold electron damage, purity effects 4−69827
Al, powder, mech. activated, lattice distortion and Debye temp. investigations *(German)* 4−57737
Al_2O_3, liq.-solid interface profile during Czochralski growth 4−78938
Al_2O_3:Co, struct. and mobility obs. at high temp. 4−49886
$As_2S(Se)(Te)_3$, positron annihilation rel. to bonding and defects on vitrification 4−44838
Au, film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
Au-Cu-Zn, thermoelastic martensite, pseudoelasticity rel. to half-dislocations and lattice defects 4−82936
$Ba_2NaNb_5O_{15}$, opt. second harmonic generation rel. to growth and thermally-induced homogeneities 4−59451
BaO, obs. of activation energy and defect struct. 4−48787
Bi, estimating chemical purity and quality *(Russian)* 4−66903
Bi, etch-pit shape using CrO_3 in glacial acetic acid 4−72641
Bi and Bi-Pb alloys, structural changes on irrad. 4−66935
CaF_2, ordered lattice defects, transmission electron microscopy obs. 4−66914
$CaF_2:Er^{3+}$, cubic sites, ion-defect clustering 4−79058
$CaF_2:Er^{3+}$, cubic sites, ion-defect clustering 4−79059
$Ca_5(PO_4)_3Cl$, e.s.r. detection of O-associated hole-like centres 4−64261
CsBr(I)/Xe, degassing in neutron irrad. crysts., gas reaction with defects *(German)* 4−79195
CsCl, surface waves, dynamic surface problem 4−79230
Cu, film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
Cu, neutron-irrad., lattice parameter changes, dose depend. 4−48654
Cu_2O, minimization of defect number, cryst. growth procedure 4−73254
GaAs, c.w. semiconductor laser, degradation rel. to local defects, internal stresses and local weakness 4−81326
GaAs vacuum evaporated films, reflection splitting in RHEED investigations 4−56760
n-GaAs:Cr, optical absorpt. meas., extrinsic transitions localised levels investig. 4−64413
GaAs:Te, nature of small etch-pits 4−82325
GaP layers on Ge substrate, prep. and struct. props. 4−48873
GaP:Fe^{3+}, first ENDOR meas. on defect centre in III-V compound *(German)* 4−76193
Ge, irradiated with 30 keV Ga^+ ions, electrical characts. 4−67236
Ge, n- and p-types, trapping model for positron lifetime obs. 4−56771
$GeS(Se)_x$, x=1,2, positron annihilation rel. to bonding and defects on vitrification 4−44838
HfP_2O_7, self-activated luminescence efficiency and emission energies, obs. 4−57638
HgTe single cryst., growth, defects and phys. props. 4−53599
InAs, grown from gaseous phase, morphology and struct. perfection investigation *(German)* 4−49618
InSb, grown from gaseous phase, morphology and struct. perfection *(German)* 4−49618

crystal defects continued
n-InSb, surface defects and mag. freezing, Hall and cond. meas. *(German)* 4−70037
KBr:I, photoluminesc., radiation defect distrib. *(Russian)* 4−73156
$KBrO_3$, X-irrad., BrO_3^{2-} mol. motion obs., 26-250K 4−79597
KCl/Ar, degassing in neutron irrad. crysts., gas reaction with defects *(German)* 4−79195
$KH_2PO_4:Cr^{3+}$, relax. internal friction, obs. and defect model 4−82222
LiD, and impurities, additional bands in thermostimulated luminescence *(Russian)* 4−70363
LiF, single crystals containing cavities, slip generation by pressurization 4−60539
Mg-Al spinel crystals, X-ray exam. of growth and microstruct. 4−49574
MgF_2-Nb_2O_5, multiple phases, electron microscope obs. of intergrowths defects, disordered crysts. 4−69819
MgO, radiometric vol. determ. for closed extended defects 4−79034
Mo, defect state thermal stability in neutron irradiation 4−55923
Na, lattice parameter near melting point, neutron diffr. 4−69752
NaCl, annealed, conc. from backscatter and channelling of protons *(Russian)* 4−82306
Nb single crystal, etch pits rel. to work function 4−79838
Pb, superconductor, mechanical pressure effects on critical transport props. 4−72912
Pt, light ion irradiated, resistivity meas. rel. to irradiation temperature and vacancy conc. 4−79037
PuO_2, lattice defects and atomic radii, ionic model failure 4−59850
α-S, growth from soln., growth parameters, cryst. perfection 4−45417
$Sb_2S(Se)(Te)_3$, positron annihilation rel. to bonding and defects on vitrification 4−44838
Sb_2Se_3, cryst., thermal activation energy, role of growth defects 4−82406
Si dislocation-free single cryst., defect struct., vacancy supersaturation *(German)* 4−48628
SiO_2, distrib. determ., self-healing breakdown appl. 4−44529
SiO_2, rel. to nature of recomb. centres of Si-SiO_2 interface 4−67283
Sn, magnetostriction, quantum oscills. under mag. interaction conditions at 0.37K *(Russian)* 4−73009
SrO, obs. of Schottky defect and cation diffusion 4−48787
Ta_2O_5, defect structure 4−72461
$TiO_{1.00}$, radiometric vol. determ. for closed extended defects 4−79034
TiO_2, single cryst. and ceramic samples, defect obs. by thermally stimulated depolarisaton currents 4−57099
TiO_2, vacuum-heated rutile, excess microwave u.s. absorpt. meas., defect absorpt. theory 4−60558
TiO_2 in corundum solid soln., disordering model 4−53088
TiO_2-Cr_2O_3, phase analysis of oxides derived from rutile by crystallog. shear 4−67048
UO_2, lattice defects and atomic radii, ionic model failure 4−59850
UO_{2+x}, nonstoichiometry considerations 4−51887
V, low energy electron irrad. 4−72490
YAG liq.-solid interface profile during Czochralski growth 4−78938
YAG:rare earth, radiation defects, luminesc., charge transfer *(Russian)* 4−73203
YIG single crystal preparation and properties 4−76388

crystal diffraction spectrometers *see X-ray spectrometers*

crystal diodes *see semiconductor diodes*

crystal dislocations *see dislocations*

crystal electron states
see also band structure; band theory models; carrier mobility; colour centres; electron gas; electron-phonon interactions; electronic density of states; excitons; Fermi level; Fermi surface; helicons; impurity electron states and effects; localised electron states; metal-insulator transition; plasmons; polarons; positron states; pseudopotential methods; quasi-particles; surface electron states
alloy, influence of effective valence electron conc. 4−64007
Bloch electrons, eigenstates for irrational mag. fields 4−48884
charge transfer molecular solid, electron correl. 4−48890
condensons, magnetic, in high mag. fields, in homopolar crystals and He gas 4−48942
configuration crossover in 4f substances under pressure 4−67143
cubic crystals, electron velocity, acceleration, angular momentum, standing LCAO wave functions calc. 4−82345
dense systems of correlated scatterers, equil. props. of electrons, φ fields *(Russian)* 4−79260
effective wave equation, cryst. with parallel screw dislocations *(Russian)* 4−67182
new electron resonances predicted for low temp. solid in crossed elec. and magnetic fields 4−49210
Frenkel defects, energy spectrum, low temp. 4−75819
metal, Hartree energy calc. 4−57020
metal, nearly free electron model, stationary and moving charge densities 4−79256
molecular tight-binding method in solids with Pa3 symmetry 4−60722
multiple scattering model for mols. and crysts. 4−72667
nonequilibrium, from electron induced recomb. radiation lineshape 4−61219
one-dimensional lattice, monatomic or diatomic, relativistic electronic states 4−75752
photoemission nonlocal yields, longit. excitation contrib. 4−79849
randomly disordered crystals, common Hamiltonian decription of excitation dynamics 4−79109
refractory compounds, strength and plasticity, subatomic config. model 4−67899
semiconductor, electron-hole drop charge 4−44812
semiconductor, magnetic, spin-orbit interaction, Landau level splitting 4−75799
silicate glasses, eight-component, structure and electron struct., Mossbauer investig. 4−53349
Stark levels, deviations in tightly bound one-band finite linear chain 4−79300
transition metal alloys, X-ray spectra, K-line, electron d-state energies *(Russian)* 4−49487
vacancy anisotropy, positron annihilation rate anal. 4−60759

crystal electron states continued
$AgGaS_2$, acceptor levels, n- and p-type 4−82403
Al, X-ray Compton scatt. meas., electron momentum distrib. 4−61254
$Al_xGa_{1-x}As$-GaAs-$Al_xGa_{1-x}As$, thin heterostruct., quantum states of trapped carriers 4−79407
Be compounds, photoluminescence, effect of changes in electron struct. *(Russian)* 4−49423
Ce, configuration crossover in 4f substances under pressure 4−67143
Cr, momentum distrib., Compton profile calc. 4−44829
Cs_2SbCl_6, delocalised electron pairs, inter and intra site interactions, temperature dependence 4−64003
Fe, momentum distrib., Compton profile calc. 4−44829
GaAs, excited donor states anal., low temp. photocond. meas. 4−72733
p-GaSb, stress induced splitting and decoupling, Hall coeff. 4−49008
$HfFe_2$, X-ray emission spectra, Laves-type lattice electron struct. *(Russian)* 4−53544
$MoFe_2$, X-ray emission spectra, Laves-type lattice electron struct. *(Russian)* 4−53544
NdS, crystal field splittings determ. by neutron inelastic scatt. 4−79301
NdSe, crystal field splitting determ. by neutron inelastic scatt. 4−79301
Ni, momentum distrib., Compton profile calc. 4−44829
Ni, rel. to disappearance of negative magnetoresist. after H absorpt. 4−72755
NiO, anisotropy in positron angular correlation curves 4−82191
Ni_xSi_y, X-ray spectra, photoluminescence and electronic struct. *(Russian)* 4−49484
Si, spherical square well defect potential model 4−48929
Si, X-ray spectra, comparison with oxides and $CrSi_2$ *(Russian)* 4−53543
Si-Ag, interface states characts., capacitance meas. 4−75961
Sm monochalcogenides, configuration crossover in 4f substances under pressure 4−67143
TCNQ, charge transfer molecular solid, electron correl. 4−48890
Ti alloys, X-ray emission spectra, Laves-type lattice electron struct. *(Russian)* 4−53544
TiO_2 in corundum solid soln., disordering model 4−53088
$ZnFe_2$, X-ray emission spectra, Laves-type lattice electron struct. *(Russian)* 4−53544

crystal energy *see lattice energy*

crystal etching *see etching*

crystal faces
atomic structure, method of clarification *(German)* 4−72405
diamond, natural, formation of trigons at {111} faces during etching 4−82326
W, growth and desorption of Al_2O_3 layers on cryst. planes 4−69962

crystal field theory
see also crystal hyperfine field interactions; crystal internal fields
actinides, trivalent, in octahedral environments, mag. props. of Cs_2NaMCl_6 4−49153
alkaline earth oxide:$Dy^{3+}(Yb^{3+})$, ion ground state determ., e.p.r. 4−57362
anisotropy, uniaxial and biaxial, systems with biquadratic exchange 4−76031
Bogoliubov method, applic. to crystal state 4−75761
cubic complex $^2T_2$ perturbed by trigonal field, vibronic coupling and paramagnetic anisotropy *(French)* 4−53207
d^3, d^7 square pyramidal complexes, calc. using strong field formalism 4−53049
d^5 electron configuration, corrections in the weak-field matrices 4−69988
defect magnetic lattice, transition temp. relation 4−76030
diffuse reflectance spectra of microcryst. solids using reference beam weakening method 4−64403
electron correlation, self consistent random state field approx. 4−64174
ferric-hemin, ^{57m}Fe isomer shift calc. 4−53185
ferrimagnet, disorder in cation distrib. 4−57232
ferroelectric simple model, molecular field Hamiltonian, exact and variational treatments 4−67539
ferromagnet, mean field model, master eqn. 4−45076
ferromagnet, tricritical behaviour of Blume-Capel model 4−72932
ferromagnet in mag. field, variational approximation 4−76041
ferromagnets, $S=1$, variation of Curie temp. with uniaxial anisotropy in X-Y model 4−49140
Heisenberg ferromagnet, singlet ground state system, surface excitations 4−45085
Heisenberg model, mag. order, Pade, random-phase and mol. field approxs. 4−60934
II-VI lattice e.p.r. of Cr^{2+}, ligand-field model 4−49226
irreducible tensor operator methods in intermediate-field coupling 4−62660
Ising antiferromagnet, metamagnetic transition, mol. field approx. 4−45081
Jahn-Teller problem, T × t, large finite coupling 4−79297
ligand field as pseudopotential 4−79305
ligand field Coulomb-repulsion spin-orbit interaction matrices evaluated, d^4, d^6 config. 4−66390
linearly independent parameters; use of irreducible operators for determining complete set 4−45072
magnetic system with crystal field only singlet ground state, phase transition 4−53230
magnetism, many-body theory, for ions with complicated level structure 4−67326
manganese (II) phthalocyanine, mag. props. 4−53184
mean-field theories for infinitely long-range forces 4−53187
ML_4-complexes, tetragonally distorted, splitting of d^4-config. in strong ligand field 4−52059
molecular orbital based model of ligand field spectra 4−49380
molecular-field approximation for dipolar interaction 4−49138
nuclear materials, thermophysical developments, review 4−51881
one-dimensional problem for $S=1$, freezing of orbital angular momentum 4−53189

crystal field theory continued
p^2 configuration in square planar ligand fields, cryst. field and ang. overlap treatment 4−64028
Peierl's transition, Coulomb interaction effects on mean field theory 4−67176
Peierl's transition in quasi-one dimensional system 4−67177
phase transitions, one third power law 4−43220
rare earth ions, effect of environment on spectra *(Russian)* 4−67628
rare earth-Co, RCo_5, rel. to mag. anisotropy 4−57307
singlet-singlet induced moment system 4−79476
singlet-triplet system, two-component induced-moment cryst., mean-field model 4−67323
tetramethylammonium manganese chloride with Fe impurity, ^{57}Fe Mossbauer spectrum 4−64299
transition metal complex, hexahalo, relativistic optical electronegativities 4−60746
transition metal complex, tetragonally distorted, d^5-config. splitting in ligand field of D_{2d}-symmetry 4−48915
transition metal complexes, pseudotetrahedral, energy levels and low-symmetry complex props. 4−53050
two-component induced-moment crystal in mean-field model, singlet-singlet system 4−45073
AgCl(Br):Cr^{3+}, e.p.r. spectrum, crystal field calc. 4−67438
Al:Er, dil., exchange and cryst. field parameters from transmission e.s.r. 4−79603
α-Al_2O_3:V^{3+}, absorpt. spectrum analysis, cryst. field parameters *(French)* 4−61192
Ar, emission spectrum analysis *(Russian)* 4−70323
BaF_2:Pu^{3+} hyperfine struct. consts. and pseudonuclear g-shifts anal. 4−48919
$CaCO_3$, e.p.r. of Fe^{2+}, absorpt. line parameters *(Russian)* 4−70213
CaF_2:Eu^{2+}, optical absorption spectrum, crystal field theory calcs. 4−49378
CaF_2:Gd^{3+}, strain effect on e.s.r. parameters using u.s. modulation 4−53304
CaF_2:Pu^{3+}, hyperfine struct. consts. and pseudonuclear g-shifts anal. 4−48919
$CaWO_4$:Nd^{3+}, mag. susceptibility and Schottky sp. ht. calc., 10-400K 4−76032
$CdYb_2Se_4$ spinel, cryst. field theory interpretation of paramag. susceptibility 4−76050
Co(II) complex, square pyramidal, calc. using strong field formalism 4−53049
$CsCdF_3$, e.p.r. of Fe^{3+} and Cr^{3+}, distortion due to Cd^{2+} vacancy *(French)* 4−79582
Cs_3CoBr_5, $^4A_2$ ground state obs. by Zeeman effect of optical absorption lines 4−76268
Cs_3CoBr_5, absorpt. spectra and mag. circular dichroism of spin-forbidden ligand field transitions 4−61180
Cs_3CoCl_5, $^4A_2$ ground states obs. by Zeeman effect of optical absorption lines 4−76268
Cs_2HfCl_6 and Cs_2ZrCl_6, Ru^{3+} and Ir^{4+} e.p.r. of low-spin ground state crysts. 4−53305
Cs_2NaMCl_6, M = trivalent actinide in octahedral environment, mag. props. 4−49153
Cs_2NaYCl_6:$Ce^{3+}(Dy^{3+})(Yb^{3+})$, e.s.r., perfect octahedral symmetry 4−45174
Cs_2SnCl_6, cryst. field effect in n.q.r. and vibr. spectra 4−52730
Cu, electron surface states, five layer (001) film, LCMTO calc. 4−64125
Cu complex, copper proline dihydrate, e.s.r. spectra, electric field asymmetry study 4−49219
Cu complex, electronic and mag. props. investig., angular overlap model 4−78424
Cu^{2+} in crystal fields, config. interaction screening factors 4−60747
$CuBr_4^{2-}$, ground and excited state energies *(Chinese)* 4−64026
$CuCl_4^{2-}$, ground and excited state energies *(Chinese)* 4−64026
$CuFe_{2-2x}Ga_{2x}O_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
$CuFe_{2-2x}Zn_xGe_xO_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
$CuFe_{2-2x}Zn_xTi_xO_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
DySb, Mossbauer spectra, DySb, effective field at ^{161}Dy nuclei, anomalous temp. depend. *(Russian)* 4−67501
Er_2Ni_7, point-charge crystal field model explanation of mag. struct. 4−76092
Eu^{2+}, analysis of spin-lattice parameters in cubic crystals 4−67322
Eu^{3+}, in $Eu(NO_3)_3$ and $EuCl_3$, soln. visible absorpt. spectra cryst. field splitting theory 4−82707
$Eu_cBa_{1-c}O$, optical absorption spectrum, crystal field theory calcs. 4−49378
$Eu_cCa_{1-c}O$, optical absorption spectrum, crystal field theory calcs. 4−49378
EuP_5O_{14}, cryst., polarised emission, absorpt. spectra, Eu^{3+} symmetry investig. 4−82706
$Eu_cSr_{1-c}O$, optical absorption spectrum, crystal field theory calcs. 4−49378
Fe complex, iron(III)bisdithiocarbamates, mag. interactions 4−53222
Fe^{2+} ion in distorted octahedral symm. sites, mag. and nuclear elec. quadrupolar axes 4−67324
FeMn alloy, mag. hyperfine fields at $^{55}Mn^{57}Fe$ nuclei, mol. field calcs. 4−76066
$Fe_{3-x}Sn_xO_4$, mol. field coeffs. determ. from paramag. meas. *(French)* 4−64184
Fe_2TiO_4, rel. to giant magnetostriction, elastic consts., and anisotropy const. 4−45159
$Fe(pyridine)_2Cl_2$, sign of elec. field gradient tensor, nature of low temp. phase transition 4−79647
Gd^{3+}, analysis of spin-lattice parameters in cubic crystals 4−67322
Ge:^{12}B, depolarization through double quantum transition via resonance 4−53051
HoSb, tricriticality, sp. ht. and resist. calc. in terms of mol. field model 4−67369
$KCdF_3$, e.p.r. of Fe^{3+} and Cr^{3+}, distortion due to Cd^{2+} vacancy *(French)* 4−79582
K_2SnCl_6, cryst. field effect in n.q.r. and vibr. spectra 4−52730

crystal field theory continued
$LaAlO_3$, $LaCl_3$, La_2O_3 and La_2O_2S, Eu^{3+} doped, electrostatic field parameters *(French)* 4-75791
$LuPO_4$:Ce^{3+}, calcs. of Ce^{3+} energy levels 4-79311
$(NH_4)_2SnCl_6$, cryst. field effect in n.q.r. and vibr. spectra 4-52730
$NaNO_2$, molecular field theory of long range order parameter 4-76226
$NdAl_2$, high field magnetization 4-73000
$NdAl_2$, mag. excitons, dispersion relations 4-70172
Ni complexes $[Ni(NH_3)_6]^{2+}$ and $[Ni(H_2O)_6]^{2+}$, spin density distrib., MO-LCAO calc. 4-45075
Ni(II) complexes with quadridentate Schiff bases, spin state and stereochem., electronic spectra 4-57569
$Ni_cMg_{1-c}O$, optical absorption spectrum, crystal field theory calcs. 4-49378
α-O_2, solid, crystal structure and antiferromagnetism anal. using spin-dependent intermolecular potential 4-67325
$PbMoO_4$:Nd^{3+}, mag. susceptibility and Schottky sp. ht. calc., 10-400K 4-76032
Pd:Er^{3+}, single cryst., e.p.r. anal. 4-73022
PdEr, e.s.r. obs. of Γ_6 excited state Er^{3+} reson. 4-53308
PdH, crit. behaviour, lattice gas aspects 4-60611
PdH, crit. behaviour, sp. ht. meas., mean field theory 4-60612
Pr^{3+} complexes, nephelauxetic effect, per cent covalency calc. 4-63404
$RbCdF_3$, e.p.r. of Fe^{3+} and Cr^{3+}, distortion due to Cd^{2+} vacancy *(French)* 4-79582
Rb_2SnCl_6, cryst. field effect in n.q.r. and vibr. spectra 4-52730
$SrCl_2$:O_2^-, e.s.r. spectra, g-tensor, crystal field splitting between orbitals 4-45187
SrF_2:Pu^{3+} hyperfine struct. consts. and pseudonuclear g-shifts anal. 4-48919
TeO_2, determ. of elec. field gradient tensor *(Russian)* 4-64298
UAsS magnetic anisotropy effects explanation 4-53251
UAsSe magnetic anisotropy effects explanation 4-53251
UCl_4, low temp. mag. susceptibility 4-53216
UP(As) electronic config. of U ion, from mag. susceptibility 4-76062
V complex, dichlorodifluorovanadium (IV), pseudotetrahedral, energy levels and low-symmetry complex props. 4-53050
XeF_6, crystal-field model, energy levels, mol. geometry 4-60018
YAG:Nd^{3+}, crystal field analysis of optical spectra 4-67169
YPO_4:Ce^{3+}, calcs. of Ce^{3+} energy levels 4-79311
$Y_3[Fe_{2-x}Ga_x](Fe_{3-y}Ga_y)O_{12}$, saturation magnetisation anal. 4-67398

crystal fields *see crystal internal fields*

crystal growth
see also crystal growth from melt; crystal growth from solution; crystal growth from vapour; crystal purification; crystallisation; dendrites; epitaxial growth; nucleation; semiconductor growth; zone melting and refining
activation energies of forward and reverse reactions 4-82125
collision breeding, rel. to cryst. moments and degree of mixing 4-48530
diamond, growth-sectorial dependence of defects 4-69793
diamond, natural growth by sulphide reduction of CO_2 4-54130
ice, mechanism and habit formation 4-61783
layer-spiral growth, transform. into normal growth on basal face, layer breakdown on apices of spiral hillocks 4-48532
molecular beam analysis techniques 4-82798
nucleation-controlled growth on a one-dimens. growth of finite length 4-56631
polygonized case of screw-dislocation mechanism of growth 4-75468
quartz, synthetic, mechanism of Ge doping, DTA obs. *(French)* 4-48640
rare earth gallium oxide perovskites, $RGaO_3$ type, synthesis and lattice consts. 4-60458
schlieren type microscopy, modified form, study of cryst. growth, dendritic cryst. 4-66846
snow crystal habit, at small excesses of vapour density 4-61782
sucrose, activation energies of forward and reverse reactions 4-82125
survey 4-67705
p-toluidine, layer-spiral growth, transform. into normal growth on basal face 4-48532
transition metal compounds, refractory, review of methods 4-61280
Ag-Al alloys, rapid growth of single crysts. in solid state using massive transform. 4-61344
Ag_3Sn-Hg amalgamation process, SEM obs. of cryst. growth and mass transport, fracture surfaces 4-67803
$Ba_2NaNb_5O_{15}$, opt. second harmonic generation rel. to growth and thermally-induced homogeneities 4-59451
Bi, estimating chemical purity and quality *(Russian)* 4-66903
$Bi_3(FeO_4)(MoO_4)_2$, $Bi_3(GaO_4)(MoO_4)_2$, new compounds with scheelite related struct. 4-72453
CdI_2 polytypes, growth by dislocation controlled phase transformation 4-52711
$CsMnF_3$, growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4-70402
$FeSO_4.7H_2O$, activation energies of forward and reverse reactions 4-82125
$KAl(SO_4)_2.12H_2O$, activation energies of forward and reverse reactions 4-82125
$KMnF_3$ growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4-70402
MgO, cryst. fused periclase, struct. defects caused during growth 4-44530
NH_4MnF_3, growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4-70402
$RbMnF_3$ growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4-70402
Sb_2Se_3, cryst., thermal activation energy, role of growth defects 4-82406
Si single cryst., dislocation generation during dislocation free growth *(German)* 4-48632
SiC, microsyntaxy and polytypism 4-60460
SiC, struct. families, growth mechanism 4-72452
$TlMnF_3$, growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4-70402
$Tl_{1+\alpha}(Nb_{1+\alpha}W_{1-\alpha})O_6$, growth and struct. *(French)* 4-72456

crystal growth continued
V_2O_5, single cryst. prep. and struct. props. 4-82800
W, tip growth normal to close packed face, heating in elec. field 4-57674

crystal growth from melt
alkali halides, segregation from aqueous solns. or from melts, thermodynamics comparison 4-52709
aluminates and alumino-silicates, growth by vapour-flux process 4-79873
Bridgeman method, impurity diffusion in melt 4-45432
Czochralski equipment automatic control *(German)* 4-67717
dibenzyl:tolane, impurity distrib., temp. gradient effects 4-52712
p-dichlorobenzene, phase selection by isotopic substitution 4-66842
eutectics, completely and partially co-operative lamellar growth investig. 4-63775
fluoride, flux growth under reducing conditions, apparatus and procedure 4-57684
garnet, for bubble domains, homogeneous LPE fluxed melt prod. 4-45426
garnet, liquid phase epitaxial growth from BaO-B_2O_3 fluxes 4-79872
garnet, l.p.e., large area, prep. for bubble domain devices 4-70411
garnet film, compositions for bubble domain memories, garnet comps. 4-73004
garnet film, l.p.e., from BaO-BaF_2-B_2O_3 solvent 4-70412
hopper crystal, instability criteria, rel. to spiral eutectic morphology 4-49650
ice, collision breeding 4-56630
ice, growth from droplet accretion, solidification process, struct. investig. 4-63777
impurity distribution, temp. gradient effects 4-52712
interfacial free energy, determ. from elongation of liquid droplet migrating through solid 4-78939
metal, f.c.c., computer simulation of (111) crystal-melt surface equilib. atomic struct. 4-52974
naphthalene, gradient freeze method 4-64497
optically controlled growth model 4-52713
phenanthrene single cryst., dislocation etching and plastic deform. 4-57685
phenanthrene single cryst., growth and perfection 4-61285
polychlorotrifluoroethylene, chain folding crystallisation 4-82974
polymeric microporous films, elastic cryst., form., properties, porosity, struct. 4-53866
polytetrafluoroethylene, chain folding crystallisation 4-82974
rare earth fluorides, impurity-conditoned solid-solid transition and melt growth 4-60614
rare earth germanomolybdates and germanotungstates, flux growth, mag. and crystallographic characteriz. 4-61287
rare earth molybdenum oxides, R_2MoO_6, flux growth and powder patterns 4-79871
refractory metals, growth from metal foil, oven design 4-46604
seed holder for Czochralski growth 4-45429
silicates, cryst. flux growth with vapour transported Si 4-73250
transition metal alloys, single crystals, Bridgman method and techniques for cutting and alignment 4-53601
volumetric crystallisation determination *(Russian)* 4-52710
X-ray technique for observing liquid encapsulation Czochralski growth 4-61316
YAG single crystal, dislocations, effect of growth factors 4-48631
Al-Al_2Cu, eutectic alloy, growth crystallography of a single cryst. 4-69738
Al-Al_3Ni, eutectic alloy, growth crystallography of a single cryst. 4-69738
$Al_xGa_{1-x}As$, liq. phase epitaxy on GaP *(Russian)* 4-45439
$Al_xGa_{1-x}Sb$, growth of film by liquid phase epitaxy with temp. gradient 4-45481
$Al_xIn_{1-x}Sb$ alloys, preparation, electroreflectance spectra 4-76272
Al_2O_3, leucosapphire, anisotropy of dissolution ratio compared to growth rates 4-44500
Al_2O_3, liq.-solid interface profile during Czochralski growth 4-78938
Al_2O_3-Na_2O, high press. cryst. growth, edge-defined film-fed growth technique 4-45428
$2Al_2O_3.SiO_2$, mullite, Czochralski growth 4-57687
$Ba_2AgNb_5O_{15}$, ferroelectric cryst. grown by Czochralski technique 4-70409
BaO-Na_2O-Nb_2O_5, compositional control, optical material 4-82807
$Ba_4SrNb_{10}O_{30}$, growth spirals form. mechanism 4-63774
$Ba_{0.97}Sr_{0.03}TiO_3$, and dielectric props. 4-49573
$BaWO_4$, by flux evaporation, morphology, cleavage, perfection, growth of crystals 4-76385
Bi, single cryst. growth by Czochralski and Bridgman techniques *(Russian)* 4-45433
Bi-Sb alloys, cryst. growth, interface stability criteria investig. 4-63776
Bi-Sb alloys, single cryst. growth by Czochralski and Bridgman techniques *(Russian)* 4-45433
$Bi_{40}Ga_2O_{63}$, top seeding technique, growth from soln. in Bi_2O_3 4-67715
$Bi_{1-x}Sb_x$, $(0<x<0.04)$, prep. of single crysts. by gradual crystn. 4-67739
Bi_2Se_3, melt-grown, electronic props. 4-82360
$Bi_xSiO_{1.5x+2}$, comp. of melt pulled crysts. 4-79870
$Bi_{12}TiO_{20}$, top seeding technique, growth from soln. in Bi_2O_3 4-67715
Ca-Ni, growth and struct. of four intermetallic compounds 4-76419
$CaCO_3$, growth of single crystals, top-seeded soln. technique 4-76386
CaF_2, microinclusion light scattering centre formation in crystallization from melt *(Russian)* 4-73247
$CaWO_4$:Nd^{3+},Na^+, growth by Czochralski technique 4-67714
$CdCr_2Se_4$, cryst., prep. and basic props. 4-79878
$CdHfO_3$, growth from melt, dielec. and optical props. *(Russian)* 4-53381
Cd_2PbO_4, $CdPb_2O_5$, hydrothermal synthesis from CdO + PbO_2 4-49569
CdTe, quality anal., for nuclear radiation detector 4-67734
Ce, single phase β and α prep. for low temp. meas. 4-57686
CoF_2, flux growth under reducing conditions 4-57684

crystal growth from melt continued
$Co_{1-x}Fe_x{}^{2+}Fe_2{}^{3+}O_4$, image furnace growth, electrical resistivity, low temps. 4−82808
$Cs_{x-2}CoCl_x$, x=3-5, vertical Bridgman growth 4−61286
$CsLa(WO_4)_2$, from Cs_2WO_4-$La_2(WO_4)_3$ mixtures, phase diag. 4−48732
CuB_{24}, single cryst. growth and struct. 4−66877
$DyFeO_3$, melt grown crysts., crystn. vel. effect on uniformity 4−61284
Dy_2SiO_5 and Dy_4SiO_8, cryst. flux growth with vapour transported Si 4−73250
Er_2SiO_5, cryst. flux growth with vapour transported Si 4−73250
$(Eu,Y)_3(Fe,Ga)_5O_{12}$ mag. bubble films, rot. effects on isothermal growth by liq. phase epitaxy 4−45431
EuS, Bridgman method, preparation and props. 4−61289
$(Fe,Al)_2O_3$ cryst. precip. from borate melts, lattice parameters and Neel temp. *(Japanese)* 4−70410
FeF_2, flux growth under reducing conditions 4−57684
GaAs, Bridgman method, effects of thermal arrest 4−53602
GaAs, Czochralski technique *(Czech)* 4−67719
n-GaAs, electron microscope obs. of impurity structural effects *(Russian)* 4−72480
GaAs, epitaxial layers selective growth from solution in Ga melt 4−67726
GaAs, gradient freeze method 4−64497
GaAs, liq. phase epitaxy, for microwave devices 4−45460
GaAs, substrate prep. for device application 4−57715
GaAs:Ge, LPE, electrolum., photolum. and minority carrier diffusion length, dislocation effects 4−53008
GaAs:Se dendrites, cryst. conditions effect on elec. props. 4−44912
GaAs:Se solid solutions, lattice constant meas. and elec. props. investigation 4−45456
GaAs:Si, fusion-epitaxial layer production for l.e.d's *(German)* 4−49629
GaAs:Te dendrites, cryst. conditions effect on elec. props. 4−44912
$GaAs_{1-x}P_x$, liq. epitaxy at const. temp. 4−82830
$Ga_xIn_{1-x}Sb$ solid solns., liq. phase epitaxy, conditions for homogeneous growth *(French)* 4−53605
GaP, growth rate using synthesis, solute diffusion method, rel. to P diffusion in liquid Ga 4−45469
GaP, high pressure, for l.e.d.'s 4−57689
GaP, monocrystals and polycrystals *(Czech)* 4−64505
GaP, substrate prep. for device application 4−57715
GaP liquid phase epitaxy, N incorporation rel. to growth temp. and NH_3 partial pressure 4−53617
GaP polycrystals, direct synthesis and vertical Bridgman method *(Czech)* 4−67719
GaP:O, encapsulated Czochralski method, total O content by ion beam analysis 4−45451
GdGa garnet, ribbon shaped crystal growth for bubble memory substrates 4−57688
$Gd_3Ga_5O_{12}$, helical growth defects, prismatic interstitial type dislocations, X-ray topographic obs. 4−44498
$Gd_3Sc_xGa_{5-x}O_{12}$, distrib. coeff. of Sc in Czochralski grown garnets 4−66874
Ge, shaped crysts. with low dislocation density, Bridgman method 4−49628
Ge, u.h. purity, multiple pulling method 4−49582
Ge:Ga, Czochralski method, oscillatory interface instability 4−45455
Ge:Ga, interface demarcation obs. of facet growth and dopant segregation 4−61314
Ge-Si alloys, cryst. growth, interface stability criteria investig. 4−63776
InAs, minority carrier lifetime meas. with liquid and vapour phase epitaxial growth 4−45024
InP, rel. to phase equilibria and v.p. of P and In-P system 4−60593
InP polycrystals, direct synthesis and vertical Bridgman method *(Czech)* 4−67719
InSb-Zn-Te system, mutual effect of Zn and Te on distrib. ratios 4−61303
KCl-$PbCl_2$ crystals, F-centre accumulation, $PbCl_2$ conc. effect *(Russian)* 4−72465
$KCo(Fe)F_3$, flux growth under reducing conditions 4−57684
$KSbO_3$, flux synthesis 4−73251
$KTa_xNb_{1-x}O_3$, kinetics of cryst. growth from soln. in excess K_2O 4−66843
KV_2F_6, flux growth under reducing conditions 4−57684
LaF_3, solubility of LnF_3, (Ln=Sm-Er), on crystn. from melt 4−48769
Li-In binary alloy, growth of single crystals, Bridgman method 4−73249
$LiNbO_3$, congruently melting composition, controlled crystal growth 4−73252
$LiNbO_3$, solid-soln. range rel. to stability of congruent composition 4−56856
$LiTaO_3$, Czochralski growth, post growth cooling, thermal stress analysis 4−62677
Mg, dislocation interactions during shear *(Russian)* 4−73248
Mg-Al spinel crystals, X-ray exam. of growth and microstruct. 4−49574
Mg_2Ge, modified Bridgman method, elec. characts. 4−82816
Mg_2SiO_4, Czochralski method 4−76387
Mg_2SiO_4-MgF_2, cryst. flux growth with vapour transported Si 4−73250
Mg_2TiO_4, cryst. growth by flame fusion (Verneuil) method 4−67716
α-MnO_2, single cryst., K^+ impurity, characterisation 4−45430
$MoGd_2Pb_4O_{11}$ and $Mo_2Gd_4Pb_4O_{22}$, flux growth and powder patterns 4−79871
$Na_2B_4O_7$, screw dislocation growth mech. 4−44499
NaCl, Ca impurity addition during growth rel. to optical props. *(German)* 4−73253
NaF:U, autoradiographic investigation of impurity distrib. 4−44558
$NaNbO_3$, top seeded solution growth from a $NaBO_2$ flux 4−66845
Pb-Sn alloys, growth, eutectic range investig. 4−63779
PbB_4O_7, screw dislocation growth mech. 4−44499
Pb_2MoO_5, flux growth and powder patterns 4−79871
$(PbO)_5(GeO_2)_3$, Czochralski method 4−82829
$Pb_{1-x}Sn_xSe$, epitaxial, p-n junction characteristics 4−75956

crystal growth from melt continued
$Pb_{0.8}Sn_{0.2}Te$, single cryst. prep. and elec. characteriz. 4−67725
$Pb_{1-x}Sn_xTe$, liquid phase epitaxy, for laser heterostructures 4−64501
$Pb_{1-x}Sn_xTe$, Th and In doped, liquid phase epitaxy 4−64517
PbTe, single cryst., transmission electron microscopy obs. of microprecip. 4−79158
PbTe-$AgSbTe_2$, solid soln. prep. by Bridgman method *(Bulgarian)* 4−57695
Pt-Si(0.16 wt.%), binary alloy films, grown from melt, metallurgical aspects 4−69973
$Rb_{x-2}CoCl_x$, x=3-5, vertical Bridgman and nonstoichiometric melt growth 4−61286
β-Rb_2SO_4, low temp., cryst. growth, cryst., mol. struct., parameters determ. 4−56674
Se-Te alloys, cryst. growth, interface stability criteria investig. 4−63776
Si, cryst., form., elimination of vacancy clusters, effect of growth parameters 4−63778
Si, lamellar growth phenomena, ⟨111⟩ oriented dislocation free float zoned crystals 4−57714
β-SiC films, grown on Si using r.f. oscillator, peculiarities *(Russian)* 4−76390
Sn-Cd, eutectic, coarsening during unidirectional solidification 4−45549
Sn-Pb (5-30 at.%), prep. and struct. 4−82131
SnO_2, growth in oil fired porcelain tunnel kilns 4−76398
SnTe single cryst., prep. by Czochralski method 4−53600
$SrO.(6-x)Fe_2O_3.xAl_2O_3$ solid soln. cryst., cryst. growth and characteriz. *(Japanese)* 4−49575
$SrWO_4$ by flux evaporaton, morphology, cleavage, perfection, growth of crystals 4−76385
$Te_{2.0}Br_{0.75}I_{0.25}$, crystn. and glassy, prep., thermal, struct. and photoelec. props. 4−56620
ThF_4, congruent growth 4−61288
YAG liq.-solid interface profile during Czochralski growth 4−78938
YAG:Nd^{3+}, melts for single cryst. growth, quantitative analysis 4−70408
YIG, impurity distrib., rel. to raw material impurities 4−64498
YIG single crystal preparation and properties 4−76388
YIG:Pb^{2+},Si^{4+}, film, liq. phase epitaxy, effect on elec. and optical props. 4−79420
YIG:U, prep., some mag. props. 4−72986
$Y_2O_3.4BaO.B_2O_3$ phase, micro-X-ray spectral anal. investigation 4−48736
$Y_3Sc_xGa_{5-x}O_{12}$, distrib. coeff. of Sc in Czochralski grown garnets 4−66874
YbOCl, prep., powder data and cryst. struct. 4−49572
ZnP_2, from stoichiometric and P-enriched melts 4−45449
$ZnSiP_2$, doped with Ga and In, prep. and elec. props. *(German)* 4−82820

crystal growth from solution
heading is late addition,see also crystal growth
alkali halides, segregation from aqueous solns. or from melts, thermodynamics comparison 4−52709
alkali metal-bismuth molybdate (tungstate) 4−82147
alkaline earth oxalates, powder precip. from aqueous soln., cryst. numbers and sizes 4−82801
apparatus for crystal growth at constant supersaturation of soln. 4−49558
crystallite precipitation, prevention 4−53591
diamond, space-filling by branching columnar single-cryst. growth 4−72440
garnet films, substituted, epitaxial growth by hydrothermal synthesis 4−49556
magnetic insulators, ferrite and garnet, flux growth, review 4−64491
naphthalene, cryst. growth, i.r. spectra rel. to struct. defects 4−73142
quartz, synthetic, impurity water meas. from i.r. transmission spectra 4−52780
Rochelle salt, appl. of apparatus for crystal growth at constant supersaturation of soln. 4−49558
Rochelle salt, crystal critical growth rate in solution 4−44502
single crystal growth compared to suspension growth, kinetics, defects 4−44501
tourmalines, synthesis in chloride media 4−53590
triglycine sulphate, effect of mag. field on cryst. quality *(German)* 4−57678
AgBr, flat crystal bounded by (100) faces, untwinned *(French)* 4−82124
Ag_2S, topochemical prep. from CdS 4−82799
As_2S_3, crystal growth from CS_2 soln. *(German)* 4−49571
AsSI, crystn. in As-S-HI-H_2O system 4−49627
$BaFe_{12}O_{19}$, coprecipitation, particle characts. *(Japanese)* 4−45414
$CaHPO_4.2H_2O$, const. pH, SnF_2,$SnCl_2$, NaF effects 4−82123
Cd phosphates hydrothermal crystallisation obs. 4−52714
$CdSiAs_2$ single cryst., growth and phys. props. 4−49570
$CdSnP_2$, liquid phase epitaxy from Sn soln. on InP, heterojunc. prep. 4−57708
CdTe, from Te rich soln., purification and impurity segregation coeffs. 4−57677
CdTe detectors grown from In-doped Te-rich solns. 4−46814
$CoFe_2O_4$, kinetics and mech. of form. from $Co(OH)_2$ and Fe(OOH) 4−44496
$CsFe(WO_4)_2$, single crystals, synthesis and phys. props. 4−45416
CuI, synthesis, and nonlinear optical props. investigation 4−49554
α-Fe_2O_3, prep. of heat-resistant acicular cryst. from $FeCO_3$ in NH_4HCO_3 4−45738
GaAs, epitaxial layers selective growth from solution in Ga melt 4−67726
GaAs films, by pulling between two parallel substrates 4−45446
GaAs from Sn, comparison with that from Ga *(German)* 4−75470
GaAs liquid phase epitaxial growth from supercooled solns. 4−49604
HIO_3, effect of mag. field on cryst. quality *(German)* 4−57678
HgTe single cryst., growth, defects and phys. props. 4−53599
InSb:Te, impurity distrib. ratio investigation 4−45447
$KAl(SO_4)_2.12H_2O$ cryst. from aqueous soln. 4−60424
KCl, cryst. from aqueous soln. 4−60424

crystal growth from solution continued
- KCl, KI, aq. soln., impurity conc. meas. 4-61281
- $KEu(MoO_4)_2$, prep. and cryst. struct. of α- and β-phases, X-ray diffr. obs. 4-75506
- KH_2PO_4, cryst. growth, effect of supersat., fluid shear on habit, homogeneity 4-64489
- KH_2PO_4, X-ray topographic investigation of dislocations *(German)* 4-56745
- KIO_3, cryst. growth from aq. soln., effect of elec. field *(German)* 4-64490
- α-$LiLa(MoO_4)_2$, hydrothermal synthesis and cryst. struct. 4-49557
- $NH_4H_2PO_4$ crystals, growth kinetics of {101} faces, presence of ionic species 4-75467
- β-NH_4UF_5, cryst. growth, struct. investig. 4-66866
- $Na_3H_3[PMo_9O_{31}(OH)_3]$, cryst. isolation, struct. and X-ray data *(German)* 4-48582
- $Nd_xLa_{1-x}P_5O_{14}$, rel. to laser action 4-49555
- NdP_5O_{14}, cryst. growth, laser quality crysts. 4-64488
- α-S, growth parameters, morphology, perfection 4-45417
- Sb, growth forms on crystallisation from eutectic type alloys 4-82802
- ZnO:Li, hydrothermal growth and cryst. perfection 4-49612
- $ZnO.B_2O.H_2O$, prep. by NH_3 method 4-45415
- ZnS, conditions effect on crystal props., hydrothermal method 4-82126

crystal growth from vapour
- aluminates and alumino-silicates, growth by vapour-flux process 4-79873
- BCF surface diffusion model, coverage effects investig. 4-63780
- diamond, crystallisation from vapour with periodic pulse supersaturation 4-79869
- diamond at subatmospheric pressure, kinetic study with recording microbalance 4-67712
- diamond film, electron diffraction exam. of struct. 4-79248
- α-Fe_2O_3, theoretical analysis and exptl. confirmation 4-64496
- garnet, epitaxial CVD using single metal alloy source 4-70407
- glycerol, method of growing polycrystalline films 4-49339
- graphite, cone-helix growth forms 4-52708
- magnetic thin films, ion plating method 4-45420
- mass change, h.f. cryst. microbalance, simultaneous meas. other parameters 4-67711
- metal-gas system, reactional diffusion, liberated heat influence on layer growth rate *(Russian)* 4-45423
- metallic film condensation kinetics, electron microscopy 4-53014
- naphthalene, cryst. growth, i.r. spectra rel. to struct. defects 4-73142
- optically controlled growth model 4-52713
- organic donor-acceptor solids, gradient sublimer design for cryst. growth and purification 4-64494
- thin film growth process obs., u.h. vacuum installation 4-82811
- vacuum condensates, texture form., surface microstruct., effect of substrate diffusion current 4-44495
- Al_2O_3, plasma deposition conditions effect on physicochem. props. 4-44802
- Al_2O_3:Ta, film deposition, struct. conc. depend. 4-45465
- α-Al_2O_e, sapphire, single cryst. growth by chem. vapour deposition *(Japanese)* 4-79868
- AuCl cryst., vapour-transport growth and struct. 4-76371
- BAs, film deposition, substrate depend. 4-45456
- BiI_3, platelet cryst. growth by open flow sublimation technique, optical characteriz. 4-61283
- $CdCr_2Se_4$, prep. by chem. transport reaction *(German)* 4-49617
- $Cd_{1-x}Fe_xCr_2S_4$, single crystal mag. spinel, prep. from chem. vapour transport with $CrCd_3$ 4-44976
- $CdO_{1-x}S_x$, vacuum deposited film composition, model 4-44803
- Cd_3P_2, large single cryst. 4-82817
- CdSe single cryst., growth condns. for tabular crysts., crystn. temp. and element ratio 4-53595
- CdTe, epitaxial growth in quasiclosed volume, effect of vapour phase composition 4-67727
- CdTe, epitaxial growth in hydrogen current 4-70418
- $Cu_{2-x}Te$, film, optimum thickness, thickness control 4-45443
- Fe, γ-phase particles, quenched at room temp. 4-61325
- $FeAs_{2-x}Se_x$, marcasite struct., prep. and characterisation 4-49154
- Fe_2O_3, using Cl_2 transport 4-73244
- GaAs, adsorption of GaI_3, H_2 and mixtures during epitaxial growth 4-67724
- GaAs, vapour phase deposits, growth at different substrate temps. 4-49585
- GaAs, vapour phase epitaxial growth, difference in (001) facet and vicinal planes 4-57680
- GaAs, vapour phase epitaxy, selective, for optically pumped mesa surface laser 4-55479
- GaAs epitaxial and polycrystalline growth in GaAs-I_2-He 4-44795
- GaAs epitaxial layer preparation, sandwich and T-methods *(Czech)* 4-64506
- GaAs films, reflection splitting in RHEED investigations 4-56760
- GaAsP p-n junctions, sandwich and T-methods *(Czech)* 4-64506
- $GaAs_{0.62}P_{0.38}$, reactant gas vapour pressure effect on elec. and electroluminesc. props. 4-57709
- $GaAs_{1-x}P_x$:Se,Te, epitaxial growth using sandwich method *(Czech)* 4-67720
- $(GaAs)_{1-x}Si_x$, nonequilibrium solid soln., epitaxial growth 4-82814
- GaN, epitaxial growth from Ga, HCl and NH_3, growth parameters, kinetics 4-45477
- n-GaN, epitaxial vapour deposition, carrier conc., mobility and photoluminescence *(Japanese)* 4-45438
- GaN, from Ga + NH_3, morphology and lattice struct. 4-45478
- GaN, growth of sphalerite struct. 4-53633
- β- Ga_2O_3 vapour grown platelike crystals, absorption and reflection spectra 4-82719
- GaP, vapour phase epitaxy, dislocations, and effects on l.e.d. performance 4-57710
- GaP epitaxial layers, using chloride transport method, influence of temperature distribution obs. *(Czech)* 4-64507
- GaP high-brightness yellow and green LED display prod. by vapour phase epitaxy 4-49630
- GaP p-n junctions, sandwich and T-methods *(Czech)* 4-64506
- GaSb, vapour phase deposits, growth at different substrate temps. 4-49585

crystal growth from vapour continued
- GaSe, crystal growth from vapour 4-64516
- GdFe garnet, chem. transport using $GdCl_3$ as transport medium *(German)* 4-49566
- Ge, epitaxial, remarks on exptal. system design 4-57721
- Ge, etching and growth in flow system with cyclic diffusion mass exchange 4-61302
- Ge, vaporisation and growth characts. *(Russian)* 4-73257
- Ge transport by iodine in flow system 4-61300
- GeS_x whiskers, naturally occurring VLS growth under conditions present at burning culm banks 4-48880
- $HfSi_x$, diffusion layer form., 1150-1300°C, kinetics, microstruct. and microhardness 4-44784
- HgI_2 crystals, use as X-ray detectors 4-51147
- InAs, minority carrier lifetime meas. with liquid and vapour phase epitaxial growth 4-45024
- InAs, morphology and struct. perfection investigation *(German)* 4-49618
- InAs-GaAs solid soln., iodide transfer, effect of source comp. 4-53610
- InSb, morphology and struct. perfection investigation *(German)* 4-49618
- In_2Te_5, single crystals, growth by chemical transport, struct. and props. 4-72457
- LaOCl, film, crystallite form. on NaCL 4-82804
- $LiIO_3$, single cryst., growth and spectral anal. *(Russian)* 4-82803
- $LiNbO_3$, epitaxial film growth by discrete evap. in vacuum 4-61282
- $LiNbO_3$, thin film, chem. vap. deposition 4-45419
- MgO, starting materials influence on chem. reaction process *(Japanese)* 4-70406
- Mn, particle growth in flowing inert gases, electron microscope and diffr. obs. 4-49562
- MnBi, single cryst. platelet, for Curie point writing 4-67408
- Ni, whisker growth rate determ., reduction of $NiCl_2$ and $NiBr_2$ *(Russian)* 4-45425
- Os, film deposition technique 4-45422
- Pb-Bi thin films with spatially modulated concentration *(French)* 4-53011
- $Pb_2P_2S(Se)_6$, $Sn_2P_2S(Se)_6$, and mixed crysts., and cryst. data 4-49567
- PbS, halogen vap. deposition system 4-82812
- $PbS_{1-x}Se_x$, single cryst. growth by sublimation 4-49614
- PbSe on PbTe, heteroepitaxy, misfit dislocation form. 4-44799
- $Pb_{1-x}Sn_xTe$, epitaxial deposition on BaF_2, characterization 4-67741
- $Pb_{1-x}Sn_xTe$, epitaxial film growth on BaF_2 4-73261
- $Pb_{1-x}Sn_xTe$ crystal defect sources and their elimination 4-48625
- PbTe, film, high mobility, prep. by hot wall technique 4-73272
- Rh film, epitaxial growth and struct. 4-64495
- SbSI, thin films, vacuum sublimation, ferroelectric transition obs. 4-82330
- Si, epitaxial growth, remarks on exptal. system design 4-57721
- Si, supersaturation and rate of growth from $SiCl_4$-HCl-H_2 mixture 4-67722
- Si, vaporisation and growth characts. *(Russian)* 4-73257
- Si-Ge, epitaxial, remarks on exptal. system design 4-57721
- β-SiC, filament growth from vapour phase *(Russian)* 4-53594
- α-SiC:N,P, epitaxy on SiC by sublimation 4-82815
- Si_3N_4 film deposition by pyrolysis of SiH_4-NH_3 mixtures *(French)* 4-79860
- Si_3N_4 on GaAs, m.o.s. structure manufacture *(Russian)* 4-76405
- SiO_2 films, prep. by d.c. reactive sputtering, minimum oxygen content in gas flow determ. 4-67709
- SnO_2, film deposition, sputtered or anodized 4-44805
- $Sn_2P_2S(Se)_6$, $Pb_2P_2S(Se)_6$, and mixed crysts., and cryst. data 4-49567
- $TeVO_4$, growth of single cryst. by chem. transport in vapour phase *(French)* 4-67710
- U_2C_3 deposition kinetics 4-51884
- W, monocrystal growth in gas mixture (80% N_2, 20% H_2) Langmuir closed cycle type transport mechanisms *(German)* 4-44497
- YIG, chem. transport using YCl_3 as transport medium *(German)* 4-49566
- YIG and YIG:Ga, epitaxial film, chem. vapour deposition and thermodynamic analysis 4-53597
- Zn, by homogeneous nucleation in flowing inert gas system, electron microscope obs. 4-49563
- Zn, particle growth in flowing inert gases, electron microscope and diffr. obs. 4-49562
- ZnS, acceptor impurity doping during growth, u.v. spectra *(Russian)* 4-67603
- ZnS(Se)(Te), single cryst., synthesis, chem. transport *(German)* 4-76401
- ZnSe, nucleation and growth on Ge surfaces 4-76406
- ZnSe, on Ge, nucleation and growth struct. obs. 4-45483
- ZrC, vacuum condensate, texture form., effect of substrate diffusion current 4-44495

crystal hyperfine field interactions
see also crystal internal fields
- acetone in chloroform-d, D quadrupole coupling 4-57421
- atomic level splitting by external fields, magnitude determ. 4-67172
- benzene, phosphoresc., absorpt. spectra, lower electronic states, vibrs. investig. 4-66472
- 2,3-benzocarbazole, orientated in p-terphynyl and chrysene crysts., e.p.r. spectra meas. 4-76150
- bromodichloroethane-d-diethyl ether-d_{10}, ^2H and ^{35}Cl coupling constants 4-79640
- cadmium acetate dihydrate, anion radical, e.p.r. determination of hyperfine 4-79575
- cobaltocene, e.s.r. in rare gas matrices, 4.2K 4-72226
- colour centres, hyperfine interactions, core and orthogonalization procedures 4-79313
- copper acetate monohydrate, Zn-doped and gamma irradiated, ENDOR studies 4-79643
- L-cysteic acid monohydrate, X-irrad., proton transfer 4-57859
- diethyl ether in chloroform-d, D quadrupole coupling 4-57421
- α,α′-diphenyl-β-picryl-hydrazyl $(benzene)_x$, $(0 \leqslant x \leqslant 1)$, n.m.r. and e.p.r., mag. props. at low temp. 4-73033

crystal hyperfine field interactions continued
ENDOR, nonlinear effects, piezohyperfine interactions and crystal deform. 4−57427
ENDOR frequencies and hyperfine struct. of paramag. centre energy spectrum, cryst. field effect *(Russian)* 4−82637
epidote, $Ca_2Al_2(Fe, Al)Si_3O_{12}(OH)$, ^{27}Al n.m.r. obs. 4−79606
estimates and error distribution, e.p.r. hyperfine coupling constants, e.p.r. g-factors 4−67425
ferromagnet, d-dimensional, quadrupolar interactions at ferromag.-crit. points 4−53237
ferromagnetic alloy, concentrated, hyperfine fields systematics at sites of nonmag. ions 4−67361
o-H_2, solid, model, constant coupling approx. for lambda transition 4−48727
haemin, ^{57}Fe Mossbauer obs. 4−50741
hydrogen-bonded solid, deuteron quadrupole coupling constant 4−44506
magnesium diethyl phosphate, γ-irrad., $CH_3CHOP(O)_2OC_2H_3^-$ radical obs. 4−45168
mesitylene in chloroform-d, D quadrupole coupling 4−57421
metal, ang. distrib. technique ion implantation effects 4−52798
metal, nuclear resonance line shapes due to mag. impurities 4−76172
methyl cytosine, irrad., free radical obs. 4−57860
Mossbauer diffraction parameters calc. for polycrysts. *(Russian)* 4−64317
Mossbauer emission of γ quanta from cryst., hyperfine splitting influence *(Russian)* 4−79662
Mossbauer overlapped spectra, hyperfine field distrib. calc. 4−61072
muon precession in condensed media 4−70195
muon precession in ferromagnetic materials 4−70196
α-oxalic acid, anhydrous, proton chemical shielding from multiple pulse n.m.r. 4−53321
phase determination from hyperfine struct. azimuthal depend. in Mossbauerography 4−61083
phenanthrene, diphenyl host, photoexcited to lowest triplet state, ENDOR obs. 4−76190
rare earth metal:Ta, elec. quadrupole interaction at impurity, PAC obs. 4−73062
rare earth monophosphides, paramag. spin fluctuations, depend. on cubic field splittings 4−49258
ruby, PENDOR, Cr-Al hyperfine and electric quadrupole interactions 4−49265
symmetric trinuclear clusters, e.s.r. and hyperfine struct. 4−61021
1,2,3,4-tetrahydroanthracene, orientated in octahydroanthracene, e.p.r. spectra meas., zero-field splitting determ. 4−76150
tetramethyl ammonium manganese chloride:Fe, Mossbauer spectrum, 0.3-300K 4−64290
DL-threonine, γ-irrad., room temp. e.p.r. obs. 4−57377
transition metal borides, nucl. elec. quad. and shift parameters 4−57390
$AgInS_2$, band struct. in chalcopyrite and orthorhombic phases, cryst. field splitting 4−44851
$Al(NO_3)_3.9H_2O:Fe^{3+}$ Mossbauer effect h.f.s. variation with direction of applied magnetic field 4−49271
Ar:K, crystal, X-band e.s.r. spectra obs., existence of multiple trapping sites 4−61031
Au-Fe alloy, neutron irrad., Mossbauer obs. 4−64287
Au-Mn, dilute, local d-spin interaction effect 4−57259
Au-Tb alloy, 0.05 at.%, parameters from nucl. orientation 4−79653
$BaF_2:Gd^{3+}$, e.s.r. superhyperfine struct. for cubic centre 4−53301
$BaF_2:Pu^{3+}$, crystal field model 4−48919
BaSr ferrites, sublattice magnetisation, temp. depend. 4−57441
BiMn, ferromagnetic hyperfine field at Bi, low temp. nuclear orientation 4−73053
CO^+, radical on H−Y type zeolite, e.s.r., CNDO/SP calcs. 4−57361
$CaCO_3:Co_2^-:CO_3^{3-}$, e.s.r., superhyperfine struct. 4−57367
CaF_2, h.f. interaction of U^{3+} by r.f. discrete saturation technique *(Russian)* 4−67447
$CaF_2:Er^{3+}$, far-i.r. absorpt. spectra, Stark level transitions, temp. depend. 4−73140
$CaF_2:Gd^{3+}$, e.s.r. superhyperfine struct. for cubic centre 4−53301
$CaF_2:Ho^{2+}$, ENDOR spectrum anal. 4−73050
$CaF_2:Pu^{3+}$, crystal field model 4−48919
$Ca_5(PO_4)_3Cl$, e.s.r. detection of O-associated hole-like centres 4−64261
Co, origin of ferromagnetism and hyperfine fields 4−57250
Co:^{44}Sc, ang. correlation obs. of hyperfine mag. fields 4−61082
Co-Sn; dil. alloy, hyperfine field interaction 4−57250
CoB, nucl. elec. quad. and shift parameters 4−57390
CoFeGe(Sb) alloys, $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4−73057
$CoFe_2O_4$, Sb^5-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion specific props. 4−70235
$Co(NH_3)_6Cl_3$, nucl. elec. quadrupole splittings of ^{59}Co 4−73032
$Co_{21}Sn_2B_6$, induced superfine fields on ^{119}Sn below Curie temp. *(Russian)* 4−53347
CrO^{3+} complexes, hyperfine anisotropy, off-diagonal contribution 4−82605
$Cr_2O_3:^{121}Sb^{5+}$, Mossbauer effect, electron spin decoupling *(French)* 4−73058
$CsAl(SO_4)_2.12H_2O:^{53}Cr^{3+}$, ENDOR, at 4.2K and 9.4 GHz 4−79636
$CsMgBr(I)_3:V^{2+}(Mn^{2+})(Ni^{22+})$ e.s.r. determ. 4−53299
$CsNiF_3$:Fe, Mossbauer spectrum, 1.4-300K 4−64290
Cu alloys, dil., asymptotic region of charge density oscillation around impurities 4−76175
Cu-Ge alloy, dil., mag. res. obs., wipe out numbers for first and second order quadrupole effects 4−48925
Cu-Zn alloy, dil., mag. res. obs., wipe out numbers for first and second order quadrupole effects 4−48925
Cu^{2+} ion, exact hyperfine states and transition probabilities for axial crystal field and transverse mag. field 4−67170
CuGa alloy, dil., mag. res. obs., wipe out numbers for first and second order quadrupole effects 4−48925
Cu(II) complexes, with ammonia and pyridine, in NaY zeolite, e.p.r., vibr. investig. 4−73016
Dy-Gd, ^{161}Dy Mossbauer obs., spin wave and single-ion anisotropy models 4−64316

crystal hyperfine field interactions continued
Er^{3+} in zircon structure systems, cryst. field parameters, spin-lattice relax. 4−72712
$Er_3Fe_5O_{12}$, room temp. Mossbauer parameters 4−61068
$EuLiH_3$, high ferromag. transition temp. rel. to $EuTiO_3$, $EuZrO_3$, Eu^{2+} 5d splittings, cryst. field calc. 4−76068
$Eu(NH_3)_6$, Mossbauer spectra, 1.2-77 K, Debye model 4−53353
Eu_3S_4, Mossbauer effect obs. at low temp. 4−70240
$EuTiO_3$, Eu^{2+} 5d splittings, ferromag. transition temp., cryst. field calcs. 4−76068
$EuZrO_3$, Eu^{2+} 5d splittings, ferromag. transition temp., cryst. field calcs. 4−76068
Fe, dilute ^{207}Pb impurity, anomalous temp. behaviour of local mag. field, 87-983K 4−49166
Fe, origin of ferromagnetism and hyperfine fields 4−57250
γ-Fe, precipitate in Cu, Mossbauer determ. 4−64301
Fe base alloys, with nontransition elements, impurity-charge-screening, Mossbauer obs. 4−64314
Fe:^{119}Sn hyperfine interactions, temp. depend., Mossbauer spectroscopy, 4.2-972K 4−45213
Fe:^{151}Gd, Mossbauer spectra of ^{151}Eu, lattice location and hyperfine fields 4−73056
Fe-Be(Nb)(Ru)(Te)(Ir), Mossbauer studies of isomer shifts and quadrupole mag. splitting 4−45222
Fe-Co-V, f.c.c., Mossbauer ^{57}Fe absorption, cluster model 4−64289
Fe-Co(Ni)(Rh)(Pd), dilute alloys, moment distribs. and hyperfine fields at solute atoms 4−53224
Fe-Mo(3.2 at.%) alloy, Mossbauer obs. 4−64199
Fe-Sn, dil. alloy, hyperfine field interaction 4−57250
Fe-transition metal alloy, dil., moment distrib. and hyperfine fields determ. 4−64198
Fe^{3+}, linked cluster many body perturbation theory 4−44856
$Fe_{0.5}Au_{0.5}$ alloy mag. hyperfine field determ. by Mossbauer effect 4−49266
$Fe_3B_7O_{13}Br$, magnetoelec., Mossbauer hyperfine spectra meas. 4−82640
$FeCl_3$, antiferromag., spin structure and phases, Mossbauer obs., 1.47-300K 4−45217
$FeCl_4$ anions, Hartree-Fock-Slater model calcs. 4−56128
$Fe(ClO_4)_2.6H_2O$, anomalous mag. behaviour at low temp. 4−60952
Fe(II) complex, Fe(II)dipy$_2$X$_2$, X, high spin, $^5E \leftarrow {^5T_2}$ transition, splitting, geometry investig., MO studies *(German)* 4−69496
Fe(II) complex, Fe(II)phen$_2$X$_2$, high spin, $^5E \leftarrow {^5T_2}$ transition, splitting, geometry investig., MO studies *(German)* 4−69496
Fe(III) complex, Fe(dtc)$_2$Cl, paramag. anisotropy, zero-field splitting 4−67351
Fe(IIe) complexes, tri(1,2-diimine)iron(II) chelates, π-back bonding 4−69467
FeIr, ferromag. dilute alloy, nuclear electric quadrupole interaction exam. 4−82633
FeMn alloy, mag. hyperfine fields at $^{55}Mn^{57}Fe$ nuclei, mol. field calcs. 4−76066
FeMnGe alloys, $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4−73057
α-Fe_2O_3, haematite, interference of nucl. transitions in pure nucl. diffr. of 14.4 keV γ-rays *(Russian)* 4−67503
Fe_3P, Mossbauer effect, mag. hyperfine field obs. 4−45120
Fe_7Se_8, ferrimagnetic behaviour, Mossbauer obs., 78-460K 4−45216
Fe_7Se_8, magnetic Mossbauer study 4−45218
$FeTiO_3$, ilmenite, obs. of Mossbauer spectra in natural and synthetic samples 4−57440
^{57}Fe, n.m.r., 4.2-400 K, coupling const. 4−45192
^{57}Fe, overlapped Mossbauer spectra, hyperfine field distrib. 4−61072
Fe(ii) complex, dithiocyanatobis(4,7-dimethyl-1,10-phenanthroline) Fe(II), $^5T_2 \rightleftharpoons {^1A_1}$ cooperative transition, hyperfine interactions 4−64294
$GaMn_3C$, Mossbauer effect of ^{57}Fe, antiferro-ferromag. transition *(French)* 4−61080
$GaP:Fe^{3+}$, ENDOR meas. of defect centre, hyperfine parameters determ. *(German)* 4−76193
Gd metal, for ^{155}Gd, 10-300K, DPAC meas. 4−57436
Gd:transition metal, d-electron mag. coupling 4−72962
$GdCo_2$, Co hyperfine field, rel. to magnetic structure, temp. depend. 4−70164
$Gd_3Fe_{5-x}Al_xO_{12}$, room temp. Mossbauer parameters 4−61068
$GdMg_{1-x}Zn_x$, magnetic and n.m.r. studies 4−73036
$HfSiO_4$, hafnon, elec. quadrupole interaction of ^{181}Ta, perturbed ang. correlation tech. 4−49281
$HoAsO_4$, specific heat lambda anomaly, magnetic transition, spectroscopic meas. of crystal field states 4−82564
KCl, ENDOR of F_a(Li) centres, isotropic interaction 4−61065
KI:H_i^0, ENDOR obs., superhyperfine and quadrupole interactions determ. 4−57425
$KN_3:Mn^{2+}$, e.p.r. meas., spin lattice coupling consts. calcs. 4−49221
$K_2SO_4:Cu^{2+}$, low symmetry e.p.r. of ions, orthorhombic model Zeeman and hyperfine tensors 4−73019
$LaFe_{12}O_{19}$, Mossbauer effect obs. 4−82644
LiF with F-centres, nucl. relax. by means of electron spin cross-relax. *(Russian)* 4−79645
$LiFe_5O_8$, Sb^{5+}-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion-specific props. 4−70235
MgF_2, n.m.r.; polarised ^{20}F nuclei, electric quadrupole interactions *(German)* 4−64285
$MgO:Fe^{3+}(Cr^{3+})(Ni^{3+})(Rh^{2+})$, e.p.r. of ^{17}O superhyperfine struct. 4−45182
Mn^{2+} in cubic crystals, coupling const. temp. var. 4−44865
$MnCO_3:Fe^{2+}$, by Mossbauer spectroscopy 4−49277
MnF_2, mag. field depend. of nuclear mag. relax. 4−76181
$Mn^{125}I_2:^{125}Te$, antiferromag., Mossbauer studies of Te electronic state, quadruple coupling determ. 4−76194
$NH_4Al(SO_4)_2.12H_2O$, ^{14}N n.m.r., coupling const., antishielding factor 4−45207
NH_4Br, n.m.r. investigation of order-disorder phase transition 4−45194
$NH_4Cl:^{63}Cu^{2+}$, anomalous behaviour in the e.p.r. spectrum 4−67439
$NH_4H_2PO_4:K_2SeO_4$, e.s.r. of radiation damage centres, 90 to 350K 4−76152

crystal hyperfine field interactions continued
NaCl:Mn^{2+}, e.p.r. forbidden transitions, r.f. field parallel to static field 4−73025
α-NaFeO$_2$ point charge model used to investigate mossbauer spectra and nuclear quadrupole resonance 4−64304
NaN$_3$, anion vacancy model of N$_2^-$ defect, cryst. field splitting 4−44870
NaNO$_3$:Mn^{2+}, e.p.r., g-factor and hyperfine coupling constant determ. 4−79590
Na$_2$SO$_4$:Cu^{2+}, e.s.r., superhyperfine struct., quadrupole interaction parameter 4−57366
Na$_{0.33}$WO$_3$, of W^{5+} e.p.r. 4−53300
NbB, nucl. elec. quad. and shift parameters 4−57390
NbHf alloys, quadrupole interaction, temp. depend. 4−79659
Ni, origin of ferromagnetism and hyperfine fields 4−57250
Ni:Hf, Curie temp., conc. depend. mechanism 4−57274
Ni-Sn, dil. alloy, hyperfine field interaction 4−57250
NiFe$_x$Cr$_{2-x}$O$_4$, ^{61} Ni Mossbauer studies 4−73052
NiIr, ferromag. dilute alloy, nuclear electric quadrupole interaction exam. 4−82633
NpAl$_3$, at ^{273}Np, mag. moment, 4.2K 4−64211
Pb$_4$FeSb$_6$S$_{14}$:Pb^{3+}, e.s.r. of $^2S_{1/2}$ state, hyperfine splitting constant 4−45180
PbTiO$_3$:Ce, static electric quadrupole interaction of ^{140}Ce and ^{204}Pb, PAC obs. 4−73061
Pd-Tb alloy, 0.05 at.%, parameters from nucl. orientation 4−79653
(Pd$_{1-x}$Ag$_x$)$_{0.99}$Fe$_{0.01}$, alloys, Mossbauer effect obs. of ferromag. phase transitions 4−64216
PdGd alloy, Mossbauer effect 86.5 keV transition in ^{155}Gd 4−45220
PtMnSb(Sn), ferromag., spin echo meas. 4−72714
RbAl(SO$_4$)$_2$.12H$_2$O, ^{14}N n.m.r., coupling const. 4−45207
RbAl(SO$_4$)$_2$.12H$_2$O:^{53}Cr^{3+}, ENDOR, at 4.2K and 9.4 GHz 4−79636
RbFeBr$_3$, Mossbauer spectrum, quadrupole splitting, isomer shift 4−64293
Rb$_2$SO$_4$:Cu^{2+}, Zeeman and hyperfine tensors 4−73019
SiO$_2$, glassy silica, primary ^{29}Si hyperfine struct. of E'-centre 4−67451
SrF$_2$:Gd^{3+}, e.s.r. superhyperfine struct. for cubic centre 4−53301
SrF$_2$:Pu^{3+}, crystal field model 4−48919
SrF$_2$:V^{2+}, e.p.r., hyperfine structure 4−45181
SrO(6−x)Fe$_2$O$_3$xAl$_2$O$_3$, Mossbauer effect, mag. sublattices 4−45223
Te thiourea complexes, rel. to asymmetry of ^{125}Te Mossbauer spectra 4−53346
Te:^{125}Te(^{129}I), quadrupole interaction investigation, Mossbauer effect 4−64308
ThFe$_{17}$, Mossbaur obs. of ^{57}Fe 4−53355
ThFe$_5$, Mossbauer obs. of ^{57}Fe 4−53355
TmCrO$_3$, meas. of weak ferromag. moments, antiferromag. exchange and cryst. field splittings 4−76105
(UO$_2$)Rb(NO$_3$)$_3$, elec. hyperfine interactions in ^{234}U, ^{236}U, ^{238}U, Mossbauer obs. 4−57439
VB, nucl. elec. quad. and shift parameters 4−57390
VO^{2+} complexes, hyperfine anisotropy, off-diagonal contribution 4−82605
Y-Fe, Mossbauer effect, temp. depend. of hyperfine field 4−61076
Y$_{3-x}$Ca$_x$Fe$_{5-x}$Sn$_x$O$_{12}$, Mossbauer spectra obs. of magnetically nonequivalent cation positions 4−53226
YIG, n.m.r. of ^{55}Mn, site distrib. of Mn ions *(French)* 4−64268
YIG, Sb^{5+}-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion-specific props. 4−70235
Zn, ^{111}Cd nuclear quadrupole interaction, temp. depend. 4−45212
Zn:W, quadrupole interaction after recoil implantation 4−72711
ZnGeP$_2$, e.p.r. obs. of new paramagnetic centre 4−76161
ZnWO$_4$:Cu^{2+}, ligand hyperfine structure of e.s.r. spectrum 4−57374
ZrZn$_2$, ^{57}Fe Mossbauer spectra 4−76199
crystal imperfections *see crystal defects*
crystal impurities
see also impurity electron states and effects; magnetic impurity interactions
alloy, inhomogeneous, conc. profile, X-ray diffr. determ. 4−82879
alloy surface, conc. changes at high temp. *(Russian)* 4−67694
aluminosilicate laminar minerals, effect of Fe^{3+} impurity ions on second moment of p.m.r. line 4−61049
anharmonic crystal, with impurities, lattice thermal cond., theory 4−75607
anthracene, cryst. reflect. line shape anal. rel. to exciton dynamics, distortion effects investig. 4−48940
b.c.c. lattices, trapping effect in diffusion of interstitial impurity atoms 4−79179
concentration profiles in thin films, meas. using nonresonant nucl. reactions 4−63835
cubic crystal, sp. ht. due to substitutional defects 4−69921
cubic crystal with impurity relax. time of lattice waves calc. 4−75599
cyclododecane, single crystal, organic dopant acceptability 4−44560
depth profiling of ^{3}He, ^{2}H in solids, ^{3}He(d,p) ^{4}He resonance non-destructive probe 4−56765
diamond, phonon scatt. by impurity N$_2$ platelet precipitate, aggregation investig. 4−63837
diamond, synthetic, anomalous microdistrib. of dispersed N impurities, expt. obs. 4−56767
diatomic crystal with heavy impurity centres, conc. depend. of i.r. absorption lines 4−70334
dibenzyl:tolane, impurity distrib. during growth from melt, temp. gradient effects 4−52712
2,6-dichloro-4-bromophenol, effect on i.r. spectra and phase transition points 4−52890
distribution during growth from melt, temp. gradient effects 4--52712
ferromagnet, domain boundaries pinning by impurity atmospheres *(Russian)* 4−49192
III-V semiconductor, donor distrib. coeff. calc. 4−48641
ionic conductivity, solute inhomogeneity effect 4−56911
KCl=Ba^{2+}, Ba^{2+} distrib., lattice defects, distortions investig. using X-ray diffuse scatt. 4−56762
light scattering centres, discussion of various models 4−64391
matter transport, diffusion, elec. cond., review 4−52946

crystal impurities continued
medium-Z host lattice, location of low-Z impurities using ion-induced X-rays 4−53612
metal, h.c.p., sessile splittings of screw dislocations 4−72470
metal, purification rel. to electrotransport 4−63939
metal-H coherent systems, internal stresses in α-α' phase transition 4−73282
metals, f.c.c., impurity diffusion, correl. factor calc., model, vacancy migration entropies calc. 4−75651
molecular crystal, substitutionally impure exciton transport eqns. 4−53063
monatomic crystal with heavy impurity centres, conc. depend. of i.r. absorption lines 4−70334
naphthalene:lumogen A, anthracene, impurity incorporation, luminesc. polarization diagram obs. 4−48642
perovskites, oxidative nonstoichiometry, powder neutron diffraction, defect structure, oxidised lanthanum manganite 4−63825
phenanthrene single cryst., growth and perfection 4−61285
potassium-nickel Tutton salt:Mn^{2+}, single cryst., e.p.r. 4−70206
quartz, synthetic, impurity water meas. from i.r. transmission spectra 4−52780
quartz, synthetic, mechanism of Ge doping, DTA obs. *(French)* 4−48640
rare earth fluorides, impurity-conditoned solid-solid transition and melt growth 4−60614
secondary ion mass spectrometry analysis, O ion simultaneous implantation and sputtering 4−64465
semiconductor, impurity concentration profile in irrad. enhanced diffusion expts. 4−79183
semiconductor, impurity redistrib. during thermal oxidation, numerical calc. 4−45474
semiconductor, phase diagram, theory, appl. 4−64035
semiconductor films, substrate surface impurity profiles influence 4−67124
steel, chemical interaction of non-metallic inclusions in solid state *(Russian)* 4−70450
steel, low-C normalised, manganese and dispersoids influence on mech. props. *(French)* 4−80024
steel droplets, splat-cooled removal of non metallic inclusions *(Russian)* 4−70451
transition metal, refractory, C or Si contaminant effect on surface self-diffusion and surface structure 4−75688
2,4,6-tribromophenol, effect on i.r. spectra and phase transition points 4−52890
vapour phase nucleation ionic impurity effects 4−76554
vibrationally assisted electronic absorption band shape, temp. depend., calc. 4−67620
Al, electric field gradient, non transition metal impurities in dilute alloy single crystals 4−73046
Al, near threshold electron damage, purity effects 4−69827
Al, vacancy-impurity interaction, pseudopotential method study 4−56731
Al:Au(Cu), condensation film on amorphous C substrate, impurity effects *(Russian)* 4−73256
Au, ion beam determ. of H and He content 4−78247
Be, n.m.r. spin-lattice relax., impurity motion contrib. 4−45199
Be:Cu, diffusion coeff. rel. to Cu introduction investig., ion backscatt. technique 4−63944
Bi$_4$Ti$_3$O$_{12}$, ferroelec. domain switching, impurity control 4−61113
C in steel, diffusion profile meas. using nuclear microprobe 4−57800
CaF$_2$:Mn, cubic Mn centre, kinetics, e.p.r. study 4−73026
Ca$_2$MnO$_4$:Pb, superstructure deform. due to Pb substitution, X-ray diffr. obs. 4−56683
β-Ca$_3$(PO$_4$)$_2$:Mg, crystal structure 4−63813
CdS:Cu, single crystals, impurity structures, electrical properties 4−64079
CdTe, growth from Te rich soln., purification and impurity segregation coeffs. 4−57677
CdTe:Cl(Br), self-compensation, time of fight technique 4−72761
CoFe$_2$O$_4$, Sb^5-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion specific props. 4−70235
CsCl(Br, I), local elastic consts. calc., ion mass depend. 4−63836
Cu, electric field gradient, dilute alloy single crystals, non transition metal impurities 4−73046
Cu, f.c.c. lattice, interaction of interstitial atoms with one another and with substitutional impurities 4−69800
Cu, implantation profile meas. of He and H, using proton backscatt. 4−78250
Cu, single crysts., substruct. and impurities, block-boundary peak of internal friction *(Russian)* 4−67829
Cu:Ge, vacancies and vacancy-impurity pairs, positron annihilation 4−63823
Cu-Sb and Cu-Sb-B solid solns., intercryst. absorpt. of impurities *(Russian)* 4−73295
Fe, strain hardening, 200-600°C, dopants influence *(Russian)* 4−45708
α-Fe, void nuclei attrition and stabilization, crit. nucleus size 4−44571
Fe:^{151}Gd, Mossbauer spectra of ^{151}Eu, lattice location and hyperfine fields 4−73056
Fe:Br, single crystals, ^{81}Br location, angular distrib. calcs. and channelling technique 4−56766
α-Fe:Xe, vacancy clusters, lattice relax. 4−82170
Fe$_3$Si:V(Mn)(Co)(Ru)(Rh)(Os)(Ir), n.m.r., preferential site occupation 4−70224
n-GaAs, electron microscope obs. of impurity structural effects *(Russian)* 4−72480
GaAs single cryst., impurities and elec. inhomogeneity, layerwise distrib. 4−49022
Gd$_3$X$_5$O$_{12}$:B^{3+}, X=Fe, Ga, local vibr. modes obs., i.r. absorption spectra 4−69876
n-Ge, group V doped, low temp. recovery of irrad. defects, annealing investig. 4−63841
Ge, group V impurity doped, model of γ-radiation defect form. 4−75538
Ge, precip. of Li, effect of heat treatment conditions 4−82825
Ge:Au(Cu), condensation film on amorphous C substrate, impurity effects *(Russian)* 4−73256

crystal impurities continued
Ge:Ga, interface demarcation obs. of facet growth and dopant segregation 4−61314
Ge-Si, impurity phonon modes, coherent pot. approx. 4−44621
^{2}H depth distrib. profiling using nuclear microanalysis 4−78249
He profiling in solids using ^{3}He(d,p)^{4}He resonance 4−78248
^{3}He depth distrib. profiling using nuclear microanalysis 4−78249
InSb:Te, impurity distrib. ratio investigation 4−45447
InSb-Zn-Te system, mutual effect of Zn and Te on distrib. ratios 4−61303
KBr, NO_2^- and NO_3^- ionic impurity concs., rel. to impurity vibrational spectra intensities *(Russian)* 4−48723
KBr:Na cryst. F centre prod., V_1 band, composite struct. 4−75524
KBr:SCN^-, i.r. absorpt. spectra, vibr. freqs., anharmonic and force consts. *(Russian)* 4−53485
KCl, divalent cationic impurity effects on photoelastic constants 4−82216
KCl, extrinsic absorption due to mol. ions, laser window material 4−65464
KCl, impurity ions substitution energies calc. *(Russian)* 4−52779
KCl, X^{2+}-vacancy complexes, reorientation, degrees of binding, thermionic current obs. 4−69799
KCl:Ag, colloidal particle size distrib. determ. 4−63834
KCl:Ag(Tl)(Eu)(Pb)(Ca), mutual distrib. of impurity ions and radiation defects 4−79039
KCl:Ca, etching, role of distributed impurities 4−48862
$K_2[ReX_6]$, X=Br, Cl; cryst., computer simulation of (n,γ) recoil damage 4−52789
Li clusters, b.c.c. structure, SCF-LCGO-MO calculations, rel. to vacancies and Be impurities 4−63826
LiF:Mg^{2+}, internal friction, temp. dependence *(Russian)* 4−48705
LiF:Mg^{2+}, strain rate sensitivity of flow stress, obs. of activation parameters 4−52809
LiF:Ni(Mg), effect on yield stress *(Russian)* 4−66964
$LiFe_5O_8$, Sb^{5+}-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion-specific props. 4−70235
$LiNbO_3$:Fe, control of Fe^{2+} concentration 4−56764
$LiTaO_3$, effect on sensitivity to hologram formation 4−68703
Mg ferrites, substituted, Mossbauer effect of ^{119}Sn impurity 4−45224
MgO, cryst. fused periclase, struct. defects 4−44530
Mg_2SiO_4, Czochralski grown 4−76387
Na_2-B_2O_3-SiO_2, ion exchange, iterative deconvolution technique applic. 4−69821
$Na_2B_4O_7$, cryst. from melt, screw dislocation growth mech., impurity effects 4−44499
NaBr, NO_2^- and NO_3^- ionic impurity concs., rel. to impurity vibrational spectra intensities *(Russian)* 4−48723
NaBr:Mn^{2+} e.s.r. determ. of diffusion and distrib. coeffs. 4−70205
NaCl, Ca impurity addition during growth rel. to optical props. *(German)* 4−73253
NaCl, divalent impurity doped, evidence of charged dislocations from light scatt. meas. 4−52767
NaCl, NO_2^- and NO_3^- ionic impurity concs., rel. to impurity vibrational spectra intensities *(Russian)* 4−48723
NaCl:Ba^{2+}(Ca^{2+})(Sr^{2+}), cryst., jump freq. of cations, ionic radius effect 4−69933
NaCl:Ca slowly cooled at room temp. flow stress, nature of Ca obstacles 4−72521
NaCl:OH^-, low temp. thermal expansion coeffs. determ., tunnelling mechanisms 4−69926
NaCl:Sr, thermally pretreated, glow curves, impurity-vacancy dipoles 4−82760
NaF:U, autoradiographic investigation of impurity distrib. 4−44558
Na_2O-B_2O_3-SiO_2, sodium borosilicate glasses, ion exchange 4−72481
Na_2SO_4:Cl, X-irrad., defect obs., e.s.r. 4−79599
Nb, implantation profile meas. of He and H, using proton backscatt. 4−78250
Nb:H, scattering of slow neutrons, obs. of one phonon excitations, and defecton mechanism of diffusion 4−48803
Nb:O, proton channelling, impurity location determ. *(Russian)* 4−66928
Nb-H, coherent system, internal stresses in α-α' phase transition 4−73282
Ni:C, etch pitting of fresh dislocations 4−60500
Pb, Zn diffusion, investig. rel. to temp. by radioactive tracer techniques 4−63945
PbB_4O_7, crystn. from melt, screw dislocation growth mech., impurity effects 4−44499
Pd, ion beam determ. of H and He content 4−78247
Pt-Si system, composition profiles of CVD Pt and PtSi 4−67137
Si, oxidation, water vap. press. and Na impurity conc. depends. 4−75719
Si:Al(Ga), electron irradiated, impurity effects on photoluminesc. 4−76305
Si:As, elec. and backscatt. meas., doping conc. 4−64503
Si:B(P), lattice parameters, dopant conc. depend. 4−60453
Si:Be, H, i.r. absorp., Be-H complexes obs. 4−49400
Si:Li(B)(P), obs. of photoluminesc. line due to multiexciton decay at impurity centre 4−49448
Si:O, influence on dislocation struct. 4−79055
Si:P ion implantation, 16 to 60 keV, distrib. of effective ranges *(Polish)* 4−56789
β-SiC, platy single cryst. nonuniformities 4−60513
α-Si_3N_4, synthesis, oxygen impurity effects 4−49920
SiO_2, film, Na and Cl determ., proton induced characteristic X-ray anal. 4−63833
$Sn_{1-x}Pb_xTe$:Se, physicochem. props., changes with impurity conc., local environment characts. 4−44557
Ta, single crystal, precipitation of H interstitials, nucl. acoustic reson. 4−82624
Ta_2O_5, anodic, conc. profile meas., dissolution method 4−44559
Th-V system, impurity controlled diffusion reaction 4−82290
Ti, implantation profile meas. of He and H, using proton backscatt. 4−78250
V, implantation profile meas. of He and H, using proton backscatt. 4−78250
V nuclear reactor material, heavy-ion irradiation effects, impurity redistributions around voids 4−52792
W, ion beam determ. of H and He content 4−78247

crystal impurities continued
$YAlO_3$:Nd,Fe, laser, e.p.r. and optical absorption 4−77675
Y_2BSbO_7, prep., symmetry sites and photoluminesc. of Bi^{3+} ion *(French)* 4−61214
YIG, Sb^{5+}-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion-specific props. 4−70235
YIG:U, prep., some mag. props. 4−72986
$Y_3X_5O_{12}$:B^{3+}, X=Fe, Ga, local vibr. modes obs., i.r. absorption spectra 4−69876
Yb, solid state phase transformation due to H contamination 4−73280
ZnS:Al, single crystal, impurity photoplastic effect *(Russian)* 4−82721
Zr:^{3}H, temp. depend. of diffusion and mobility 4−56906

crystal inclusions
ceramics and composites, elastic interaction between inclusions and cracks 4−64621
composite, debonding of rigid curvilinear inclusions in longit. shear deform. 4−67925
composite and porous materials, damping characts. 4−80081
cubic crystal, spherical inclusion, electron diffr. contrast, theory 4−66803
diamond, twinned natural and synthetic crysts., anomalous X-ray refl. 4−60512
dielectric mirror coating, effect on laser damage 4−55499
ductile materials, fracture model for surface flaws and weld defects 4−45592
ellipsoidal in isotropic matrix, electron diffraction contrast 4−56594
gas-filled pores, coarsening kinetics 4−49706
intercalated materials, props. and applications, educational paper 4−58703
Invar, nonmetallic inclusions obs. 4−61389
i.r. transmitting materials, failure due to absorbing inclusions 4−55507
laser glass, damage threshold depend. on nonmetallic inclusion size 4−69075
metallographic specimens, gas inclusions near surface, obs. using effect of elec. discharge *(German)* 4−73308
migrating liquid droplet, elongation, rel. to droplet-solid interfacial energy determ. 4−78939
semiconductor, transport props., isolated inclusions effect 4−70012
steel, furnace type, rare earth additions for sulphide shape control, notch toughness 4−61426
steel, influence on cavitation resistance after vacuum remelting *(Russian)* 4−45602
steel, low-C, with rare earth metal inclusions, cold resist. and ductile-brittle transition temp. 4−82915
steel, maraging and AISI grade, plastic fracture mechanisms 4−80011
steel, nitride inclusions identification *(German)* 4−45567
steel, rare earth inclusions behaviour prediction from thermodynamics and phase equil. 4−76422
Al-Al_3Ni eutectic, directional solidification, Al_2O_3 inclusions role *(Slovak)* 4−79900
$Al_xGa_{1-x}As$, electroreflectance, impurity inclusions influence, comp. depend. *(Russian)* 4−67604
CaF_2, microinclusion light scattering centre formation in crystallization from melt *(Russian)* 4−73247
Co-Ni-Al-Cu-Ti alloys, nonmetallic inclusions influence on solidification behaviour 4−64559
$DyFeO_3$, melt grown crysts., crystn. vel. effect on uniformity 4−61284
Fe, cast, hypereutectic, microdistrib. of rare earth metals 4−82856
Fe, cast grey, graphite inclusions effect on fracture 4−82918
Fe, cast white, subject to malleableizing, susceptibility to graphitisation 4−82857
Fe-C-Si alloy castings, distribution and liquation of N *(Russian)* 4−70448
Fe-Si, cube-on-cube texture form., hot rolling influence *(Russian)* 4−76439
MgO, cryst. fused periclase, struct. defects 4−44530
MgO-Al_2O_3-Fe_2O_3 system, nonstoichiometric ferrites, phase comp. 4−67896
NaCl, elastic-diffusion interaction of liquid inclusions 4−52943
NaCl, liquid inclusions over entire temp. range of existence, cine film obs. 4−48626
Ni, rel. to electron microscopical test of domain wall motion theories 4−67402
Ni-Fe(17%) alloy, rel. to electron microscopical test of domain wall motion theories 4−67402
Se layer, amorphous, deep trapping levels rel. to struct. 4−44863
Si, carbon and carbon-containing inclusions content rel. to growth method 4−67723
Si_3N_4, hot pressed, inclusion effects on room temp. strength 4−67920
W-C alloys, struct., fracture type and ductile-brittle transition temp. 4−76489
ZnSe, light absorption, laser damage mechanism 4−62851

crystal internal fields
see also crystal field theory
alkali halides, ion electronic polarisability and radii, cryst. pot. effects 4−66852
alkali metal iodides:IO_3^-, i.r. spectra, local symm. *(Russian)* 4−67627
alkali silicate glass:Er^{3+} sixfold coordinated site evidence 4−45320
calcium formate, rel. to Raman spectrum 4−57527
defect, vibr.-rot. absorpt. spectra of hindered rotator 4−67617
p-dichlorobenzene, impurity effects on ^{35}Cl n.q.r. line height 4−82635
epidote, $Ca_2Al_2(Fe, Al)Si_3O_{12}(OH)$, ^{27}Al n.m.r. obs. 4−79606
graphite AO pots. of C determ. 4−69983
Heusler alloys, Mossbauer spectra, Sb and Sn hyperfine fields 4−64288
lithium ammonium tartrate, potential field acting on H, calc. 4−66853
molecular crystals, Stark spectroscopic studies of dielec. breakdown and space charge effects 4−67529
multiple scattering model for mols. and crysts. 4−72667
muon precession in condensed media 4−70195
muon precession in ferromagnetic materials 4−70196

crystal internal fields continued
n-octane: porphin, cryst., e.s.r. in photoexcited triplet state 4−81795
orthoferrite, n.m.r., hyperfine field anisotropy meas. *(Russian)* 4−67471
S-polarized opt. props. of slab dielectric, effect of spatial dispersion 4−57491
semiconductor, average potential, rel. to susceptibility 4−79495
Slater parameter shifts, effects of Madelung pot. and dielectric shielding 4−57045
transition d-metals, effects of pressure on electronic struct. use of one electron potential model, review 4−48899
transition metal:rare earth ion, conduction electron contrib. to cryst. electric field 4−60744
Ag-Au, electron scatt., virtual crystal model 4−72746
$AgNa(NO_2)_2$, elec. field gradients at ^{23}Na sites, point charge model calc. 4−67534
$AgSnF_6$, $AgZrF_6$, e.p.r., ferrodistortive order of tetragonally elongated $Ag^{II}F_6$ octahedra *(German)* 4−70202
Al, electric field gradient, non transition metal impurities in dilute alloy single crystals 4−73046
$Al{:}^{57}Fe$, computer simulation of electric field gradients and Mossbauer spectra 4−53048
$AlBr_3$, elec. field gradient tensor and n.q.r. freq. calcs. 4−82632
AlN, cryst., AO pots. of Al and N determ. 4−69983
$Al_2O_3{:}Ni^{3+}$, paramag. reson. spectra, Jahn-Teller multimode model 4−73023
BN, cryst., AO pots. of B and N determ., energy gap calc. 4−69983
$BaF_2{:}Gd^{3+}$, electrostatically correlated $B_0{}^0$ interaction 4−48917
$Ca_{2.7}Bi_{0.3}Fe_{3.65-x}V_{1.35}O_{12}$, ferrimag. resonance, mag. props. rel. to crystal field symmetry 4−64267
$CaF_2{:}Gd^{3+}$, electrostatically correlated $B_0{}^0$ interaction 4−48917
$CaWO_4{:}Tb^{3+}$, cryst. field due to ion from optical spectra anal. 4−75792
Cd:In, temp. depend. of elec. field gradient, γ-γ angular correlation meas. 4−64313
$CdIn_2S_4{:}Er^{3+}$, cryst. field symm., optical spectra, calc. of props. 4−57582
$CsZrCl_6{:}U^{4+}$, cubic cryst., relative intensities in vibronic Zeeman effect 4−73114
Cu, electric field gradient, dilute alloy single crystals, non transition metal impurities 4−73046
Cu complex, bis(ethylenediamine) Cu(II) nitrate, e.s.r., cryst. field energy levels 4−76138
Cu-Ni dilute alloy, elec. field gradients, zero-field n.q.r. meas. 4−64283
Cu_2UBr_6, cubic cryst., relative intensities in vibronic Zeeman effect 4−73114
Dy_2O_2S, specific heat meas., 1.4-80K 4−48773
$ErAl_3$, cubic, rel. to antiferromag. transition and mag. struct. 4−49181
ErM, M = Ag, Cu, Zn, neutron spectroscopy and mag. props. anal. in terms of cryst. field levels 4−72713
Fe:I, n.m.r. of oriented ^{131}I and ^{132}I, hyperfine field 4−70223
Fe-Ni-Mn, Mossbauer effect, isomeric shifts, hyperfine field *(Russian)* 4−67493
$FeCl_2$-graphite compounds, Mossbauer spectra and mag. susceptibility obs. 4−61071
$FeCl_3$ frozen hydrolysed soln., Mossbauer effect, polymerization study β-FeOOH presence *(German)* 4−79648
$(Fe_{1-x}Me_x)_3C$, Me = Cr, Ni, Mossbauer absorption spectra and magnetisation meas. 4−79544
FeOOH, internal mag. fields, Mossbauer effect *(Russian)* 4−53344
$Fe_{0.9}Pt_{0.1}$, Mossbauer study, Daniel-Friedel model *(German)* 4−53348
$Fe(pyridine)_2Cl_2$, sign of elec. field gradient tensor, nature of low temp. phase transition 4−79647
Gd_2O_2S, specific heat meas., 1.4-80K 4−48773
Ho_2O_2S specific heat meas., 1.4-80K 4−48773
$InCl_3{:}Er^{3+}$, cryst. field symm., optical spectra, calc. of props. 4−57582
KF, effect on mag. screening of ^{19}F nuclei *(Russian)* 4−57405
$KI{:}S_2{}^-$ $(Se_2{}^-)$, zero-phonon absorpt. transitions 4−79741
$La_2Mg_3(NO_3)_{12}$ 24 H_2O, proton polarised, determ. of crystal magnetic field 4−72933
LaSb:Gd, single crystal, resolved e.s.r. spectra, cubic crystalline field parameter meas. 4−82611
LaX(S = S,Se,Te), monochalcogenide, electron energy spectrum struct., $O_h{}^5$ symmetry, optical props. 4−44837
LiF, electrification by plastic deform., mechanism 4−57159
LiTiZn ferrite, Ti^{4+}, Zn^{2+} coeffs. calc. 4−82557
$LiYF_4$, rare earth substituted, crystal field parameters, interpretation 4−44855
Lu:Tb(Dy)(Er), cryst. field parameters determ. from mag. meas. 4−76053
MgO-Sno_2-$B_2O_3{:}Ti$, cryst., luminescent props. and comp. *(Russian)* 4−45363
Mn^{2+}, zero-field splitting, effect of orbital variation of spin-orbit interaction 4−67171
NaCl, F′ to F centre conversion by electron tunnelling 4−56740
NaCl-NaBr(I) solid solutions, pulsed nuclear double reson. 4−45208
NaF, effect on mag. screening of ^{19}F nuclei *(Russian)* 4−57405
α-$NaFeO_2$ point charge model used to investigate mossbauer spectra and nuclear quadrupole resonance 4−64304
NdS, crystal-field splittings, neutron inelastic scattering meas. 4−79301
NdSe, crystal field splittings, neutron inelastic scattering meas. 4−79301
$NiCl_2$/graphite laminar cpd., mag. ordered, ^{35}Cl n.m.r., spontaneous magnetis. behaviour *(Russian)* 4−67470
NpP, paramag. and ordered phase mag. props., strong cryst. fields, n.m.r. meas. 4−49163
PrAg, antiferromag., mag. struct. and cryst. field levels, neutron scatt. obs. 4−49183
$PrAl_3$, cryst. elec. field influence on sp. ht. and resistivity 4−67194
$Sc{:}Er^{3+}$, single crystal, magnetisation and e.s.r., crystalline electric field parameters, energy level calc. 4−82587
Sc:Tb(Dy)(Er), cryst. field parameters determ. from mag. meas. 4−76053

crystal internal fields continued
$ScCl_3{:}Er^{3+}$, cryst. field symm., optical spectra, calc. of props. 4−57582
Sm, influence on Sm^{3+} mag. form factor 4−70125
Sm intermetallics, mag. order, Sm^{3+} moment reduction 4−45101
$SmCo_5$, anisotropy of Sm^{3+} 4−72987
$SnO_2{:}N_2{}^{3+}$, e.s.r. obs., spin Hamiltonian parameters determ. 4−76151
$SrG_2{:}Gd^{3+}$, electrostatically correlated $B^0{}_0$ interaction 4−48917
Tb_2O_2S, specific heat meas., 1.4-80K 4−48773
TeO_2, determ. of elec. field gradient tensor *(Russian)* 4−64298
Tl_2O-$B_2O_3{:}Co(II)$, glass, ligand field parameters 4−64396
UCl_4, absorpt. spectra assignment, struct. parameters 4−76262
UGa_3, antiferromag. order, U mag. moment 4−57292
V_3Si, nucl. acoustic reson. of ^{51}V, above and below martensitic transform. 4−73038
Y:Dy(Er), h.c.p. single crystals, cryst. field mag. anisotropy 4−57260
Y:Tb(Dy)(Er), cryst. field parameters determ. from mag. meas. 4−76053
Y-Ce, dilute alloy, Kondo effect, hexagonal cryst. field effects 4−49160
$YCl_3{:}Er^{3+}$, cryst. field symm., optical spectra, calc. of props. 4−57582
$Y_3Fe_{5-x}Dr_xO_{12}{:}Cr^{3+}$, ferrimag. resonance, mag. props. rel. to crystal field symmetry 4−64267
YGa garnet, diamag., temp.-depend. e.p.r. of Mn^{2+} 4−73020
$Y_3Ga_5O_{12}{:}Fe^{3+}$, rel. to optical absorption transitions 4−79750
YIG, rel. to optical absorption transitions 4−79750
Zn-Mn(Cr), magnetic anisotropy in single crystals, low mag. field, low temp. 4−79473
Zn-Mn(Cr) field splitting parameters, exchange const. 4−79474
ZnO-$B_2O_3{:}Mn^{2+}$, optical and e.p.r. meas., devitrification 4−60417
ZnS, faulted, Franz-Keldysh effect and internal fields 4−79703
$ZnS{:}Mn^{2+}$, relativistic contrib. to spin-lattice coupling and elec. field effect 4−73024

crystal interstitials *see interstitials*

crystal lattice structures *see crystal atomic structure*

crystal microphones *see microphones*

crystal microstructure
see also crystal defects; crystal inclusions; crystallites; grain boundaries; grain size; texture; X-ray diffraction examination of microstructure
$\gamma\to\varepsilon$, $\gamma\to\varepsilon'$ transformations diffr. effects *(Russian)* 4−67748
hcc crystals, with growth and stackig faults, X-ray diffr. theory 4−56756
ABA block copolymer, statistical thermodynamics, microstructural transitions 4−56328
alloy, binary, quenched, time evolution, computer simulation of 2-dimens. model system 4−79956
alloy, ordered, domain form., group theoretical considerations 4−45490
anthracene, cryst. reflect. line shape anal. rel. to exciton dynamics, distortion effects investig. 4−48940
austenite-pearlite transformation, Mn partitioning using analyt. electron microscope 4−79895
automatic image analysis, materials science 4−51046
bainite, carbide-free, struct. and props. 4−79894
bicrystal parameters determ. using Kikuchi patterns 4−45554
cast iron, effect of continuous laser radiation on structure *(Russian)* 4−70447
cast surface composites with Al matrix, microstruct. and wear test data 4−57765
ceramic, acoustic emission generation, microstruct. aspects 4−64695
ceramic, fractographic identification of strength-controlling flaws and microstruct. 4−67918
ceramic, microstruct. considerations for applic. of fracture mechanics techniques 4−73350
ceramic, slow crack growth rel. to microstruct. 4−73355
composite, metallic, in-situ type, interfaces effect on morphology and mech. behaviour 4−64634
disorientation of microregions in structures with continuously changing orientation, electron microscopy 4−61375
electron metallography, diffraction patterns evaluation *(German, English)* 4−49719
electron metallography, microstruct. artifacts due to faulty foil prep. *(German, English)* 4−53684
electron metallography, sample prep. by jet thinning techniques *(German, English)* 4−64564
eutectic solidification, morphological and cryst. aspects 4−56864
eutectic structure obs. by selective sublimation 4−82851
eutectic systems, coarsening of lamellar structures at elevated temps. 4−49736
eutectoids, aligned, discontinuous coarsening obs. 4−53673
gas-filled pores, coarsening kinetics 4−49706
glass ceramic, microstruct. characteriz. by cathodolum. 4−49892
kamacite spheroids and Fe-Ni grains in lunar breccia *(French)* 4−68373
martensite crystals, predominant orientations of habit planes *(Russian)* 4−67777
metal systems, texture ensuring grain growth of definite orientation 4−49732
meteorite, Cape York, TEM obs. of microstruct. features 4−50238
mica glass-ceramics, fracture energy and thermal shock resist. rel. to microstruct. 4−73345
microscopy, quantitative, shape factors 4−73309
mosaic crystal, extinction theory 4−82090
naphthalene, cryst. growth, i.r. spectra rel. to struct. defects 4−73142
orientation in cubic crystals, geometric evaluation of etch figures 4−67796
orientation relationships determ. from relative orientations of variants of product phases 4−45506
phase identification, using computer-simulated electron diffr. patterns. appl. to Co-Sm system 4−78872
phenanthrene:anthracene, in n-hexane frozen soln., fluoresc. centres investig. 4−76300
polycrystal, grain arrangement, Euler's theorem 4−67799

crystal microstructure continued
polycrystals, shear deform., grain boundary migration *(Russian)* 4−66960
polyester fibres, orientation measurement *(Bulgarian)* 4−57768
polymeric microporous films, elastic cryst., form., properties, porosity, struct. 4−53866
polymers, crystalline, mech. props. rel. to cryst. struct. 4−63770
quartz sand grains, microfeatures in sedimentary environments rel. to crystallographic props. 4−57903
radiation effects on substruct. and mech. props., conf., Los Angeles, USA (June 1972) 4−43656
rocks, direct obs. of microcavities 4−64797
silicate-fluoropatities, $M_4Ln_6[SiO_4]_6F_2$, M=Ca, Sr, Ln=Nd, Y, Yb, synthesis and comp. 4−53797
steel, 316 stainless, fatigue and microstructure effects of He implantation and thermal ageing at 650°C, obs. 4−55940
steel, abrasive wear resistance rel. to hardness and microstruct. 4−49845
steel, austenitic, Fe-(20%)Cr-(25%)Ni, splat-quenching, thin foil electron microscopy obs., dislocations 4−79927
steel, bainite, morphology and substruct., specimen prep. method for electron microscopy *(German, English)* 4−53683
steel, bainitic, deform. effect of metastable austenite on bainite morphology *(Czech)* 4−79935
steel, carbide morphology role in low-cycle fatigue behaviour 4−70475
steel, cementite shape change during deform. at subcrit. and supercrit. temps. 4−73301
steel, creep, fine struct. and pore form. *(Russian)* 4−64546
(225) steel, crystallography of martensitic transformation 4−73286
steel, effect of continuous laser radiation on structure *(Russian)* 4−70447
steel, eutectoid, resist. and microstruct. changes accompanying isothermal decomp. of austenite 4−49659
steel, fine-grained high-temp., welding-simulation heat-treated specimens, stress-relieving effects *(German)* 4−64571
steel, hardened, phase comp. changes after surface plastic deform. *(Russian)* 4−53724
steel, high C and high Ni, cementite orientation during martensite carbide disintegration *(Russian)* 4−73293
steel, high-strength structural, toughness behaviour rel. to struct. *(German)* 4−49741
steel, low alloy, thermomechanically tempered martensitic structures and mech. props. *(Japanese)* 4−53750
steel, low-C, magnesium and boron effect on struct. and corrosion resist. 4−82924
steel, magnetisation discontinuities, statistical props. rel. to grain size distrib. 4−57734
steel, maraging, undercooling during atomization 4−61474
steel, martensite ageing effect, C atom redistrib. 4−57754
steel, martensite and lower bainite differentiation using electron microscopy *(German, English)* 4−73304
steel, martensite morphology role in strength *(German)* 4−49803
steel, pearlitic 1080, cold worked, deform. struct. and tensile fracture characts. 4−45675
steel, pearlitic structure produced by delta eutectoid transform., TEM obs. *(Japanese)* 4−45552
steel, precip. hardened, doping influence on struct. and plastic props. *(Russian)* 4−45712
steel, stainless, 304L, surface martensite formation, polishing and quenching 4−67797
steel, stainless, FV548, irrad. effects on struct. and tensile props. 4−43680
steel, stainless, martensitic-ageing, stress type effect on mech. props. and struct. 4−61463
steel, stainless, single crysts., relation between applied stress and orientation in α' martensite 4−53642
steel, stainless, Types 316 and 405, irrad., microstruct. effects on swelling and tensile props. 4−43657
steel, stainless cold-worked neutron irradiated EBR-II fuel pin cladding 4−81655
steel, stainless ferritic 17Cr, solidification structure effect on ridging phenomenon *(Japanese)* 4−67788
steel, stainless type 316, neutron irrad., stress effect on microstructure 4−73306
steel, tempered martensite, field-ion microscopy 4−82860
steel, vacuum-diffusion Cr plating influence *(Russian)* 4−53720
steel materials produced from alloy powders and metal powder mixtures, struct. and mech. props. 4−80059
triglycine selenate crystals, piezoelec. and elastic expts. in region of phase transforms. *(German)* 4−57478
$A^IB_2^{II}C^{III}D_4^{VI}$ semiconductors, A=Cu, Ag; B=Zn, Cd; C=Ga, In; D=Se, Te; synthesis and characterization 4−48765
Al, block boundaries formed in creep, stability *(Russian)* 4−76438
Al, hot compressed, zonal inhomogeneity of primary recrystallization *(Russian)* 4−70449
Al, polygonization substructure migration due to electromigration and creep *(French)* 4−45544
Al alloys, cast, seizure resistance, effect of microstruct. and mech. props. 4−67887
Al coating on cast iron, struct. and comp. 4−76482
Al foil, microstruct. revealed by selective etching 4−67783
Al/W, solid matrix, discontinuities, dynamic behaviour *(German)* 4−73307
Al-Ag(Mg)(Zn) alloys, network deform. due to GP zones, X-ray scatt. obs. in Bragg spot region *(French)* 4−61366
Al-Al_3Ni, composite material, fracture microrelief examination 4−49929
Al-Al_3Ni rod eutectic, fault density and thermal stability, coarsening kinetics 4−76449
Al-Cu (3.7 wt.%) alloy, solidification microstruct. effect on corrosion behaviour 4−49775
Al-Cu alloy, columnar, solidification microstruct. effect on corrosion behaviour 4−49791
Al-Cu(4 wt.%) alloy, antiphase domain boundaries within θ' and η precipitates 4−67792
Al-Cu(4.5 wt.%) alloy, solidification substruct. and solute distribs. at solid/liq. interface, quenching effects *(Japanese)* 4−45503
Al-Cu(4.5 wt.%) alloy, solute redistrib. in duplex dendritic struct. 4−49696

crystal microstructure continued
Al-Mg alloys, extension rate and temp. influence 4−67882
Al-Mg_2Si(1.35 at.%) alloy, reversion treatments effect on precip. mechanisms 4−45563
Al-Mn(3 wt.%) alloy, rapidly solidified structures, solidification rate and thickness effects *(Japanese)* 4−67763
Al-Zn alloy, monoeutectoid, liq. quenched, decomp. mode and microstruct. 4−49647
Al-Zn and Al-Cu-Zn alloys, unidirectional solidification, microstruct. and plane to cell transition *(Korean)* 4−76423
Al-Zn eutectic, unidirectionally solidified, cellular struct. *(Korean)* 4−67791
Al-Zn-Ge alloy, Guinier-Preston zone formation rate, influence of Ge, obs. 4−70468
Al-Zn-Mg, growth kinetics of Guinier-Preston zones 4−79958
Al-Zn-Mg alloys, ternary, Guinier-Preston zones, X-ray diffuse scatt. 4−49735
Al_2O_3, high alumina refractories research 4−70551
Al_2O_3 alumina, hot pressed, annealing effect 4−49891
α-Al_2O_3 crystals, structural-morphological characteristics of volatilisation 4−52887
β-Al_2O_3-Na_2O, intergrowth of crystal structures 4−73343
Al_2O_3-NiO system, decomp. of nonstoichiometric spinel, periodic antiphase struct. of intermediate phase 4−56858
AlSi silumins, modified and unmodified, spatial distrib. of eutectic silicon *(German, English)* 4−49720
Au-Cd(47.5 at.%) alloy, nucleation dynamics and growth of thermoelastic martensite 4−76410
Au-Ge(−Ni) eutectic alloy film evap. in vacuum on NaCl (100) substrate, microstruct. *(Japanese)* 4−45550
Au-Mo-Ni filler, brazing of graphite, microstruct. of brazed joints *(German, English)* 4−49866
Ba ferrite layer structs., M_nY_m type, electron microscopy obs. of domain struct., stacking sequence 4−52777
$Ba_3Co_2Fe_{24}O_{41}$, changes during sintering 4−76522
$3BaO.5SiO_2$ glass-ceramics, mech. props. w.r.t. microstruct. 4−49894
C materials, submicroporosity, effect of heat treatment, irradiation and graphite struct. 4−57792
C-graphite, discrete samples, for microstruct. anal., prep. 4−67939
$CaO.ZrO_2$-ZrO_2 eutectic, directionally solidified, fracture behaviour and microstruct. effects 4−73370
$Ca_3(PO_4)_2CaX_2$ (X=halogen) based commercial luminophors, struct. characts. and optical props. *(Russian)* 4−73150
Cd, polycrystal versus single crystal strain rate sensitivity, grain size depend. 4−61446
Cd-$CuCd_3$ eutectic struct. obs. by selective sublimation 4−82851
Ce-Ni-Si, ternary alloys, 33.3-100 at.% Ce, phase equilib., struct. and composition 4−48731
Co superalloy, directional solidification struct. and mech. characts. 4−61409
Co-Sn, eutectic structures at high undercooling 4−57725
Co_5Ge_3, homogeneity region and mag. susceptibility 4−49687
Cr, recrystallised, rare earth metals effect on struct. and mech. characts. 4−80025
Cr-Ni steel, effect of prior deformation on mechanical structure properties *(Russian)* 4−70484
Cr_3Ge-$V_{3.04}Ge_{0.96}$, binary and ternary alloys, struct. anal., mutual solubility 4−48761
Cu, effect of vacuum deposition on microstructure 4−76381
Cu, fine structure parameters changes due to plastic deformation 4−80043
Cu, frictional deformation, microstruct. and subgrain struct. changes *(Russian)* 4−49707
Cu, polycryst., struct. heterogeneity rel. to strain hardening and tensile test parameters *(Polish)* 4−64568
Cu, single crysts., substruct. and impurities, block-boundary peak of internal friction *(Russian)* 4−67829
Cu-Al-Ni thermoelastic martensite, morphology and crystallography using phenomenological theory 4−49676
Cu-Be(2 wt.%) alloys, ordered microstruct. development by elastic interaction *(French)* 4−45565
Cu-Cr eutectic alloy, unidirectionally solidified, crystallography of phase interfaces 4−82858
Cu-Ge-Ti alloy, decomp. processes, 400 to 700 degrees C, transmission electron microscope study *(Russian)* 4−73296
Cu-Mn-Al, Heusler alloys, effect of antiphase boundaries on mag. props. 4−45142
Cu-Ni-Fe alloys, spinodally decomposed, loss of coherency 4−61359
Cu-Ni-Sn alloy, spinodal decomp. and effects 4−64525
Cu-Ni-Zn alloy, microduplex, residual tensile props. and microstruct. after superplastic straining 4−45661
Cu-Sb and Cu-Sb-B solid solns., intercryst. absorpt. of impurities *(Russian)* 4−73295
Cu-ThO_2, high resistance to thermally-induced softening 4−73325
Cu_2GeSe_3 based alloys, nonstoichiometric, investigaton of struct. and props. 4−44674
Cu_2O, single crystal growth and microstructural control 4−73254
Cu_2SnSe_3, phase diag. during melting, phase transitions, microstruct. 4−44671
α-Fe, substructural development during strain cycling 4−82861
Fe-Al alloy, antiphase domain struct. during annealing, electron microscope obs. 4−53678
Fe-C (0.47 wt%), Widmanstatten proeutectoid ferrite, morphology and crystallography 4−82859
Fe-C-Ni(Si) alloys, martensite form. mechanism *(French)* 4−79908
Fe-Co-V alloy, heat treatment influence 4−79940
Fe-Co-V alloy, thermal ordered domains and mech. antiphase boundaries 4−49723
Fe-Co-V alloys, mag. and mech. props. correl. with microstruct. 4−80014
Fe-Cr-Mo alloys, heat treatment effect 4−64544
Fe-Fe_2Zr eutectic, unidirectional solidification rate effect on microstruct. and UTS *(Russian)* 4−49684
Fe-Nb-N, homogeneous precipitation of NbN in α-Fe during isothermal treatment 4−79955
Fe-Ni alloy electrodeposition, with small amounts of Mn 4−82842
Fe-Ni alloys, macro- and micro-morphology, habit planes and orientations of martensite crysts. 4−76432

crystal microstructure continued
Fe-Ni-Co-Mo, field ion microscopy of aged martensite 4−61395
Fe-Ni-Mn alloys, martensitic, microstruct. changes during ageing, TEM obs. *(Japanese)* 4−67787
Fe-Ni-Ti, form. of finely dispersed γ-martensite *(Russian)* 4−67749
Fe-Ni(30 wt.%), martensitic transformation, orientation relationship *(German)* 4−70473
Fe-Ni(50 wt.%), single crysts., form. of deform. textures, rolling *(Russian)* 4−67778
Fe-Si, electron microscope obs., temp. comp. diag. for two phase system *(German)* 4−57727
Fe-Ti alloys, nitrided, struct. changes during annealing 4−53680
Fe_xO-MnO system, elec. cond., 900-1150°C, and struct. props. 4−49888
film, sputtered, supercond., columnar-void type struct., electron microscope obs. 4−44804
n-GaAs, electron microscope obs. of impurity structural effects *(Russian)* 4−72480
GaAs nonuniform semiconductor, SEM microanalyser in cathodoluminescent mode *(Russian)* 4−71250
GaAs:Te, electron microscope obs. 4−79054
Ga_2O_3-MgO system, decomp. of nonstoichiometric spinel, periodic antiphase struct. of intermediate phase 4−56858
GaP layers on Ge substrate, prep. and struct. props. 4−48873
Gd-Sn, eutectic structures at low growth rates 4−57724
$Gd_2(MoO_4)_2$, domain boundaries, antiphase boundaries, dislocations 4−82678
$HfSi_x$, diffusion layer form., 1150-1300°C, kinetics, microstruct. and microhardness 4−44784
$HfTiO_4$, fracture toughness, effect of microstruct. factors 4−61502
In-Ge-Te ternary system, rel. to phase equilib. 4−49643
InSb-CrSb(FeSb) eutectic alloys, directional solidification, struct. changes *(Japanese)* 4−45499
Ir based dilute substitutional solid solns., field-ion microscopy 4−57739
KBr single crystals, metallic colloidal particles growth under electron irrad. *(Russian)* 4−52784
KCl, laser window material, hot-worked, room-temp. grain growth 4−51080
$LiFe_5O_8$, processing and properties, effects of sintering, temp., and stoichiometry 4−70549
Mg-Al-Zn-Mn alloy, aged, precipitate morphology and orientation relationships 4−64542
MgF_2-Nb_2O_5, multiple phases, electron microscope obs. of intergrowths defects, disordered crysts. 4−69819
MgO-Al_2O_3-Fe_2O_3 system, nonstoichiometric ferrites, phase comp. 4−67896
MgO-$MgAl_2O_4$ eutectic, directional solidification microstructures 4−45741
MgO-NaCl composite, pressure intensification, obs. and model 4−53830
Mn-Cu alloys, fine struct. characterised by high damping capacity *(Russian)* 4−73277
Mo, deformed polycrystalline, struct. and texture *(Russian)* 4−79941
$(Na, Ca)_nNb_nO_{3n+2}$, electron microscopy *(French)* 4−48763
NaCl single crystals, metallic colloidal particles growth under electron irrad. *(Russian)* 4−52784
NaF:U, autoradiographic investigation of impurity distrib. 4−44558
Nb, struct. of thin foils of monocrysts. 4−61376
Nb-Al-Ge alloys, metallography and supercond. 4−49109
Nb-H, single cryst., low-temp. decomp., double-crystal neutron spectroscopy 4−82867
Nb-Ti wire, Cu-coated, microstruct. influence on crit. current density *(German)* 4−53180
Nb-W-Zr(Hf)-C effect of ultrarapid quenching from liq. state on struct. and phase comp. 4−79918
NbC powder, ultrafine, sintering behaviour 4−61490
Nb_xO, x=2,6, effect of added Ti on properties and microstructure 4−67044
Ni, nearly perfect, growth prep. and X-ray topographic investigations 4−57736
Ni, sintering, kinetics of grain growth, statistical anal. *(French)* 4−70455
Ni alloys, eutectic, directionally solidified, carbide reinforcement 4−45768
Ni-Al (Si)(Ti), state of coherent precip., plastic deform. *(Russian)* 4−67780
Ni-Co-Nb alloy, segregation of elements, influence of silicon *(German)* 4−49700
Ni-Cr alloy, hardened by Ni_3Nb phase, Al influence on struct. and mech. props. *(Russian)* 4−45713
Ni-Cr-Ti-Al alloy brazed in vacuo with Pd-Ni, microstruct. obs. with hot stage microscope *(German, English)* 4−64561
Ni-Ni_3Al-Ni_3Ta, ternary eutectic, directionally solidified composites, mechanical props. 4−70568
Ni-Ni_3Ti, directionally solidified eutectic, prep., struct., props. *(Russian)* 4−67774
Ni_3Fe, ordering mechanism, FIM obs. 4−70444
Ni_5Ge_3, homogeneity region and mag. susceptibility 4−49687
Ni_3Mo, lattice relax. at non conservative antiphase boundaries 4−45569
Ni_4Mo, domain struct. changes during isothermal ageing at 800°C, electron microscope obs. 4−64529
β-Ni_4Mo, field ion images, domain type determ. 4−49689
$Ni_{0.35}Zn_{0.65}Fe_2O_4$ films, arc plasma sprayed on alumina substrates 4−61494
(Pb,La)(Zc,Ti)O_3, β-phase electro-optic ceramic, field induced 4−63829
Pb/SiO_2, solid matrix, discontinuities, dynamic behaviour *(German)* 4−73307
Pb-Ag aligned eutectic composite, thermal stability, temp. gradient effect 4−67927
Pb-Sb and Pb-Cd-Sb alloys, substruct. development and mech. props. improvement 4−45649
Pb-Sn eutectic, lamellar fault migration 4−82854
Pb-Sn(46 wt.%) alloy, gravity segregation during remelting of dendritic alloys 4−45556

crystal microstructure continued
PbTe, single cryst., transmission electron microscopy obs. of microprecip. 4−79158
PbTe-SnSe system, rel. to phase diag. 4−49644
Pt-Si(0.16 wt.%), binary alloy films, grown from melt, metallurgical aspects 4−69973
RbI, mosaic struct., press-induced changes, 412 keV γ-ray diffr. 4−72573
Sb single crystals, (III) layer dislocations, chemical etching 4−69810
Si, precipitation of oxides, distrib. pattern, morphology 4−75630
Si needles, investigation of lamellar struct. *(German)* 4−56684
SiC, dense hot pressed, microstructural and strength characts. 4−73351
β-Si_3N_4, hot pressed, microstruct. characts. 4−61493
Si_3N_4, synthesis, characteriz. and consolidation 4−53803
$SmCo_5$, changes caused by O_2, sinter-annealing and thermal ageing 4−64549
$SmCo_5$, internal oxidation, microstruct. and growth kinetics of fibrous composite subscale 4−82855
$(Sm_{1-x}Pr_x)Co_5$, domain struct. of magnets *(Russian)* 4−67394
Sn-Cd, eutectic, coarsening during unidirectional solidification 4−45549
Ta, adsorption of O_2, FEM study, work function, thermodesorpt. *(Bulgarian)* 4−82317
TaC powder, ultrafine, sintering behaviour 4−61490
Ta_xO, x=2,4 and formation 4−69911
Ti, substructure, heating rate and previous plastic deform. influence *(Russian)* 4−61372
β-Ti alloys, constitution and microstruct. influence on temp. coeff. of resist. 4−61345
Ti-Al-V alloy, fatigue strength improvement by microstruct. control 4−61424
Ti-Al-V alloy, kinetics of annealing , hardness and resist. obs. *(French)* 4−76470
Ti-Al-V alloy plate, effects on tensile and fracture props. 4−49849
Ti-Al-V alloy TA6V, microstruct. characts. as function of thermomech. treatments in α+β region *(French)* 4−49710
Ti-Al-V-Sn alloy, TA6V6E2, microstruct. influence on mech. props. *(French)* 4−49796
TiC-Co(Ni) cemented carbides, stat. analysis of behaviour under high press. 4−70553
TiC-Mo-Ni hard alloys, carbon content and sintering temp. effect on struct. form. and mech. props. 4−70527
TiO_2, recovery of creep-resistant substruct. in air and vacuum under reduced stress 4−45747
TiO_2-Cr_2O_3, phase analysis of oxides derived from rutile by crystallog. shear 4−67048
U-Nb-Zr alloys, tweed structures *(French)* 4−45565
UO_2 sintered, in-reactor densification, depend. on temp. and microstruct. 4−81632
V_6C_5, obs. of antiphase boundaries in long range ordered crystals 4−44526
V_3Ga superconducting tape, microstruct. and crit. current density anisotropies 4−64159
V_2O_5-Fe_2O_3 system, phase comp. investigation 4−44675
W-C alloys, struct., fracture type and ductile-brittle transition temp. 4−76489
WC-Co cemented alloy, SiC addition effect on microstruct. *(Korean)* 4−67911
WC-Co cemented carbides, stat. analysis of behaviour under high press. 4−70553
WSe_2, occlusion obs. 4−63821
$Y_2O_3.4BaO.B_2O_3$ phase, micro-X-ray spectral anal. investigation 4−48736
Zn-Al alloy, eutectoid, ternary addition effects on transform. and microstruct., superplastic deform. 4−45496
Zn-Cd alloys, pre-precip. phenomena, Guinier-Preston zones 4−79930
Zn-Cu (up to 2.0 wt.%) alloy, heat treatment, ageing, microstruct., creep resist. 4−70494
Zn_3As_2-ZnTe system, synthesis, chem. anal., microstruct. and form. enthalpies investigations 4−45897
ZnSe, deposited from vap. on Ge 4−45483
Zr, cold-worked hexagonal, X-ray Fourier lineshape analysis 4−61379
Zr-Cr-Fe, β-quenched, effect of microstructure and lattice strain on corrosion resistance and mechanical props. 4−64594
Zr-H alloy, microstructure and mechanical props. 4−79972
ZrO_2, martensitic transform., crystallographic aspects 4−53791
ZrO_2, partially stabilized with CaO, microstruct. development and fracture toughness 4−73348

crystal morphology
dimensionally stable anodes, conducting oxide, morphological props. 4−50174
eutectic solidification, morphological and cryst. aspects 4−56864
facetted polyhedra, rules for construction, appl. to dodecahedra 4−56640
graphite, cone-helix growth forms 4−52708
hopper crystal, instability criteria for growth, rel. to spiral eutectic morphology 4−49650
Inconel 713C modified alloy, directional coupled growth 4−80076
kamacite spheroids in lunar breccia *(French)* 4−68373
natural rubber, influence on tensile properties 4−49984
poly(ethylene terephthalate), crysts. induced by inorganic fillers 4−56624
polyethylene, spherulite behaviour on deform. 4−53874
polyethylene terephthalate, crystalline fold period determ. 4−48517
siloxane block copolymers, morphology 4−56625
Al_2O_3, leucosapphire, thermochemical dissolution, anisotropy 4−44500
α-Al_2O_3 crystals, structural-morphological characteristics of volatilisation 4−52887
Au-Ge(−Ni) eutectic alloy film evap. in vacuum on NaCl (100) substrate, and microstruct. and elec. resistivity *(Japanese)* 4−45550
$BaWO_4$, by flux evaporation, morphology, cleavage, perfection, growth of crystals 4−76385
CdSe single cryst., growth condns. for tabular crysts. 4−53595
$CsMnF_3$, growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4−70402
Cu islet film, morphology and struct. *(Russian)* 4−72649

crystal morphology continued
- GaAs, vapour phase epitaxial growth, difference in (001) facet and vicinal planes 4−57680
- GaN, growth from vapour, needles, whiskers, platelets and prisms 4−45478
- In islet film, morphology and struct. *(Russian)* 4−72649
- InAs, grown from gaseous phase, struct. perfection investigation *(German)* 4−49618
- InSb, grown from gaseous phase, morphology and struct. perfection *(German)* 4−49618
- KH_2PO_4, cryst. growth, effect of supersat., fluid shear on habit, homogeneity 4−64489
- $KMnF_3$ growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4−70402
- MgO, vaporisation, crystal morphological changes 4−56873
- MgO whiskers, morphology and internal structure *(Japanese)* 4−48881
- NH_4MnF_3, growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4−70402
- $Na_2B_4O_7$, cryst. from melt, screw dislocation growth mech. 4−44499
- Pb, electrocrystallization on Cu faces, mech. of growth 4−44796
- Pb islet film, morphology and struct. *(Russian)* 4−72649
- PbB_4O_7, crystn. from melt, screw dislocation growth mech. 4−44499
- $RbMnF_3$ growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4−70402
- α-S, growth from soln., growth parameters, cryst. perfection 4−45417
- Si, etched ribbon shaped crystal 4−79253
- Si-βSiC, and Si-βSiC-Si_3N_4 systems, vapour deposition and morphology 4−69739
- β-SiC, vapour deposition in Si-C-N systems, morphology 4−69739
- Sn islet film, morphology and struct. *(Russian)* 4−72649
- $SrWO_4$ by flux evaporaton, morphology, cleavage, perfection, growth of crystals 4−76385
- $TlMnF_3$, growth of idiomorphous cryst. in agar-agar gels, growth faces *(German)* 4−70402
- $Yb_3(SiO_4)_2Cl$, cryst. data 4−48579
- ZnS(Se)(Te), single cryst., synthesis, chem. transport *(German)* 4−76401

crystal orientation
- alkalu halide single crysts. of various orientations, dynamic compression effects of microhardness and dislocation density *(Russian)* 4−69846
- crystal mounting for all geometries, Raman-laser investigations *(German)* 4−74043
- cubic single crystal orientation determ. by X-ray diffr. 4−63733
- Euler angles space, symm. 4−75471
- hailstones, crystallographic orientation distribs. 4−70726
- ice, growth from droplet accretion, solidification process, struct. investig. 4−63777
- laser beam application to orientation of ruby and corundum single crysts. *(Russian)* 4−66795
- metal, local galvanomag. coeffs., spreading resist. 4−46733
- neutron time-of-flight spectrometer method 4−58941
- optical filter, acoustically tuned, optimum cryst. orientation 4−46625
- polishing technique using improved X-ray Laue method for precision orientated cryst. slices 4−49807
- pseudo Kossel technique, lattice consts. and orientation of noncubic crysts. determ. *(German)* 4−48472
- semiconductor, spreading resist., local galvanomag. coeffs. 4−46733
- single crystal alignment determ. using reference cryst. surface and X-ray refl. 4−82080
- steel rimmed thin sheet, magnetocryst. anisotropy, crystallite orientation distrib. influence 4−72983
- X-ray diffraction, recrystallisation and grain growth 4−46911
- X-ray diffraction topography apparatus, up to 600°C operation 4−63736
- AgCl/triglycine sulphate, ferroelectric, effect of local electric fields on crystal orientation *(Russian)* 4−69966
- Al, non-isoaxial bicryst., pure, deform. 4−73334
- $Bi_{1-x}Sb_x$, $(0<x<0.04)$, prep. of single crysts. of given shape and orientation 4−67739
- C, siliconated pyrolytic, thermal expansion rel. to preferred crystallite orientation 4−79166
- CdS, film, growth model explaining preferred orientation depend. on thickness 4−72662
- CsCl, semi-infinite slab, free surfaces normal to [110] direction, surface modes of vibr. 4−72624
- Cu(II) ion complexes adsorbed on interlamellar surfaces of montmorillonite, e.s.r. 4−63976
- GaAs, obs. using laser beams, cathodoluminescent maps and electron microscopy *(Czech)* 4−66801
- GaP, obs. using laser beams, cathodoluminescent maps and electron microscopy *(Czech)* 4−66801
- InAs, grown from gaseous phase, morphology and struct. perfection *(German)* 4−49618
- InSb, grown from gaseous phase, morphology and struct. perfection *(German)* 4−49618
- Si needles, investigation of lamellar struct. *(German)* 4−56684
- ZnSe, chem. etching to reveal twin planes 4−73262

crystal oscillators *see crystal resonators*

crystal properties
- *see also crystal chemistry*
- randomly disordered crystals, thermodynamic Green's functions to derive properties 4−79109
- stability in 3 dimensions and instability in one and 2 dimensions, statistical mechanics 4−54779
- Ag_3AsS_3, anisotropy of phys. props. 4−52707
- Ag_3SbS_3, anisotropy of phys. props. 4−52707

crystal purification
- *see also crystal growth*
- organic donor-acceptor solids, gradient sublimer design for cryst. growth and purification 4−64494
- Ge, u.h. purity, multiple pulling method 4−49582

crystal purification continued
- Hf, electrotransport of C, N and O, degree of purification prediction 4−44703
- V_2O_5, single cryst. prep. and struct. props. 4−82800

crystal resonant gamma-ray interactions *see Mossbauer effect*

crystal resonators
- *see also piezoelectric oscillations*
- composite oscillator, for mech. damping meas., 30 to 200 kHz 4−42714
- elastic moduli and internal friction, digital meas. technique 4−46577
- quartz, use in film thickness meas., accuracy improvement 4−67708
- quartz rod, fused, attenuation of longitudinal acoustic waves, rel. to gravitational wave detection *(Russian)* 4−77037
- thickness measuring for vapour deposition, restoration using photoresist precoating technique 4−77025
- YIG single-crystal resonator, influence of thickness on ΔE effect 4−79564

crystal structure
- *see also crystal atomic structure; crystal microstructure; crystal morphology; crystal orientation; crystal symmetry; crystallography; granular structure; polymorphism*
- electronic interpretation of simple crystal structs. *(German)* 4−56644
- polyethylene, laser Raman spectrum, cryst. structure determ. 4−49345
- polyoxymethylene, laser Raman spectrum, cryst. structure determ. 4−49345
- stereo graphics display with mini-computer control 4−62567
- Co, crystal shape effect on nuclear orientation thermometry at <100 mK 4−79656
- Ni film, adsorpt. of H_2, surface pot. meas. rel. to deposition, adsorpt. temps., struct. 4−48840

crystal surface and interface vibrations
- acoustic wave and phonon behaviour of isotropic solid beyond elastic limit *(French)* 4−44742
- adatom pairs, indirect interaction via phonon field 4−44775
- atomic scattering processes, quantum mech. theory, one-phonon and multi-phonon scatt. 4−45394
- b.c.c. lattice, surface force-const. changes, theory 4−56952
- bounded crystal, surface vibr. eigenfunctions, phonon Green's function 4−56844
- Debye temperature, approx. calcs. 4−56953
- gas/solid energy transfer, close-coupling anal. 4−56962
- ionic slab, NaCl struct., with free surfaces normal to [110] direction 4−56954
- LEED measurements interpret. w.r.t. to clean and monolayer covered surfaces *(French)* 4−75682
- metal, heat cond. anomaly interpret. w.r.t. phonon state *(French)* 4−52977
- phonons, propagating in adsorbed monolayer of f.c.c. cryst., energies, polarisations calc. 4−63966
- polariton spectra, with transition layer vibr. reson. 4−61155
- α-quartz, biaxial cryst. slab, surface polaritons *(German)* 4−79398
- α-quartz, generalized surface phonon polaritons, attenuated total refl. obs. 4−75943
- substrate-film system, localised mode freqs. 4−79229
- surface polaritons, elementary props., energy flow, density vel. 4−82380
- surface resonance modes, nearest-neighbour interaction model 4−56951
- Umklapp scattering, tight-binding model 4−75942
- α-Al_2O_3, phonon spectrum, mixed photon-surface phonon excitations theory 4−82231
- Al_2O_3, sapphire, surface vibrs., i.r. refl. spectra *(Russian)* 4−69954
- CdO microcryst., i.r. absorpt. by surface modes *(Japanese)* 4−79710
- $Ce_2Mg_3(NO_3)_{12}.24H_2O$, rel. to thermal boundary resist. with liq. ^3He 4−44740
- CsCl, semi-infinite slab, free surfaces normal to [110] direction, surface modes of vibr. 4−72624
- CsCl, surface waves, dynamic surface problem 4−79230
- GaAs, LEED obs. of surface vibr. amplitudes 4−56955
- Ge, LEED obs. of surface vibr. amplitudes 4−56955
- LiF-NaF lamellar eutectics, i.r. reflectivity obs. of interface phonons *(French)* 4−45313
- $LiNbO_3$, surface vibrs., i.r. refl. spectra *(Russian)* 4−69954
- Pb, particles in Vycor glass, neutron diffr. exam. of struct. and props. 4−48824
- α-quartz, surface optical vibrs., total internal refl. method 4−56956
- Si, LEED obs. of surface vibr. amplitudes 4−56955
- Xe, epitaxial, on graphite, entropy of adsorption *(French)* 4−56977
- YIG, surface vibrs., i.r. refl. spectra *(Russian)* 4−69954

crystal symmetry
- *see also crystallography; group theory*
- array languages, n-dim., and cryst. symmetry 4−48534
- b.c.c.→f.c.c.→b.c.c. double phase transformations, estimation of texture 4−52891
- constitutive relations for triclinic, monoclinic, rhombic, tetragonal and hexagonal systems 4−48533
- coordination polyhedra, distortion evaluation 4−56564
- covariant canonical elastic const. and modulus tensors for all cryst. symmetries 4−75560
- crystal, covarient canonical elastic const. and modulus tensors, inverse fourth-rank tensor construction 4−75560
- cubic, coincidence site lattice determ. method 4−69740
- cubic space groups, asymmetric units determ. using Dirichlet domains *(German)* 4−56638
- deviation from centrosymmetry, detect. by X-ray anomalous scatt. 4−56574
- Euler angles space 4−75471
- inner plethysms, embedding of point groups in rotation group 4−47015
- metal, white tin struct., lattice harmonics rel. to symm. points 4−69862
- noncentrosymmetric crystal, X-ray intensity probability distrib. 4−44428
- $O_h{}^1$ space group, symm. change during phase transitions 4−75473

crystal symmetry continued
  organic compounds, low temp., i.r. spectroscopy obs. 4–48758
  Patterson functions, systematic analysis on basis of cryst. symmetry 4–48474
  point group, tetrahedral, Kronecker product of representations, reduction, lower symmetry functions 4–52716
  point group representation, reduction of Kronecker product, spectra for multielectron systems 4–75472
  point groups, single and double, symm. coupling coeffs., time-reversal symm. 4–69742
  potassium citrate monohydrate, single cryst., i.r. spectra, citrate ion vib., symm. 4–79713
  probability distribution of phases in noncentrosymmetric cryst. with degree of centrosymmetry 4–56566
  rare earth orthoferrites and orthochromites, lowering at Neel temp. 4–45121
  rhombohedral crystals, errors in crystallographic-planes indexing 4–52717
  secondary ferroics 4–73084
  spinel compounds, hidden antiferroelec. and other phys. props. 4–70270
  three-dimensional texture analysis, generalised spherical functions of cubic symmetry 4–82845
  vector systems with multiple peaks, analytical method for separation of subsystems 4–66848
  $(Ba_xSr_{1-x})FeO_{3-\delta}$ solid solns., high oxygen press. effects 4–48590
  $Bi_3(FeO_4)(MoO_4)_2$, $Bi_3(GaO_4)(MoO_4)_2$, new compounds with scheelite related struct. 4–72453
  $CsCdCl_3{:}Mn^{2+}$, single cryst., e.p.r. isolated ions and pairs 4–70207
  $K_4Fe(CN)_6.3H_2O$, far i.r. spectrum *(French)* 4–53436
  $KMnF_3$, three phases, Raman scatt. study 4–70293
  $NH_4Cl{:}Fe^{3+}$, electronic absorpt. spectra of ion 4–64404
  $NiWO_4$, antiferromag., spin wave spectrum, features resulting from low cryst. symm. 4–79530
  OSBr(Cl), e.p.r. spectra 4–70198
  OSeCl, e.p.r. spectrum 4–70198
  $Pb_5Ge_3O_{11}$, ambidextrous, switching by elec. field, appls. 4–53396
  Si, pseudo-Kikuchi pattern contrast from tilted crysts., calc. 4–69700
  Ti_xWO_4 system, crystallographic shear phases 4–60461
  V_6O_{13}, metal-insulator transition, struct. 4–72570
  Y_2BSbO_7, prep., symmetry sites and photoluminesc. of Bi^{3+} ion *(French)* 4–61214
crystal whiskers *see whiskers (crystal)*
crystallisation
  see also crystal growth; dendrites; heat of crystallisation; nucleation; recrystallisation
  β-spodumene glass-ceramics, dielec. losses, composition, heat treatment 4–67525
  alkali halides, segregation from aqueous solns. or from melts, thermodynamics, comparison 4–52709
  anthracene, i.r. spectra, Davydov doublet parameters, crystn. effects *(Russian)* 4–67594
  apparatus for crystal growth at constant supersaturation of soln. 4–49558
  binary system, phase transitions near monotectic 4–48734
  calcium metasilicate glass, i.r. spectra, structure and crystallisation *(Russian)* 4–66835
  cellulose triacetate films, CO_2 laser emission effect on phys. struct. *(Russian)* 4–44492
  cholesteryl nanoate-cholesteryl propionate, anomalous spherulitic crystn. in cholesteric mesophase 4–78910
  co-crystallisation of isomorphic substance, theoretical model 4–44493
  collision breeding, rel. to cryst. moments and degree of mixing 4–48530
  continous, growth and nucleation kinetics, slip velocity depend. 4–63773
  diffusion welding through liquid layer, kinetics of melting and crystallization *(Russian)* 4–70522
  1,2-diphenylbenzene, related compounds, crystallisation behaviour 4–66836
  epitaxy, nucleation and crystallisation, review and information theory anal. *(Russian)* 4–69965
  glass, devitrification detection by elec. conductance meas. 4–45838
  glass transformation kinetics, statistical anal. 4–44483
  glass-ceramics, controlled crystallisation theory and practice 4–76525
  grey cast iron, crystallisation kinetics *(German)* 4–73288
  halophosphor synthesis, effect of Cd on reaction kinetics *(German)* 4–49464
  hydrogen bonding role *(Russian)* 4–52715
  ice, from aqueous electrolyte solns., cryst. growth rate rel. to hydration const. 4–70619
  ijolite magma, liquid immiscibility between silicate and carbonate melts 4–61688
  ingots, rectangular cross section, single-phase quasistationary Stephan problem, approx. calc. *(Russian)* 4–56634
  macromolecular nucleation 4–56623
  mechanism, obs. rel. to heterogeneous nuclei conception 4–48531
  melt growth, volumetric crystallisation determination *(Russian)* 4–52710
  mixing criterion in crystallisation by cooling 4–44494
  naphthalene, i.r. spectra, Davydov doublet parameters, crystn. effects *(Russian)* 4–67594
  neutron star matter, dense, eqn. of state study using t-matrix approach 4–71010
  poly(decamethylene oxide), crystn. conditions, rel. to polymorphism 4–75464
  poly(ethylene terephthalate), crysts. induced by inorganic fillers 4–56624
  poly(ethylene terephthalate), oriented 4–60422
  poly(ethylene terephthalate), vibr. spectra, crystn. induced changes, valence force field interpret. basis 4–53426
  polybutene-1, temp. and tensile strain effects on cryst. transform. *(Japanese)* 4–52697
  polychlorotrifluoroethylene, chain folding crystallisation 4–82974
  polyester fibres, orientation measurement *(Bulgarian)* 4–57768
  polyethylene, chain defects effect on thermal behaviour 4–61545
  polyethylene, chain-extended crystn., 0-6 kbar 4–48521
crystallisation continued
  polyethylene, obs. on chain extended and chainfolded crystn. 4–44487
  polyethylene terephthalate electrets charge production, storage 4–70252
  polymer, crystalline, crystn. and annealing at h.p., review *(Russian)* 4–50027
  polymer, direct temp. meas. *(Russian)* 4–52704
  polymer, from soln., effect of macromol. stretching *(Russian)* 4–44491
  polymer, hardness as a meas. of crystallisation rate 4–48518
  polymer, h.p. investig. technique 4–78936
  polymer, molecular orientation effects on melting temp. and crystn. rates *(Polish)* 4–44488
  polymer hedrites, ovoids and spiral ovoids, small-angle light scatt. 4–66837
  polymer hedrites, ovoids and spiral ovoids, small-angle light scatt. 4–66838
  polymer physics, conf., Shrivenham, England (Sept. 1973) 4–60134
  polymer solution, homogeneous, hydrodynamically induced crystn. 4–78934
  polymers, diffusion of dye molecules used as probes to study process 4–60423
  polymers, transformation eqtn., new derivation approach 4–44486
  polytetrafluoroethylene, chain folding crystallisation 4–82974
  PTFE, melt-crystallised, mol. wt. effect on morphology, row-nucleated crystn. 4–60420
  rate equation, generalized, for crystn. and precip., derivation and use 4–47041
  semiconductor, disordered, light induced amorphous to cryst. transform. 4–62855
  silicate glass, liquation and volume crystallisation, effect of OH^-, Cl^-, F^- and SO_4^{2-} anions 4–66830
  solid disperse system, nondiffusional coagulation *(Russian)* 4–57733
  steel, continuous temp. meas. device 4–65395
  Stephan problem two-phase stationary nonlinear, classical soln. *(Russian)* 4–56633
  sucrose, activation energies of forward and reverse reactions during cryst. growth 4–82125
  water, adsorbed on AgI and phloroglucinol, i.r. spectra, ice form. threshold 4–64370
  water adsorption on ice-forming surfaces, i.r. spectra 4–64371
  AgBr grain formation in nuclear emulsions, temp. depend. probability 4–46863
  Al-Cu alloys, eutectic crystn. 4–76424
  Al_2O_3, alumina, metastable, crystn. in presence of V_2O_5 4–64601
  $As_2(Se_{1-x}Te_x)_3$, vireous, crystn. mechanism 4–60418
  $As_2(Se_{1-x}Te_x)_3$, vitreous, crystn. study by radial distrib. functions method 4–60419
  $(1-x)As_2Se_3.xSb_2Se_3$, amorphous alloy, thermodynamic and kinetic study 4–44482
  $(As_{0.4}Te_{0.6})_{100-x}Ge_x$ glass, stepwise comp. depend. of glass transition and crystn. temps. 4–75457
  Au film crystallisation, effect of Si substrate temp. *(Russian)* 4–72650
  BP, synthesis at h.p. 4–61318
  $BaO\text{-}Al_2O_3\text{-}SiO_3$, lattice constants, anisotropic thermal expansion coeff. *(German)* 4–44684
  $Bao\text{-}Al_2O_3\text{-}SiO_2$ system cpds., anisotropic thermal expansion and solid soln. obs. *(German)* 4–52911
  $Bi_{1-x}Sb_x$, $(0<x<0.04)$, prep. of single crysts. by gradual crystn. 4–67739
  $CaO.Al_2O_3.MgO.SiO_2$, melilite, polycryst. and corresponding glass, viscosity anomalies during heating 4–44693
  $3CaO.CaF_2.2SiO_2$, cuspidine, polycryst. and corresponding glass, viscosity anomalies during heating 4–44693
  CaO.SiO, polycryst. and corresponding glass, viscosity anomalies during heating 4–44693
  Cd phosphates hydrothermal crystallisation obs. 4–52714
  $CdGeAs_2$, glassy, impurity diffusion, temps. near onset of crystn. 4–56914
  $Cd_2P_4O_{12}$, anhydrous, chem. prep. and crystallographic data *(French)* 4–75486
  CdS, prep. by gas transport reactions, thermodynamics 4–49587
  CdSe single cryst., growth condns. for tabular crysts., crystn. temp. and element ratio 4–53595
  $Cs_2WO_4\text{-}La_2(WO_4)_3$, sintered mixtures, phase diag., form. of $CsLa(WO_4)_2$ 4–48732
  Fe_2O_3, hydrous, ageing and roasting, effect on adsorption rate of $CO\text{-}O_2$ 4–70581
  $FeSO_4.7H_2O$, activation energies of forward and reverse reactions 4–82125
  GaAs epitaxial and polycrystalline growth in $GaAs\text{-}I_2\text{-}He$ 4–44795
  Ge, sputtered film, thermal triggering of shock-crystallisation 4–67136
  Ge film, amorphous, defects and crystn., resist. obs. during annealing 4–75731
  Ge film, amorphous, in contact with Al film, cryst. semicond. precip. form. in metal 4–61309
  Ge film, amorphous, in contact with Al film, cryst. semicond. precip. form. in metal 4–61310
  $GeO_2\text{-}Sb_2O_3\text{-}KF\text{-}H_2O$ hydrothermal system, 400, 450, 500 and 550°C 4–48741
  $Ge_{15}Te_{80}As_5$ glasses, surface nucleated crystn. 4–60416
  In-S-Se, ternary semiconductive alloy 4–67018
  $KAl(SO_4)_2.12H_2O$, activation energies of forward and reverse reactions 4–82125
  $KAl(SO_4)_2.12H_2O$, cryst. from aqueous soln. 4–60424
  KCl, cryst. from aqueous soln. 4–60424
  $KCl\text{-}PbCl_2$ crystals, F-centre accumulation, $PbCl_2$ conc. effect *(Russian)* 4–72465
  $K_2O\text{-}SiO_2$ melt, cristobalite dendritic precip. kinetics 4–44480
  LaF_3, solubility of LnF_3, (Ln = Sm-Er), on crystn. from melt 4–48769
  $Li_2O\text{-}Al_2O_3\text{-}SiO_2$ partially crystallized glass, boundary layer existence 4–44481
  $Li_2O\text{-}Al_2O_3\text{-}SiO_2$ system glasses, water content influence on crystn. and spherulite growth *(French)* 4–78929
  $Li_2O\text{-}SiO_2$ glass, liq. phase separation and cryst. growth 4–63766

crystallisation continued
  Li_2O-silica system, silicate crystn. products, i.r. spectra *(Russian)* 4−49368
  MgO-Al_2O_3-SiO_2 system, disperse hardening phase of metals *(Russian)* 4−80064
  MgO-P_2O_5, glass, crystn. kinetics *(Japanese)* 4−48513
  MnO-Fe_2O_3(-PbO)-B_2O_3(-SiO_2) system, glass form. boundaries and crystn. tendency 4−53817
  Mo thin film, properties, prep. by pyrolitic decomp. of $Mo(CO)_6$ vapour 4−67713
  $Na_2B_4O_7$, crystn. in glass melt 4−66834
  NaCl, obs. rel. to heterogeneous nuclei conception 4−48531
  Na_2O-Bi_2O_3-Fe_2O_3 system 4−44651
  Pb-Sn-Se ternary system, phase cross sections, crystn. characts. 4−60589
  PbO-B_2O_3 cryst. forming glasses, i.r. spectra, crystn. products identification *(Russian)* 4−61170
  Rb_2TeO_3-TeO_2 glass system, phase diagrams, and props. of rubidium polytellurites 4−48733
  Se, amorphous, very pure, crystallization under compression, conductivity obs. *(German)* 4−52888
  Se, amorphous film, photocrystn. by light or electrons 4−75737
  Se, vitreous, struct. ageing 4−75462
  Se and Se-Te glasses, DTA *(French)* 4−63765
  Se film, amorphous, crystn. in cylindrical morphology 4−75732
  Se layer, amorphous, deep trapping levels rel. to struct. 4−44863
  Si film, amorphous, in contact with Ag film, cryst. semicond. precip. form. in metal 4−61309
  Si film, amorphous, in contact with Ag film, cryst. semicond. precip. form. in metal 4−61310
  Si-Ge, solid soln. epitaxial films, crystallisation mechanism effects on B diffusion 4−82828
  SiO_2, film, catalyzed by P diffusion 4−75730
  SiO_2, glass, under high press., positron lifetime spectra 4−60615
  SiO_2-Al_2O_3 glasses, rapid crystn. phenomena 4−53804
  SiO_2-Al_2O_3-MgO-CeO_2-TiO_2, glasses, effect of heat treatment during crystn., phase transitions 4−44475
  SrO-Al_2O_3-TiO_2-SiO_2 system, pyroceramic formation 4−45736
  $TlAsSe_2$, n.m.r. of ^{205}Tl, glass-cryst. phase transition obs 4−70225
  UO_2 film, amorphous, electron diffr. obs. 4−53018
  ZnO film, piezoelec., on oriented α-corundum substrates, crystn. kinetics 4−48872
  ZrO_2, dehydrated amorphous, crystn. and transforms., Raman scatt. obs. 4−49897
crystallite texture *see texture*
crystallites
  see also crystal microstructure
  cellulose I, unit cell dimensions, neutron diffr. obs. 4−82121
  DNA secondary structure, effect of temp., X-ray diffr. 4−83275
  due to excitons polycrystals, light dispersion and absorpt. *(Russian)* 4−79314
  electron metallography, diffraction patterns evaluation *(German, English)* 4−49719
  film, textured thin, crystallite tilting, from refl. diffr. diags. and photogr. equidensity *(German)* 4−48487
  glass transformation kinetics, crystallisation statistics 4−44483
  graphite, average size determ. in basal plane 4−67938
  graphite, sublimation temperatures, carbon arcs and crystallite erosion 4−75623
  metal, polycrystal layers, probability of twinning *(Bulgarian)* 4−49686
  poly(ethylene terephthalate), oriented, crystn. 4−60422
  polycaproamide fibres, supercryst. struct., effect of iodine treatment *(Russian)* 4−48527
  precipitation, prevention in crystal growth from soln. 4−53591
  PTFE, melt-crystallised, mol. wt. effect on morphology, row-nucleated crystn. 4−60420
  radially thick curved crystallites, X-ray diffr. intensities calcs. 4−78862
  steel, deep-drawing type, earing 4−82871
  steel, texture and structure correl. with formability 4−45548
  steel sheet, extra mild, texture modifications assoc. with tensile deform. *(French)* 4−45566
  texture transformation misorientation distribution function coeffs. 4−79964
  Al and alloys, texture and structure correl. with formability 4−45548
  Al-Cu alloy, eutectic, superplastically deformed, quantitative texture meas. 4−61362
  AlSi silumins, modified and unmodified, spatial distrib. of eutectic silicon *(German, English)* 4−49720
  Au, nucleation on carbon layer *(German)* 4−75742
  C, pyrolytic, highly oriented, high-temp. neutron irrad. effects 4−74792
  C fibre strength, cryst. shear limit 4−76542
  C fibres, structural studies, review 4−67949
  Fe, Ferrovac-E α-phase polycrysts., crystallite orientation and size effects 4−67857
  LaOCl, film grown from vap. on NaCl 4−82804
  Se layer, amorphous, deep trapping levels rel. to struct. 4−44863
  Si_3N_4, synthesis, characteriz. and consolidation 4−53803
  TiO_2 powders, calcination and crystallite growth kinetics 4−45758
  UO_2, thin films, vacuum evaporated, structure obs. 4−60703
  W, elastic bulk effect, computer simulation 4−53672
  ZrO_2, metastable tetragonal, characteriz. and stabilization 4−64607
crystallography
  see also crystal atomic structure; electron diffraction crystallography; isomorphism; lattice constants; neutron diffraction crystallography; space groups; X-ray crystallography
  Bijvoet differences, probability distrib., partly centrosymm. normal scatterers 4−69687
  cell, for hygroscopic materials 4−65405
  centrosymmetric crystals, signs of struct. factors, determ. of correct system 4−56567
  charged particle interaction with single crystals, apparatus for expt. obs. 4−44427
  computer simulation of ion images, small crystallite indexing aid 4−63732
  cosine invariant computation and multisoln. method, simultaneous use, struct. determ. 4−60376
crystallography continued
  cosine invariants $\cos(\varphi_m+\varphi_n+\varphi_p+\varphi_q)$, identity and estimation 4−56635
  crystal faces, method of clarification *(German)* 4−72405
  cubic, coincidence site lattice determ. method 4−69740
  defect structure and stoichiometry in multicomponent cpds., vibr. spectroscopy obs. 4−48465
  diffraction topography, eqn. for dynamical diffr. in imperfect crysts. derived 4−56565
  Edgeworth series applics. 4−69741
  e.s.r. of nitroxide free radicals in single crysts., rel. to cryst. struct. determ. 4−57355
  field-desorbed species, crystallographic distrib. 4−75674
  Fourier maps maxima characterization using topological method *(Italian)* 4−78859
  Fourier transforms, treatment of negative indices, computer program 4−56568
  habit plane calculations using Bollmann method and applic. to martensitic transform. *(French)* 4−49655
  heavy atom weighted contribs. to total struct. amplitude, statistical values 4−82081
  Kronecker product of representations of crystallographic groups, reduction 4−82127
  merohedrally twinned crystals, refinement with least-squares programs 4−56569
  negative quartets, use in symmorphic space groups for selection of correct phase set 4−56636
  Newman projection computer program, calcs. for given cryst. struct. 4−56571
  orientation of ruby and corundum single crysts., laser applic. *(Russian)* 4−66795
  particle diffraction by thin rigid crystal lattice, formal approach 4−56570
  probability distribution of phases in noncentrosymmetric cryst. with degree of centrosymmetry 4−56566
  reciprocal pole figures, method for separation of diffraction peaks 4−75419
  reciprocity principle for heterogeneous waves, energy ratio in transparent monaxial crystals *(Russian)* 4−69014
  rhombohedral crystals, errors in crystallographic-planes indexing 4−52717
  schlieren type microscopy, modified form, study of cryst. growth, dendritic cryst. 4−66846
  single crystal alignment determ. using reference cryst. surface and X-ray refl. 4−82080
  spaces of arbitrary dimension, geometric approach 4−60425
  structure factor algebra, probabilistic procedure for phase determ. 4−69690
  structure factor algebra, probabilistic procedure for phase determ. 4−69691
  structure type representation, homologous classes, corundum, spinel, amesite 4−82128
  structure-building technique 4−56572
  tridimensional lattice, shortest translations *(French)* 4−63782
crystals
  see also crystal structure; crystallography; dendrites; liquid crystals; plastic crystals; whiskers (crystal)
  No entries
Curie point *see Curie temperature*
Curie temperature
  see also ferroelectric phenomena; ferromagnetic properties of substances; ferromagnetism
  alloys, heterogeneous, weakly ferromagnetic, high field susceptibility 4−67358
  Armco iron, deformation near Curie temp. 4−79978
  ferroelectric and antiferroelectric, log normal probability distrib. 4−62871
  ferroelectrics, transverse mode, influence of charge carriers 4−82675
  ferromagnetic metal, thermo-e.m.f. anomaly near Curie temp. *(Russian)* 4−75842
  ferromagnetic thin film, obs. of mag. fluctuation near transition temp. 4−60990
  ferromagnets, $S=1$, variation of Curie temp. with uniaxial anisotropy in X-Y model 4−49140
  Heisenberg ferromagnet, biquadratic exchange effects 4−53200
  Ising ferromagnet, dil., singularities 4−70128
  Ising ferromagnet, three-dimensional, specific heat above Curie temp., star cluster expansion 4−72934
  itinerant electron ferromagnet, magnetovolume effects press. depend. of Curie temp., theory 4−76046
  itinerant electron ferromagnetism, functional integral approach, mol. field theory 4−45086
  rare earth intermetallics, $R_2(Co_{1-x}T_x)_{17}$, $R=Sm$, Er, and $T=Fe$, Ni, mag. characts. and lattice consts. 4−53260
  rare earth Zn_2 intermetallic compounds, Ruderman-Kittel-Kasuya-Yosida interaction, paramag. Curie temps. 4−53211
  singlet-triplet ferromagnet, soft mode dynamics 4−70124
  triglycine fluoroberyllate, high press. effect 4−70263
  triglycine selenate crystals, piezoelec. and elastic expts. in region of phase transforms. *(German)* 4−57478
  triglycine sulphate, calc. of X-ray induced Curie point shift during critical diffuse scatt. 4−49310
  triglycine sulphate, high press. effect 4−70263
  tris-sarcosine calcium chloride, ferroelec. crystal, Raman and i.r. spectra 4−53434
  Au-Ni, electrical resistance, magnetisation, temp. depend. 4−72743
  Au-Ni alloy, elec. resist. and magnetization, 4.2K-room temp. 4−64056
  $BaFeO_3$, mag. props. and Mossbauer effect 4−49174
  $Ba_xLi_{5-2x}Nb_{5(1-y)}Ta_{5y}O_{15}$, crystallographic, dielectric and nonlinear opt. props. *(French)* 4−64353
  $Ba_2NaNb_5O_{15}$, ferroelec. and ferroelastic transitions, DTA obs. 4−61114
  $Ba_2NaNb_5O_{15}$, fluorine substitution effect on ferroelec. Curie pt. and dielec. const. *(French)* 4−76230
  $BaTiO_3$, heat capacity near elec. crit. point *(Russian)* 4−49315
  $Ca_2Nb_2O_7$ single crysts., ferroelec. props. 4−64351
  $CdCrS_4(Se_4)$, mag. props. investigation 4−60970
  $CdCr_2Se_{4-y}$, paramag., nonstoichiometry depend. 4−60945

Curie temperature continued
- $Cd_{1-x}Cu_xCr_2S_4$, paramag. and ferromag., Cu conc. depend. 4−60945
- $Cd_{1-x}Fe_xCr_2S_4$, preparation, electrical and mag. props. 4−44976
- Co, Hall coeff. and elec. resistivity meas., temp. depend. 4−53087
- Co-P alloys, amorphous, mag. props. 4−60978
- Co-W alloy, magnetic state on quenching and annealing *(Russian)* 4−79546
- CoP_xS_{2-x}, mag. props., prep., cryst. struct. 4−72965
- $CrBr_3$, e.p.r. line-width meas., temp. depend. near Curie point 4−49218
- $(Cr_{1-x}Ni_x)_2As$ solid solns., comp. depend. *(French)* 4−48563
- Cu complex, copper proline dihydrate, e.s.r. spectra, electric field asymmetry study 4−49219
- $CuCr_2S_4(Se_4Te_4)$, exchange strictions, mol. field theory 4−45110
- $Cu_yCr_2Se_{4-z}Br_x$, rel. to prep. and stoichiometry 4−64214
- $(Cu_{0.83}Pd_{0.17})_{1-c}X_c$, X=Mn, Fe, Co, Ni, Gd, dilute alloys, influence of order-disorder transitions 4−45115
- $Eu_{1-x}Gd_xO$, conc. depend. determ. from susceptibility meas. mag. impurity states 4−79508
- EuH_2, Mossbauer studies, mag. and solid state props. 4−73055
- EuO, film, nonstoichiometry effects on props. 4−82592
- Fe, elec. cond. anomaly 4−75841
- Fe and Fe-Si solid solns., sp. ht. and thermal cond. *(Russian)* 4−67372
- Fe-Ni alloys, depend. on composition, cluster components method 4−57284
- Fe-Ni(30-50%) alloys, conc. depend. 4−67366
- Fe_3C, atomic magnetic moment alteration in transition 4−49172
- $FeCr_2S_{4-y}$, paramag., nonstoichiometry depend. 4−60945
- $(Fe_{1-x}Me_x)_3C$, Me=Cr, Ni, Mossbauer absorption spectra and magnetisation meas. 4−79544
- FeMn alloy, Mn conc. depend., mol. field calcs. 4−76066
- $Fe(Pd_xPt_{1-x})$ alloy, comp. depend., cluster model 4−57273
- $FeS_{1+\delta}$, ferrimag. Curie temp., press. effects 4−67367
- Fe_2Te_3, high field magnetisation experiments 4−45225
- Gd, a.c. susceptibility and hysteresis, domain effects near Curie temp. 4−45141
- Gd-Co compounds, thermal expansion anomalies, room temp. to 700°C 4−75637
- Gd-La, exchange interactions investigation 4−57266
- Gd-Sm alloys, ferromag., elec. cond. meas. 4−64210
- $GdMg_{1-x}Zn_x$, magnetic and n.m.r. studies 4−73036
- $Gd(Ni,Cu)_2$, mag. props. and indirect exchange, Curie temp. variation 4−79520
- $(GeTe)_{99}(MnTe)_1$, exchange scatt. obs. 4−45105
- $HgCrS_4(Se_4)$, mag. props. investigation 4−60970
- Ho-Co(Fe) alloys, amorphous films, differences in T_c of amorphous, cryst. states, mechanism 4−76128
- $InMCrs_4$, M=Fe, Co, Ni, paramag. Curie temp. determ., mag. susceptibility meas. 4−76083
- $K(H_{1-x}D_x)PO_4$, effect of deuteration on ferroelec. transition temp., D distrib. coeff. meas. 4−61111
- LiZn ferrites, comp. depend. 4−53232
- Mg ferrites, effect of non-magnetic ions 4−53229
- MnBi, film, thermal cycle, domain obs., writing appl. 4−67408
- MnBi film, coercive force temp. depend., rel. to laser beam addressing 4−57337
- MnBi:Sb, thin film, thermomagnetic writing, Curie temp. meas. 4−79559
- MnZn ferrite, In_2O_3 additions effect 4−49912
- $(NH_4)_2BeF_4$, ferroelectric, hydrostatic press. effects on phase transitions 4−64352
- $NaNO_2$, Brillouin scatt., Neel and Curie temp. regions 4−45288
- $Nd_2Ti_2O_7$, characterization 4−76223
- Ni, electronic sp. ht. and entropy, behaviour near T_c 4−76075
- Ni, temp. and mag. field depend. of resistivity near Curie temp. 4−64062
- Ni alloy, Mossbauer spectrum, ^{119}Sn isomer shift anomaly *(Russian)* 4−67504
- Ni alloys, state of coherent precip., plastic deform. *(Russian)* 4−67780
- Ni:Hf, conc. depend., local and bulk effects 4−57274
- Ni-Al(Si)(Ti) alloys, cold worked *(Russian)* 4−80017
- Ni-Co alloy, effect of mag. transform. on stacking fault energies *(Russian)* 4−79947
- Ni-Cu-Al alloys, paramag. props. investigation 4−79497
- Ni-Pt alloys, ferromag. props. at high field and press. near crit. conc. for ferromagnetism 4−53256
- Ni_3Mn, superparamag. Curie point, changes during atomic ordering 4−64203
- Ni_2MnGa, Heusler alloy, Curie point, magnetisation and saturation magnetic moment 4−79510
- $NpAl_3$, 62.5K, magnetisation and susceptibility meas. 4−64211
- NpN, ferromag. props. obs., 87K Curie temp. 4−64224
- NpN, lattice distortion meas. 4−64209
- $NpOs_2(Ru_2)$, elec. cond. meas. 4−57075
- $Pb_5Ge_3O_{11}$, ferroelec., hydrostatic press. effects 4−57482
- $PbMg_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, temp. depend. of absorption coeff. 4−64394
- $PbZn_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, temp. depend. of absorption coeff. 4−64394
- Pd-Co, high press. effect, Mossbauer reson. anal. 4−67371
- Pd-Co:Sn, comp. depend. 4−79509
- Pd-Ni, dilute alloys high press. mag. behaviour obs. 4−76121
- $(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, alloys, Mossbauer effect obs. of ferromag. phase transitions 4−64216
- PdFe, high press. effect, Mossbauer reson. anal. 4−67371
- PdMnTe Cl_b type intermetallic, crystallographic and mag. characts. 4−48543
- Pt-Co, high press. effect, Mossbauer reson. anal. 4−67371
- Pt-Fe, high press. effect, Mossbauer reson. anal. 4−67371
- PuI_3, from susceptibility obs., 2.7-240K 4−49162
- RbH_2AsO_4, ferroelec. transition 4−79685
- SbSI, ferroelec. transition, impurities influence 4−79691
- Si steel, deformation near Curie temp. 4−79978
- Sm-Co compounds, thermal expansion anomalies, room temp. to 700°C 4−75637
- SmCd, ferromagnetic props. and resistivity meas. 4−60953

Curie temperature continued
- $(Sm_{1-x}R_x)Co_{17}$, (R=Pr, Gd, Y), mag. characts. and lattice consts. 4−53260
- $Sr_2KNb_5O_{15}$, fluorine substitution effect on ferroelec. Curie pt. and dielec. const. *(French)* 4−76230
- $SrO.(6-x)Fe_2O_3.xAl_2O_3$ solid soln. cryst., cryst. growth and characteriz. *(Japanese)* 4−49575
- $TbAl_2$, ultrasonic measurements, elastic constants 4−49764
- $Tb_xHo_{1-x}FeO_3$, paramag. susceptibility meas. by mag. balance *(Bulgarian)* 4−51116
- $Tb(OH)_3$, mag. and thermal props., Ising-like behaviour 4−45100
- UAsS, neutron diffraction, magnetic moments and Curie points calc. 4−79526
- UPSe, neutron diffraction, magnetic moments and Curie points calc. 4−79526
- $Y_3Fe_5O_{12}$, scaling functions, critical mag. props. *(Russian)* 4−64219
- $Y_{3(1-x)}Gd_{3x}Al_{5y}Fe_{5(1-y)}O_{12}$, cluster component method calc. *(Russian)* 4−67364
- $(Y_xGd_yDy_{1-x-y})_3Fe_5O_{12}$, cluster component method calc. *(Russian)* 4−67364
- YIG, homogeneous mag. relax. near second order phase transition *(Russian)* 4−67373

Curie-Weiss law *see paramagnetism*

curium
- atom, K-L X-ray angular correlations 4−72046
- atom, X-ray coincidence measurements, M-subshell fluorescence yields, transition intensity calcs. 4−74851
- recovery from nuclear power reactor fuel reprocessing plant waste, flowsheet 4−78303
- ^{244}Cm, radioactive decay X-ray coincidence meas. Coster-Kronig transition onset 4−74852
- ^{244}Cm recovery from LWR spent fuel 4−78302

curium compounds
- Cn_2O_3, coherent neutron scatt. amplitude of ^{244}Cm 4−69755

current (electric) *see electric current*

current algebra
- *see also elementary particle theory; hadron current; light cones; quantum field theory*
- anomalous currents in renormalizable gauge field theories 4−59520
- axial vector weak currents, CP violation through phase angles 4−71631
- bilocal currents in deep Regge region, universality of factorised residues 4−77783
- bilocal scale invariant field theory for massive particles 4−47423
- Bjorken scaling, modification of light-cone expansion to give consistent current algebra sum rules 4−47467
- book, currents in hadron physics 4−62882
- causality restriction, fixed poles, sum rules 4−69143
- chiral SU(4) × Su(4), spontaneous symmetry breakdown and scale invariance 4−71642
- chiral symmetry breaking, quark scheme and soft pion theorems 4−71632
- chiral symmetry breaking in linear σ model, meson masses, anomalous thresholds 4−71638
- chiral symmetry theories, physical consequences 4−47459
- compensating current QED, vacuum polarisation tensor and current operator 4−71620
- configuration mixing in chiral algebra, kinematical origin 4−74582
- conformal invariant theory, applications to deep-inelastic scattering 4−65979
- covariant formalism for equal-time commutators 4−59498
- current-hadron scattering and scaling in a dual relativistic quark model 4−69170
- dilation current anomaly partial conservation in $e^+e^- \rightarrow$ hadrons process 4−59568
- elementary particle weak interactions anal. *(German)* 4−43405
- hadronic zeroth order relations in unified gauge model 4−71637
- hyperon beta decay, presence of second class currents 4−62919
- light cone commutators, current-current pion electroproduction test 4−77836
- light cones for currents transforming as (8,8), (1,8) and (8,1) of $SU(3)'' \otimes SU(3)'$, form factor calcs. 4−66057
- light-like charges connecting local field theory and generators of broken internal symmetry transformations 4−47466
- local, mass operators leading to possible representation 4−59521
- local nonrelativistic, representations determ. in N/V limit, generating functionals 4−71641
- meson-nucleon σ commutators and chiral symmetry breaking, review 4−77778
- meson-nucleon total cross sections, high energy behaviour based on light-cone algebra, scaling 4−63052
- multipole current expansion, classical and quantum field theory, radiation *(Russian)* 4−77515
- muon capture, effect of exchange currents 4−78010
- muonic atoms, parity violations by neutral currents 4−63379
- neutral currents in neutrino interactions, exptl. review 4−81407
- neutrino interactions, vector, axial vector, isoscalar current contributions 4−62924
- non-relativistic, Hamiltonian and generating functional 4−66005
- nuclear e.m. and weak transitions theory, exchange effects and SU_4 invariance 4−55787
- null-plane commutators in spontaneously broken gauge theory of vector meson dominance 4−77883
- on-mass-shell, application to K_{l3} form factor 4−81403
- PCAC, conditions for existence of Adler zero 4−71613
- PCAC, general review 4−77805
- PCAC, in model for polarisability of elementary particles 4−59527
- PCAC, tests with improved π-meson and nucleon form factors 4−77814
- PCAC and CVC, appl. in nuclear weak interactions 4−77784
- PCAC investigation of hadron resonances 4−66001
- PCAC model treatment of K_{l3} decays 4−62915
- PCAC motivated pseudovector Born approx. model for π^+ threshold electroproduction, axial vector form factors 4−55609
- PCAC rens. test, through meson baryon σ-terms and BBS coupling consts. 4−77782
- PCAC role in πN S-wave scattering amplitudes 4−63011
- PCAC validity in context of gauge field theories 4−77756

current algebra continued
Pomeranchuk mechanism, Gribov Regge calculus description of high energy hadron-hadron scattering 4-77878
quarks, current and constituent, differences and relating unitary transformation 4-59579
quarks, current-constituent transformation, algebraic properties, hadron decays calc. 4-55634
quarks and reggeons, new algebraic approach 4-74583
quasicanonical quantum field theory, Bjorken scaling and invariance under R-transformations 4-47434
Regge residues and chiral symmetry algebra 4-47552
representations at infinite momentum, general properties 4-62907
second class currents, possible algebra, theoretical implications 4-62906
sigma terms, phenomenological bounds from positivity and conventional asymptopia 4-66006
strangeness conserving second class current, sum rule determ. 4-66007
strong interactions theory, development *(Russian)* 4-77857
$SU_3 \times SU_3$ chiral-representation mixing, group-theoretic structure rel. to single-particle hadronic states 4-43421
$SU(6)_{w,\ currents}$ charge-algebra sum rules, algebraic realization 4-59522
$SU(6) \times SU(6)$, hadron classification according to irreducible representations 4-77781
Ward identities, on-shell, for πN scatt., model independent tests 4-59608
weak axial-vector vertex in nuclei, PCAC and renormalisation 4-77968
weak current theory anal. of parity violation in deep inelastic charged lepton hadron scatt. 4-74629
weak Lagrangian current-current form, generalisation to arbitrary dimensions 4-77780
weak neutral currents, anal. of structure using light cone algebra 4-71649
e^+e^- annihilation, strong interactions, renormalization group 4-77750
$\eta \rightarrow \pi^+\pi^-\pi^0$ in renormalisable SU(3) σ model 4-74602
$K_l \rightarrow \gamma\gamma$ in PCAC theory, non-cancellation of Schwinger and seagull terms 4-66031
K_{l3} form factors, unitarized hard-meson calc. 4-74595
$K^{*+(0)} \rightarrow K^{+(0)}\gamma$, decay widths prediction using partially conserved tensor currents 4-81411
$O^\pm$ mesons with linear breaking, renormalization of $SU_3 \times SU_3$ σ-model 4-59500
$\pi \rightarrow l^-\nu$, anomalies, short-distance behaviour and radiative correction 4-77793
πK scattering lengths, current-current Sugawara form 4-47576
πN elastic scattering, low-energy, σ term determ. 4-47571
$\pi\pi$ s-wave phenomenology, hard pion parameters in σ commutator 4-74663
$\pi\pi$ scatt. determ. of correction terms for pions on mass shell 4-71733

current control, electric *see electric current control*

current density
see also electron density
electrolysis, kinetics at high current densities investig. using current efficiency approach *(German)* 4-45911
electron beam, maximum for collimated focused rectangular beam 4-65951
electron beam, thin, density distribution meas. through cross section using plane film probe *(Russian)* 4-77725
field emission into plasma, cathode and electrode sheath parameters depend. *(Russian)* 4-63727
glow discharge, transitional region, props. 4-52647
glow discharge plasma, current density distribution *(Russian)* 4-66788
MHD generator channel, two-dimensional electric field, optimum loading circuits 4-63710
MHD induction devices, param. eval. *(Greek)* 4-66777
plane layer, cond. temp. depend. effect on temp. distrib., current and e.m. field 4-51482
plasma, ion current density on Langmuir probe surface 4-60316
plasma focus, electrode design for increasing current 4-60304
rectangular slab of homogeneous linear conducting material, in repetitive-pulsed external mag. field, calc. 4-51505
superconducting junction, renormalisation 4-79466
vacuum arc, cathode spot current density 4-60360
β-Al_2O_3-Na_2O ionic conductivity and electrochem. polarisation obs. 4-52931
He glow discharge, gas press depend. metastable interactions *(Russian)* 4-82052
Nb_3Al, superconducting film, critical current density, temp. depend. 4-72902
NbTi50 filament superconductor critical current density *(German)* 4-67310
Pb, superconductor, mechanical pressure effects on critical transport props. 4-72912
V_3Ga, critical current density 4-70102

current distribution
see also current density
electroplating, microprofiles 4-61624
electroplating microprofiles 4-54035
plane wave impinging on infinite conducting strip, computation method 4-71484
power transistor, large area, infra-red observation 4-54867
rectangular slab of homogeneous linear conducting material, in repetitive-pulsed external mag. field, calc. 4-51505
Tokamak plasma, laser beam scatt. meas. 4-52612
water dielectric pulse generators, multiple channel switching without triggering 4-59882
wires and elongated electrodes, by mag. field meas. method 4-54981

current fluctuations
see also noise
exploding foil, increasing circuit damping 4-54992
ionospheric DP1 and 2 current systems, effect of conductivity on natural oscillations 4-50331

current fluctuations continued
Josephson junction, quasiparticle-pair interference current, observability 4-79467
ohmic point contact, metal and p-type Ge low freq. *(Russian)* 4-79410

current limiters *see limiters*

current measurement, electric *see electric current measurement*

current-mode logic
see also logic circuits; switching circuits
scintillation detectors with ECL for space vehicle application 4-71076

current transients *see transients*

currents algebra *see current algebra*

curvature measurement
spherical particles in dispersed phase, boundary surface 4-46562

curvature of field *see aberrations*

customs and excise *see tariffs*

cutting
see also machining
CO_2, current-voltage characteristics, economy aspects *(Dutch)* 4-57753
high speed, expended specific work components *(Russian)* 4-57744
laminated glass-cloth panel, cutting technique *(German)* 4-49926
laser beams applications, rat liver changes obs. *(German)* 4-50816
metal, gas laser cutting, combustion theory approach *(Russian)* 4-53711
metal, nuclear reactor repair, elec. contact method 4-43604
metals, unit stresses and chip formation *(Hungarian)* 4-57741
metals by CO_2 laser, calc. 4-47395
milling peripheral, dynamometer application, two-dimensional force 4-71158
oblique, at small angles 4-46561
polymer, unreinforced, machining with high-velocity water jets 4-61534
stainless steel sheet, CO_2 laser cutting 4-55539
transition metal alloys, single crystals, Bridgman method and techniques for cutting and alignment 4-53601
underwater plasma cutting torch 4-82045

cyanogen, C_2N_2 *see carbon compounds*

cybernetics
see also biocybernetics; information theory; pattern recognition
catastrophe theory 4-42986

cyclotron frequency *see cyclotron resonance*

cyclotron resonance
see also diamagnetism
afterglow plasma, electron cyclotron resonance heating, electron distribution function anisotropy 4-72388
anthracene, mol. cryst., hole cyclotron reson. obs. 4-79287
electron phonon induced, polaron optical absorption coeff. 4-67190
e.m. wave spectrum near cyclotron-phonon resonance 4-57040
graphite, pyrolytic, reflectivity meas. in megagauss mag. fields 4-70302
hot-electron plasma production by electron cyclotron-resonance heating followed by magnetic compression 4-44262
III-V semiconductor, of holes 4-75882
ion cyclotron resonance spectrometer, integral square cell and flat cell 4-42916
magnetosphere, dynamic studies using artificial plasma clouds 4-68288
magnetosphere, stimulation of v.l.f. amplification 4-68256
marginal oscillator detector for ion cyclotron resonance spectrometers 4-71217
maser, for mm and far i.r. bands *(Russian)* 4-77639
metal, cyclotron-phase-resonance transmission, Fermi-liq. effects 4-64014
metal, dispersion relation, effect of non spherical Fermi surface 4-53034
metal, e.m. field anomalous penetration near resonance *(Russian)* 4-82447
metal, retardation effect *(Russian)* 4-72693
metal, spectra of extraordinary cyclotron waves 4-72691
metal, thin plates, h.f. props. in strong mag. field, Fermi surface *(Russian)* 4-67155
metal semi-infinite, excitation of h.f. waves in far i.r., derivation, appl. to Na, K 4-64017
metal with nonellipsoidal Fermi surface, Azbel-Kaner reson. line shape, tipping effects 4-64011
metallic thin slab, anomalous-skin-effect regime, variational method 4-44955
methane, ionised, selective-phase cyclotron reson. spectroscopy 4-78503
methane + $CH_2^+(CH^+)$ reaction, rate constants, product distrib., ion cyclotron resonance technique 4-50147
plasma, fast wave near second harmonic of ion cyclotron freq., heating and wave damping 4-44303
plasma, inhomogeneous, large amplitude oscillations near ion cyclotron reson. *(Russian)* 4-82015
plasma, ion waves, modulated electron beam-plasma system 4-48437
plasma, microwave power absorpt. near second harmonic of electron cyclotron reson. *(German)* 4-52595
plasma, rotating, with oscillating electrons, cyclotron and low-frequency drift oscillations *(Russian)* 4-52583
plasma, second harmonic generation, diagnostic applic. 4-63696
plasma cyclotron instability for arbitrary hot- to cold-plasma densities 4-69629
polarons in ellipsoidal bands, general case 4-72728
polarons in ellipsoidal bands, simple limiting cases 4-72727
relativistic plasma, electron cyclotron resonance heating 4-72399
semiconductor, inhomogeneous line broadening in quantized mag. field *(Russian)* 4-82367
semiconductor, many-valley, cyclotron-impurity reson. 4-75817
semiconductor, multiple emission of optical phonons effect on cyclotron resonance line profile 4-75785
semiconductor in mag. field, spatial dispersion *(Russian)* 4-82369
Tokamak machine ion cyclotron rsonance heating apparatus, mech. design and fabrication 4-60299

cyclotron resonance continued
  transient cusp plasma, in cyclotron heating with freq. feedback system 4−66753
  Ag, cyclotron waves, interference effects, extraordinary wave oscillatory dispersion relation 4−79279
  Ag-Zn, de Haas-van Alphen effect, frequency meas. using modulation technique 4−44834
  AgBr, polaron at microwave and i.r. freq. 4−75775
  AgBr, polaron effects, theory 4−72727
  AgBr, polaron resonance under pulsed laser excitation, 34 GHz and 2K-23K 4−79318
  AgBr, reson. of holes, polaron effects, theory 4−72728
  Al, Doppler shifted cyclotron resonance study, multiple dopplerons *(Russian)* 4−82357
  Bi-Sb, semiconducting alloy, cyclotron waves *(Russian)* 4−82370
  CdS, far i.r., intense mag. fields 4−75790
  Cu, Doppler shifted cyclotron reson. and e.m. waves *(Russian)* 4−79282
  Cu, Doppler shifted resonance with circularly polarised transmission, new e.m. mode 4−82443
  GaAs, cyclotron effective mass 4−72696
  GaAs, i.r., mag. fields up to 140 T 4−79292
  p-GaP, hole mass meas. in pulsed mag. field 4−72698
  GaP, indirect band gap 4−75882
  Ge, hole scattering by cyclotron resonance 4−64021
  Ge, in quantised mag. field on inelastic scatt. by acoustic phonons *(Russian)* 4−82368
  Ge, new cyclotron resonance absorption peaks obs. under high excitation 4−60736
  Ge, valence band parameters investig. by cyclotron resonance in stressed crysts. 4−64023
  Ge, valence band struct. investig. by quantum resonance techniques 4−64022
  He, plasma, high-power microwave pumping, delayed emission of cyclotron harmonics 4−69642
  He^+ + methane reaction, rate constants, product distrib., ion cyclotron resonance technique 4−50147
  In, Doppler-shifted cyclotron reson., rot. symm. Fermi surface model 4−72692
  p-InP, hole mass meas. in pulsed mag. field 4−72698
  InSb, electron effective mass, temp. depend. at i.r. frequencies 4−48910
  n-InSb, hot electrons, using pulsed elec. field 4−48993
  InSb, i.r., mag. fields up to 140 T 4−79292
  InSb, three phonon i.r. absorption, mag. field depend. 4−79734
  Nb measurement 4−64012
  p-Si carrier heating, by impurity absorbed CO_2 laser radiation 4−72705
  SiO_2 inversion layer on Si, subharmonic structure 4−67284
  Te, quantitative photometric meas. of cyclotron resonance absorption 4−69982
  Zn, effective masses calc. for cyclotron orbits, temp. depend. electron-phonon interaction 4−75771
cyclotrons
  see also microtrons; synchrocyclotrons
  beam longitudinal instability, freq. shift *(Russian)* 4−65507
  beam phase width and time structure contron by ion source bias *(German)* 4−46784
  beam probe signals, suppression of harmonics 4−55021
  beam scanning 1 Hz pendulum device circuit 4−80971
  collimation of beam, effect on first revolution using He ions 4−42865
  dee tuned circuit, stabilization and elimination of voltage asymmetry 4−42856
  electric field anal. by magnetic analogue method 4−55010
  frequency control, beat frequency detector, sources of error *(Italian)* 4−42854
  heavy ion accelerators, review *(Japanese)* 4−55007
  medical applic., review 4−58585
  neutron therapy, fast, applic. 4−46411
  neutron therapy applic., fast, dosimetric studies 4−46405
  power supplies reliability 4−74104
  proton ring, beam acceleration and extraction conditions optimisation, external monochromatisation systems *(Russian)* 4−65509
  radiation therapy and diagnostics applics. *(Hungarian)* 4−65262
  radioisotope production, medical, at Pretoria 4−58586
  superconducting, for 10 MeV/A heavy ion production 4−42860
  Swiss ring, brief description and first results *(German)* 4−77146
  time-of-flight spectroscopy, incompletely pulsed cyclotron beam 4−74105
  transport system for internal irradiations 4−55001
  University of Michigan facility for nuclear structure research 4−62497
Czochralski method *see crystal growth from melt*
D-layer *see D-region*
D-region
  cross modulation, determ. of electron density and collision freq. by echo method 4−58105
  effective recombination coeffs. from wave interaction studies 4−46080
  electron density profile calc. using grid nomograms 4−68278
  electron density profiles, modelling from VLF propagation parameters 4−50345
  electron density profiles, radiowave interaction expt. 4−46076
  electron density rel. to mesospheric wind meas. *(German)* 4−68284
  electron loss processes during decay of solar X-ray flare events 4−46079
  IBC class II aurora, ion composition meas. 4−70761
  IBC class II aurora, ion composition model 4−70762
  ionisation at v.l.f. reflecting heights after solar flare SID, zenith angle depend. 4−83124
  LF radiowave propagation, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68249
  Loran-C wave propagation, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68248
  mean electron density profile, radiowave propagation meas. *(German)* 4−70791
  modification effects, heating and freq. mixing using high power transmitter 4−58106
D-region continued
  negative-ion changes during solar eclipse 4−68245
  plasma, non linear propagation, numerical soln. 4−58107
  plasma heating by intense HF fields 4−58102
  positive ion chemistry in strongly ionized mid-latitude nocturnal D-region, two-ion model 4−76743
  positive ion chemistry in strongly ionized mid-latitude nocturnal D-region, ion transformation processes 4−76744
  semi-empirical model, electron density, positive ion density, ionic composition 4−46077
  sunrise negative ion photodetachment mechanisms 4−70794
  wave interaction processes, survey 4−58104
  wave scattering, incoherent, fine regular struct., random irregularities *(Russian)* 4−80385
  CO_2 density rel. to $O_2(^1\Delta_g)$ ionization rate 4−54257
D/A conversion *see digital-analogue conversion*
damage, radiation *see radiation effects*
damming *see dams*
damping
  see also internal friction
  acoustic wave propagation along inhomogeneous elastic thin rod, mean damping coeff. *(French)* 4−54738
  axial shear waves, in medium with randomly distributed cylinders 4−50911
  circuit damping improvement using exploding foil 4−54992
  composite, fibre reinforced, internal damping meas. 4−76536
  composite and porous materials, damping characts. 4−80081
  composite with unidirectional continuous fibres, damping props. under tension/compression 4−53845
  composites with discontinuous fibres, mech. damping *(German)* 4−57762
  diagonal damping matrices for non-proportional systems 4−81198
  dislocation dynamics, vibrating string model, soln. by Heaviside method 4−52761
  dispersive waves, nonlinear, weakly dissipative, asymptotic method 4−77357
  ductile and elastic material, plane stressed condition 4−50061
  dynamical system with singular kernel, temp. depend. of damping coeffs. 4−51401
  gas bubbles in water, from desinent threshold for subharmonic-$^1/_2$ 4−78691
  gyrocompass, two-rotor, with dampers, stability of motion in given coordinates *(Russian)* 4−55287
  impact, with Coulomb friction 4−43029
  impact dampers with free additional mass, analogue computer modelling 4−77511
  internal friction, amplitude dependent, under torsion, modified Granato-Lucke expression 4−76452
  Jeans' criterion, gravitational instability, damping influence, and effect of viscosity, heat diffusion 4−81939
  Landau damping of solar Type III bursts by interplanetary high energy electrons 4−54457
  layered system with dry friction, dynamic and damping properties 4−74359
  liquid crystal, smectic A, second sound acoustic branch, damping obs. 4−82110
  materials, dynamic props, temperature frequency dependence 4−65376
  mechanical, piezoelectric determ., 30 to 200 kHz 4−42714
  mechanical system with quadratic and cubic nonlinearities, differential tones 4−43013
  non-linear damped system, response to step function excitation 4−71345
  nonlinear, of two meas. system with spring effect on dynamic compliance matrix 4−77503
  nonlinear vibrations of system with viscous and structural damping 4−77514
  nonoverdamped Lagrangian systems, minimax principles for subset of real eigenvalues 4−59206
  nozzle damping in solid rocket instabilities 4−48299
  nuclear power plant structures and substructures, seismic analysis 4−47768
  oscillations, solution of equation for students 4−62377
  parametric response theory, nonlinearities 4−77505
  polymer, block type, dynamic mech. props. using resonant vibr. method 4−80132
  refractory materials, damping properties at operating temps. 4−61508
  sandwich cantilever, loss factor calc. 4−43107
  satellites, dual-spin, eddy current nutation dampers 4−47053
  self-excited vibrations in three-mass twisted system, elimination by Lanchester-type damper *(German)* 4−77509
  shock absorber, effect of spring characteristic asymmetry on vibroisolation properties *(Russian)* 4−77512
  small body, retarded nonlinear attenuation of vibr. at very low temps. *(Russian)* 4−71458
  spin stabilised body, graphical construction model *(German)* 4−58203
  steel, heat resistant, damping characts. under uniform tension-compression, effect of temp. 4−49826
  steel, stainless, acoustic emission-damping fatigue 4−76567
  steel, static stresses on damping of torsional vibrations in magnetic field 4−82599
  stiffened plates, multiple layer treatment 4−77485
  thin stiffened plates, expt. results *(Italian)* 4−77464
  torsional mechanical system, piezoelectric determ., 40-120 kHz 4−58749
  turbulent flow in tube with wall suction 4−75104
  unsymmetric sandwich beam, with viscoelastic core, vibration anal. 4−71342
  unsymmetric sandwich plate, with viscoelastic core, vibration anal. 4−71342
  u.s., magnetic field effect on conducting materials 4−58656
  vibration isolator, l.f., design and sensitivity 4−50383
  viscoelastic damping layer, forced vibrs. 4−77489
  viscoelastic polygenic system, mass distrib., rotary inertia and external damping 4−55299
  warm current plasma, high freq. surface wave 4−81998
  Ti alloys, damping properties w.r.t. microstruct. 4−49827

dams
see also civil engineering
earthquakes due to crustal loading by reservoir filling, depth resolution 4−68059

dark space *see discharges (electric)*

data acquisition
see also data handling; data processing; indicators; recorders
42 MV betatron, automatic depth dose data acquisition 4−50893
600 MeV electron linear accelerator HE I MWPC data acquisition system 4−46775
Algonguin Park 46 m radiotelescope, data acquisition and control system 4−62255
astrophysical data collection and analysis, Charlottesville, USA, conference 4−62219
calculator-based, for temperature-sensing transistor 4−46587
CAMAC computer peripheral interface system for laboratory 4−46919
CAMAC data acquisition and control in nuclear medicine laboratory 4−50822
chemical reactions investigation, shocktube technique, shockwave and i.r. data anal. 4−61577
circular dichroism spectrometry, Fourier method for digital data smoothing 4−77073
electrostatic energy analysers, interface electronics for data acquisition 4−55101
e.s.r., digital data acquisition system 4−51126
gravimetric data input to digital computer, automated system *(Russian)* 4−54311
hard-wired system for automatic calorimetric meas. 4−42752
Helios-A solar probe 4−58461
marine, multichannel towed array system, sediment acoustical props. meas. applic. 4−70820
multiprocessing system SPINE, application to high energy physics expt. 4−63022
multiwire proportional chamber readout system with CAMAC interface 4−46860
neutron therapy, dose distribution, at the TAMVEC facility, by a computer controlled system 4−46407
nuclear power station, gas cooled, control, protection, and data presentation 4−47749
ORMAK data acquisition and analysis by small computers 4−59868
particle accelerators, use of small computers in on-line experiments 4−77153
plasma diagnostics, Thomson scattering apparatus, low-noise data collection system 4−56527
Princeton Plasma Physics Lab. data acquisition system 4−60334
Princeton Plasma Physics Lab. data acquisition system software support 4−60335
proton-enhanced nuclear induction spectroscopy 4−68753
pulse radiolysis, computer-controlled system 4−57854
radiation therapy, beam distrib. data acquisition system for treatment planning 4−46432
radiation therapy, dose distribution data, on-line acquisition and reduction system 4−50859
scintigraphic data, the physician-computer interaction 4−50829
secondary beam line, digital monitoring and data acquisition CAMAC system 4−46862
spectroscopic, Ar a.c. arc, anal. and expts. 4−60374
Texas small-diam. source catalogue, data collection techniques 4−62247
vibration calibration system, automated 4−50959
visual psychophysics, of primate, computer system for stimulus generation, control and behavioural acquisition 4−74156
Westerbork Synthesis Telescope, on-site data processing 4−62257
X-ray elemental analyzer with high speed data acquisition and display system 4−46952

data communication equipment
see also computer peripheral equipment
CAMAC single crate controller and A/D interface module for tandem Van de Graaff accelerator 4−46777

data communication systems
see also computer peripheral equipment; data transmission systems
CAMAC data links for nuclear physics laboratory 4−46771
CAMAC serial control system with optical coupling for ion sources 4−46785
multiwire proportional chamber readout system with CAMAC interface 4−46860
oceanography, selector channel with programmed control for exchange of hydrophysical data *(Russian)* 4−80412
oceanography, system for measuring and processing hydrophysical parameters on real time scale *(Russian)* 4−80409
oceanography, unified coding system *(Russian)* 4−80408
proportional wire chamber readout and geometrical reconstruction system with CAMAC module 4−46861
radiation therapy planning, for remote institutions 4−50864
underwater acoustics 4−46515

data compression
see also information theory
astrophysical data, Karhunen-Loeve series expansion 4−71065
random signals, equipment and other aspects *(German)* 4−42688

data handling
see also codes; file organisation; sorting
gravimetric data input to digital computer, automated system *(Russian)* 4−54311
oceanography, unified coding system *(Russian)* 4−80408
ultralow temperature nuclear polarisation expt. computerised system 4−46827
Westerbork Synthesis Radio Telescope, data handling facilities 4−62224
Ge(Li) spectrometer, satellite-borne high resolution gamma-ray system, electronic, data handling and auxiliary sensor systems 4−54600

data loggers
automatic recording, linear settling of cast alloys 4−65370
punched-tape collection of thermocouple sensor data *(Russian)* 4−68639
thermoluminescence, of org. substances 4−65413

data processing
see also administrative data processing; data handling; data reduction and analysis; management information systems; medical information processing
interactive access system, for acoustics databank 4−68572
retina model for applic. of digital data processing network theory 4−58522

data processing (administrative) *see administrative data processing*

data reduction and analysis
see also data acquisition
acoustic emission monitoring system, simultaneous multiple event data anal. 4−46582
aperture synthesis, two dimensional, complex zero theory 4−62241
astronomical data processing, directable modular approach 4−62223
astrophysical data collection and analysis, Charlottesville, USA, conference 4−62219
atmospheric acoustical signals, naturally occurring, acoustic gravity waves, infrasound 4−80336
atomic absorption analysis, computer program for absorbance output processing 4−74161
automatic image analysis, information sources 4−51049
automatic image analysis, instrumentation 4−51044
automatic image analysis, medical and biological sciences 4−51047
automatic image analysis, pattern recognition 4−51045
bubble chamber, Mirabelle, software for c.r.t. system for picture analysis 4−77222
bubble chamber 12 foot film, meas, using ANL POLLY III 4−77220
bubble chamber film, automatic measuring apparatus KAMA 4−77209
bubble chamber film, BEBC, report on ERASME system 4−77216
bubble chamber film, c.r.t. scanner, programmed controller 4−77211
bubble chamber film, c.r.t. scanning devices AELT-1, AELT-2 4−77210
bubble chamber film, data reduction operation, experience of M.I.T. PEPR system 4−77203
bubble chamber film, data reduction operation, Nijmegen PEPR I performance 4−77204
bubble chamber film, data reduction operation, performance report on Toronto POLLY 4−77208
bubble chamber film, data reduction operation, status report on PEPR and POLLY systems 4−77202
bubble chamber film, data reduction operation, status report of Purdue POLLY 4−77206
bubble chamber film, data reduction operation, technical developments in Oxford PEPR system 4−77213
bubble chamber film, data reduction operation, Univ. of Maryland PEPR system 4−77205
bubble chamber film, hardware description for NAL SAMM device 4−77217
bubble chamber film, ionisation measurements with PEPR-I machine 4−77215
bubble chamber film, performance of Brussels POLLY system 4−77219
bubble chamber film, production export on Washington Univ. vertex guidance system with PEPR 4−77207
bubble chamber film, programming techniques for NAL SAMM device 4−77218
bubble chamber film, resolution improvement for flying spot digitizer 4−77212
bubble chamber film analysis, performance of Padova PEPR system 4−77224
bubble chamber film measurements, TV system incorporation into PEPR hardware 4−81012
bubble chamber photographs, data reduction operation, general description 4−77201
bubble chamber picture, c.r.t. system design 4−77221
bubble chamber picture analysis, new PEPR system 4−81010
bubble chamber picture analysis, track following in agreement signal analysis mode 4−77223
bubble chamber picture scanning, half-automatic measuring (HAM) device 4−81011
bubble chamber picture scanning and measurement, automatic machine using TV device 4−77225
bubble chamber pictures, vidicon read-out system 4−77227
celestial mechanics, algebraic manipulation systems 4−58194
chemical analysis, GC/MS data system 4−46960
conference, technology arising from high-energy physics, Geneva (April 1974) 4−77138
correlation analyser of digital signal for quantum optics, statistics 4−68666
diffusion coefficients determ. in electrolytic liqs. by holographic interferometry and computer simulation *(French)* 4−45915
Earth Resources Survey Systems, information extraction methodology and hardware developments 4−70823
electrochemistry, digital simulation 4−50175
ENDOR spectrometer, computer-controlled 4−58873
ERTS data interdisciplinary analysis and interpretations 4−70825
ERTS imagery data, combined spectral and spatial processing 4−68268
e.s.r. studies with anisotropic complications, stereographic projection unit 4−51117
F-region characteristics 4−70790
gamma camera, field nonuniformities, computer correction 4−50880
Hat Creek 21 cm line survey, correction procedure for machine readable magnetic tape 4−50702
hyetogram automatic digitisation using precision encoding and pattern recognition 4−80403
image analysis, high-speed, optical power spectrum meas. 4−55451
Kitt Peak NRAO 36 ft telescope, FORTH program for spectral line obs. 4−62258
lens testing, wavefront shearing interferometer 4−51063
line spectra, automatic recording and computer eval. on photographic plates 4−62630
maximum entropy spectral analysis in radioastronomy 4−62232
meteorological field objective analysis on the sphere 4−68199
meteorological heterogeneous data objective analysis based on optimal interpolation and agreement 4−68198

data reduction and analysis continued
microscope preparations of biological materials, automatic analysis 4—80905
minimising skew, optimal data transform., computer program 4—68876
Molonglo Cross radiotelescope, source fitting using multiple beams 4—62225
multi element radio interferometer phase error correction by data processing 4—62242
neutron monitor Lomnicky stit 4-NM-64 data processing system and reliability tests 4—65514
n.m.r., quadrature Fourier transform technique, data routeing 4—57349
nonlinear processing of data using Gaussian statistics *(Russian)* 4—54813
nuclear gamma-ray spectra, minicomputer system 4—42892
nuclear perturbed angular correlation and multiple lifetime expts., data analysis method 4—77168
nuclear reactor design parameters, consistency among differential nuclear data and integral obs. 4—78218
nuclear reactor fuel elements, vibr. assessment using freq. and time domain analysis techniques 4—47777
nuclear recoil-distance data anal. for incompletely resolved stopped and in-flight components 4—55045
nuclei photofission cross section for γ rays, automated analysis 4—42851
on-line selection system for particle trajectories detected by multiwire proportional chambers 4—46842
ORMAK data acquisition and analysis by small computers 4—59868
particle accelerators, use of small computers in on-line experiments 4—77153
pattern recognition, automatic mechanical methods rel. to optical and radio astronomy 4—62238
PEPR system application to seismograms and music scores 4—80261
periodicities in data obtained at irregular intervals 4—50733
precision encoding and pattern recognition. uses in astronomy and geophysics 4—80676
radioastronomical synthesis data interpolation, effect of ringlobes 4—62245
radioastronomy, computer generation of radar maps of lunar surface topography 4—62226
radioastronomy, NOD2, data analysis system using document or file concept 4—62222
radioastronomy, role of data analysis in automated observatory 4—62220
radioastronomy automation, telescope and receiver control, data processing 4—62221
rain charts, microfilmed, reading using precision encoding and pattern recognition 4—80404
reflected seismic wave data, parabolic summation on analogue computers *(Russian)* 4—57944
seismic data, tapering out zone of petroliferous complex, digital processing *(Russian)* 4—57947
spectral line processor, 100 channel, for Algonquin Radio Obs. 4—62236
stellar spectrogram, semiautomatic reduction 4—58455
streamer chamber tracks, system for on-line digitisation 4—77226
supersynthesis radiotelescope map data, interactive processing 4—62250
tacheometer, automatic recording, RegElta-14 4—64985
temperature-frequency superposition principle, appl. to dynamic props. of damping materials 4—65376
terrestrial photogrammetry, open-cast mine surveying 4—58119
Westerbork Synthesis Radio Telescope, data handling facilities 4—62224
Westerbork Synthesis Radio Telescope, operation, performance and data reduction 4—65230
Westerbork Synthesis Telescope, on-site data processing 4—62257
data tables *see collections of physical data*
data transmission systems
see also data communication systems; telemetering systems
data-transmission system for remote meteorological sites 4—46124
dating, earth *see earth age*
dating, radioactive *see radioactive dating*
dawn *see twilight*
dawn chorus
see also ionosphere
No entries
dayglow *see airglow*
d.c. amplifiers
chemical kinetics measurement, reactions in solution 4—61599
electrometer, f.e.t. and IC applic., cct. to measure 5 x 10^{-16} A 4—77120
high-sensitivity, use in electronic counter 4—77228
instrumentation, remote low level signals, requirements, isolation amplifiers 4—58862
d.c. generators
see also homopolar generators
low voltage, switching, quasistatic high magnetic field production 4—68990
d.c. motors
see also homopolar motors
speed control, precise, using light reflecting sensor and phase comparator 4—54870
d.c. to a.c. invertors *see invertors*
DDA *see digital differential analysers*
DDC *see direct digital control*
de Haas-van Alphen effect
see also diamagnetic properties of substances; diamagnetism
dephasing, connection to electron scattering 4—79273
disordered alloys, Landau levels 4—64008
ferromagnetic metal, exchange splitting temp. depend., Stoner excitation 4—48895
free electron-like conductors, approx. sum rule for de Haas-van Alphen freq., extended zone scheme 4—48896
metal with dislocation or impurities, dephasing calcs. 4—79274
superlattice, semiclassical mag. quantization calcs. 4—53025
de Haas-van Alphen effect continued
transition metal, rel. to ferromag. band splitting and Fermi surface, review 4—72681
Ag fermi surface, hydrostatic press. effects 4—79271
Ag-based dilute alloy, calc. of anisotropic de Haas-van Alphen lifetimes 4—53031
Ag-Zn alloy, frequency meas. using modulation technique 4—44834
Al-based 3d transition metal alloys, influence of impurities on the de Haas-van Alphen effect, calculation of Dingle temperature 4—67179
Au Fermi surface, hydrostatic press. effects 4—79271
Au-based dilute alloy, calc. of anisotropic de Haas-van Alphen lifetimes 4—53031
AuSb$_2$, magneto-acoustic attenuation obs. 4—82353
Ca, modulation method, anal. of second band-hole surface 4—44833
Cd, sound vel. quantum oscills., up to 70 kOe, $1.5K \leqslant T \leqslant 4.2K$ 4—79276
Co, Fermi surface determ., ferromagnetism 4—57028
Cu Fermi surface, hydrostatic press. effects 4—79271
Cu:Ni(Ge)(Au), conduction electron scattering, de Haas-van Alphen 4—64058
Cu-Fe, Kondo alloy, exchange energy and spin scatt. anisotropy, de Haas-van Alphen meas. 4—49159
Fe, exchange splitting, freq. variation with temp., 1-4.2K 4—48894
Fe, high resolution measurements of frequency, 1 to 4.2K 4—44831
Fe whiskers, long period quantum oscillations observed during studies 4—44832
Gd, cyclotron masses and mass enhancements determ. 4—44828
Hg, rel. to Fermi surface from APW interpolation 4—53032
PdTe$_2$, electronic props. determ. using Korringa-Kohn-Rostoker method 4—67165
V, Fermi surface investig. 4—64018
Y, Fermi surface model including spin-orbit coupling 4—44827
Yb, press. depend. 4—79270
Zn dilute alloys, mag. breakdown rel. to Dingle temp. 4—67152
Zn-Cd, dilute supersaturated alloy, obs. of electronic struct. changes with ageing 4—53030
Debye-Huckel theory
see also electrical conductivity of electrolytic liquids
Debye-Huckel limiting potential, calc. using generalised Poisson-Boltzmann eq. 4—61616
spherical polyelectrolytes in dil. soln., excess chem. pot. 4—57848
Debye-Scherrer cameras *see cameras; X-ray crystallography apparatus*
Debye temperature
see also specific heat
alkali halide, rel. to LEED observable voltage range from (100) surfaces 4—75678
binary alloy, measure of ordering parameter 4—44633
α-brass, rel. to ordering parameter 4—44634
Brillouin zone effects on supercond. T_c and rel. normal metal props. 4—69980
ferrites, spinel struct., propag. of heat energy 4—67072
polychlorotrifluoroethylene, heat capacity, 80-340K 4—79162
polymers, near liquid He temp., calc. from acoustic meas., comparison with calorimetry data *(Russian)* 4—82279
rare earth tetraborides, determ. from thermal expansion data 4—82282
surface, approx. calcs. 4—56953
transition metal oxides, calc. from phonon spectra 4—67000
Ag-Au alloys, below 30 K, nuclear entropy effect 4—44680
Al, powder, mech. activated, lattice distortion and Debye temp. investigations *(German)* 4—57737
AuSb$_2$, acoustic velocity obs. 4—82353
Bi$_2$O$_3$, thermal expansion and 730°C transform. 4—52912
CdCr$_2$Se$_4$, X-ray diffr. anal., spinel struct. 4—63876
CdO, thermal expansion and Debye temp. determ. 4—52912
Cr, X-ray Debye temp. investig. 4—57269
CsI, X-ray diffr. data *(French)* 4—44635
Cu, fracture stress, temperature dependence, ultra-high purity *(German)* 4—69853
CuCr$_2$Se$_4$, X-ray diffr. anal., spinel struct. 4—63876
Fe-Ni Invars, influence of magnetoelasticity 4—79562
Fe$_3$Pt Invar, influence of magnetoelasticity 4—79562
^{57}Fe, isolated in methane and CO$_2$ matrices, Debye temp. calc. from Mossbauer absorption spectra 4—76205
Ge, effective Debye temp. calc. 4—60580
^{4}He, bulk and adsorbed monolayer, thermal similarity in 2 and 3 dimensions 4—79161
HgCr$_2$Se$_4$, X-ray diffr. anal., spinel struct. 4—63876
Ho, elastic constants and magnetoelasticity obs. from 4.2 to 300K 4—67414
LaVO$_3$, mag. sp. ht., 50-298K 4—79523
LuAsO$_4$, determ. from Brillouin scatt. meas. of elastic consts. 4—72517
LuPO$_4$, determ. from Brillouin scatt. meas. of elastic consts. 4—72517
Mg, preferred orientation in powder samples, rel. to X-ray diffr. 4—66796
Mg-Cd, preferred orientation in powder samples, rel. to X-ray diffr. 4—66796
Mg$_3$Cd, powder samples, X-ray diffr. at room temp., preferred orientation, Debye temp. 4—66797
Na$_8$(Al$_6$SiO$_{24}$)(OH$_2$).nH$_2$O, hydrosodalite, cryst., piezoelectric and elastic props. 4—76219
Nb, effect of Zr additions of up to 6%, from elastic consts. meas. 4—61416
Ni-Pt alloys, influence of magnetoelasticity 4—79562
NiS, hexagonal, metal-insulator para.-antiferromag. transition 4—64032
Ni$_{1-x}$S, elec. props. exam., metal-semiconductor transition at 265K 4—75930
^{62}Ni(γ,γ), temp. effect of resonance scatt. 4—71870
^{208}Pb(γ,γ), temp. effect of resonance scatt. 4—71870
Pd, influence of magnetoelasticity 4—79562
Tb, sp. ht., electronic coeff. below 4K 4—79160
Ti alloys, low temp., u.s. vel. meas. 4—64572
V, lattice dynamical model, sp. ht. calc. 4—72531
VC$_x$, temp. depend., room temp. to 2200°C 4—61487

Debye temperature continued
VO_2, metallic, X-ray diffr. obs., rel. to metal-insulator transition mechanism 4−79132
$ZnCr_2Se_4$, X-ray diffr. anal., spinel struct. 4−63876
ZnO, thermal expansion and Debye temp. determ. 4−52912
ZnS, ZnTe, zincblende crysts., phonon dispersion and density of states, Debye temp. determ. 4−60561
ZrO_2, Y_2O_3-stabilised, microwave and optical spectroscopy 4−61197
Debye-Waller factors
see also lattice dynamics
anthracene, temp. depend. in impurity fluorescence spectrum 4−82250
graphite, calc. using Komatsu's model 4−60583
metal, f.c.c., anharmonicity theory 4−56848
Mossbauer effect impurity atom experiments, review 4−57430
Ag, modified de Launay ang. force model 4−56847
Au, modified de Launay ang. force model 4−56847
CdTe, and melting criteria 4−75605
Co-(7 wt.%)Fe, 20 to 250K from γ-ray resonance spectra 4−52892
Cr, lattice dynamical model 4−72538
Cr, temp. depend., Kreb model 4−56828
Cu, modified de Launay ang. force model 4−56847
α-Fe, lattice dynamical models 4−67005
Fe(II) complex, dithiocyanatobis(4,7-dimethyl-1,10-phenanthroline)iron(II), cooperative high-spin to a low-spin transition 4−70238
GaAs(Sb), and melting criteria 4−75605
InP(Sb), and melting criteria 4−75605
KCl, powder neutron diffr. meas. 4−69878
MO, lattice dynamical models 4−67005
NaF, anharmonic contribs. 4−67003
Nb-H, quasielastic neutron scatt. by protons, anomaly 4−67009
NbC, comparison with model calcs. 4−79131
Ni, lattice dynamical models 4−67005
Ni, temp. depend., Kreb model 4−56828
$SrCl_2$, thermal vibr. amplitudes calc. 4−72546
VO_2, metallic, X-ray diffr. obs., rel. to metal-insulator transition mechanism 4−79132
W, lattice dynamical models 4−67005
ZnTe(Se)(S), and melting criteria 4−75605
decay periods (radioactive) *see radioactive decay periods*
decay schemes (radioactive) *see radioactive decay schemes*
decay theory (nuclear) *see nuclear decay theory*
decision theory *see decision theory and analysis*
decision theory and analysis
see also Bayes methods; dynamic programming
diagnostic radiograph analysis, discriminant analysis decision schemes 4−50875
decoding
see also demodulation
deconvolution of coded aperture images, three-dimens. X-ray objects 4−81045
image optical processing by random diffuser 4−51537
decomposition *see dissociation; precipitation*
decomposition, spinodal *see spinodal decomposition*
decomposition, thermal *see chemical reactions*
defects, crystal *see crystal defects*
defibrillators
see also patient treatment
No entries
deflecting force *see coriolis force*
deformation
see also ageing; bending; creep; elastic deformation; ferroelasticity; plastic deformation; recovery
Armco iron, deformation near Curie temp., elastic obstacle rate limiting 4−79978
bolted plates, holographic interferometry meas. 4−65374
circular toroidal shell, axisymmetric loading, stress and deform. states 4−55255
cylinder, solid, non-isothermal loading, flow theory anal. *(Russian)* 4−77400
dynamic loading characts. electrohydraulic system 4−76569
EBR-II core subassembly hexcan following fuel pin failure 4−81593
fibre-reinforced materials, anal. of loading props. *(German)* 4−65673
garnet, substituted, synthesis, distortion of coordination polyhedra of O_2 4−48576
holographic interferometry, in-plane deform. meas. 4−68612
layered media, deformation by body force and deforming magnetic field 4−80252
linear theory, continuous medium, comparison of displacement vector and deformation tensor *(Russian)* 4−77399
membranes, anal. of large deflections 4−74278
microcalorimeter for meas. heat of straining materials 4−54845
molybdenite, surface deformation caused by abrasion, electron techniques *(Japanese)* 4−52970
object, determ. by speckle interferometry 4−51060
parabolic reflector of radiotelescope by radar technique 4−71067
plate calcs. using fundamental spline functions *(German)* 4−68889
reactor fuel elements transient internal pressures, SADCAT code 3D solution 4−81594
rubber, strain energy function, from generalised meas. of strain 4−56802
shell, non-shallow spherical under local loading *(Russian)* 4−77397
shell theory derivation from principle of virtual work *(German)* 4−65676
shells, cylindrical, optimising thermal stresses, comment on previous paper 4−74280
shells, cylindrical laminated composite, shear deformation effect on axisymmetric vibrations 4−71341
shells, existence theorems in linear theory 4−74282
surface of nontransparent body, holographic determ. *(French)* 4−59367
testing, electohydraulic system dynamic loading characts. 4−76569
thin plate flexure, influence of moment stresses *(German)* 4−65674
tube surface deformation in explosive expansion 4−68888
deformation continued
MgO, cryst. fused periclase, struct. defects 4−44530
$NaNO_2$-$NaNO_3$, mixed crystal, 205°C transition obs. 4−82269
Nb, b.c.c. crystals, deformation under shear stress 4−72520
Si steel, deformation near Curie temp., elastic obstacle rate limiting 4−79978
dekatrons
No entries
delay circuits
see also comparators (circuits); delay lines
photographic flash retarder, cct. using triac, construction *(Spanish)* 4−62480
delay elements (circuits) *see delay circuits*
delay lines
see also acoustic delay lines
acoustic surface wave interferometer at 330 MHz 4−74007
cathode coupled, use in multiwire proportional counters 4−74146
h.f. optoelectronic recirculation generator with optical delay line 4−81359
multiwire proportional chamber readout methods for track positions of ionising particles 4−46870
multiwire proportional chambers, delay-line readout of anode planes 4−77196
position sensitive detectors, electronic cooling of terminations 4−46871
read-out for position sensitive proportional counter, low-dead-time method 4−68796
readouts for high purity germanium medical imaging cameras 4−54680
spark chamber two-dimensional readout system 4−46868
thin, reln. to two-dimensional drift chamber meas. 4−58926
delayed neutrons
see also nuclear fission
effective fraction in multiplication media, binodal model *(French)* 4−69268
fissile material samples, non-destructive assay by neutron bombardment 4−51214
integral tests of fission product data files 4−78130
one-velocity transport equation, eigenfunctions closure and completeness 4−78149
reactor dynamics, asymptotic stability of fixed point of set of ordinary differential equations 4−78226
transport equation, time-dependent, soln. method 4−78148
(γ,p) activation anal. for O and F using delayed n recording 4−77285
^{85}As, delayed neutron emission spectra meas. 4−77986
^{85}As decay, population of excited states 4−69231
BF_3 detector for failed fuel monitoring system, optimization of clipping time constant 4−51151
^{13}B, β-neutron time of flight spectrum. meas. in delayed neutron decay 4−78017
$^9Be(n,p)^9Li$, $E_n=14.5$ and 14.9 MeV, delayed neutron yield cross section 4−66188
^{a}Br, A=87-92, delayed neutron emission, short lived isotopes 4−71839
^{90}Br decay, population of excited states 4−69231
^{252}Cf, angular distrib. search from spontaneous fission 4−59813
^{145}Cs, ^{146}Cs, delayed neutron emission probability and half-lives 4−43502
^{a}I, A=137-141, delayed neutron emission, short lived isotopes 4−71839
^{95}Rb decay, population of excited states 4−69231
^{97}Rb, ^{98}Rb, delayed neutron emission probability and half lives 4−43502
^{135}Sb delayed neutron emission spectra meas. 4−77986
delayed protons
fine structure spectrum anal. statistical model, nuclear mass determ. 4−77987
^{119}Ba from $^{106}Cd(^{16}O,3n)$, half-life and proton spectrum *(Russian)* 4−47669
^{45}Cr, new delayed proton precursor produced in $^{32}S(^{16}O,3n)$ reaction, half-life meas. 4−47722
delays
see also delay circuits; distributed parameter systems
time delay of piezoelectric probe calibration 4−75301
Delbruck scattering *see nuclear reactions and scattering due to photons*
demagnetisation
see also magnetisation
e.s.r. system operating at 9 GHz in temp. range 4.2 K to 37 mK 4−62494
glass ceramics containing ferrite phase, suitability as memory material 4−49194
magnetic cluster substances, weakly interacting, phase transition behaviour, magnetic cooling appl. 4−67377
magnetic film strip, effect on Bloch wall motion 4−45147
metallic matrix, with rare earth ions, dil. and conc. systems, demagnetisation due to valence fluctuations 4−70152
oxide glasses, Ce doped, comp. depend. of props. below 1 K 4−53208
periodic magnetic distribution, demagnetizing energy 4−53258
rocks, viscous magnetisation characts. 4−83065
soft materials, curve approx., calc. *(Russian)* 4−49191
^{23n}a in NaCl, adiabatic in rotating frame by non-resonant oscill. field 4−80855
^{19}F in CaF_2, adiabatic in rotating frame by non-resonant oscill. field 4−80855
FeGe, ferromag. reson. obs., 77K-300K 4−67454
Fe_3O_{4+x}, magnetite, thermal spectrum of disaccommodation after low temp. neutron irrad. *(French)* 4−79537
^{3}He precooling stage in adiabatic demagnetisation cryostat 4−77054
MnBi film, domain nucleation and propagation phenomena, demag. obs. using W needle 4−57327
$(Sm_{1-x}Pr_x)Co_5$, domain struct. of magnets *(Russian)* 4−67394
$YFeO_3$ particles, domain struct. and mag. props. below single-domain crit. size *(Russian)* 4−73003
demagnetisation, adiabatic *see demagnetisation; magnetic cooling*
demagnetization *see demagnetisation*
demand meters *see maximum-demand indicators*

Dember effect *see photoelectromagnetic effects*

demodulation
- *see also modulation*
- heterodyning in laser Doppler velocimeters 4–68858
- optical, phase, using optical beats generated by u.s. waves *(Japanese)* 4–42783
- optical signal at 10.6 μm, heterodyne sensitivity threshold meas. 4–68676

demonstrations
- *includes student experiments*
- *see also student laboratory apparatus*
- absorption spectroscopy using absorption grating, camera and densitometer 4–54787
- absorption spectrum of Na vapour 4–77019
- acoustics, lecture demonstrations 4–42683
- air-track study of friction, experiment 4–54799
- amplitude modulation and beats, using two oscillators and a speaker 4–54784
- angular momentum mixing, in rotating liquid-filled cylinder 4–63548
- Archimedes principle, buoyant forces in air weighings 4–73953
- atomic hyperfine structure, ^{133}Cs expt. 4–73950
- atomic structure, student expts. 4–73957
- capacitor behaviour, student experiment 4–50941
- car crash experiment using high speed film for the undergraduate laboratory 4–62373
- centripetal and Coriolis accels., expt., quantitative meas. 4–73951
- coordination complex characterisation using spectroscopy 4–58713
- course in laboratory in which students themselves determine how to carry out experiments 4–54773
- crystal diffraction analogy using laser beam and model 4–58697
- diffraction experiment, laser, for students 4–54803
- digital systems, gates and counters 4–73965
- Doppler effect, expt. 4–73952
- Dumas bulb meas. of molecular weight as experience in error analysis, improved apparatus 4–58700
- electric field plotting experiment for students, use of pantograph 4–54797
- electron pair production experiment improved with ^{88}Y source 4–62381
- energy loss of electron beam in thin target, student experiment 4–54788
- e.s.r. experiment for students, Cr^{3+} in ruby 4–54776
- evaporation of liquids obeys Arrhenius law calc. of latent heat of evaporation 4–58710
- fallout in the leaves of trees, student experiment 4–58709
- filament, current carrying, resonating in a magnetic field 4–54800
- film loop laboratory system, for physics experiments 4–73968
- Fraunhofer diffraction with triangular aperture, student experiment 4–62379
- gas law apparatus, student experiment 4–54802
- holographic experiments for students 4–54792
- ice cube regelation as loaded wire passes through it, student experiment 4–54804
- integrated i.r. band intensities, student expt. 4–73958
- lanthanides, spontaneous ignition in air, student demonstration 4–58702
- laser beam split into multiple rays using collection of microscope slides 4–54795
- light scattering and interference student experiment 4–62376
- light velocity meas. 4–68596
- magnetic force between two current carrying wires, student experiment 4–50942
- microdetermination of porphyrins 4–58698
- m.i.s. structures, graduate experiment demonstrating properties 4–54777
- molecular Raman spectra interpretation, 'dry' student experiment 4–58708
- Monte Carlo method 4–73955
- n.m.r. experiment on carbonium ion stabilization energies 4–58714
- perceptual exhibits, collection at Exploratorium, San Francisco 4–54774
- pH activity profile determ. in relation to enzymes, student expt. 4–58694
- pH meas., determ. of ionization constant of barely soluble weak acids 4–58696
- phase diagrams of ternary liquid systems, drawing using refractive index meas. 4–58707
- photoluminescence of I vapour *(Russian)* 4–65325
- photolysis using oxalatobisethylenediaminecobalt(III) ion 4–58695
- physics course, use of television, acoustics appl. *(Russian)* 4–58719
- p.m.r. spectral simplification using shift reagents 4–58711
- pollution effect of Pb in environment 4–71149
- power-transfer experiment 4–68598
- projectile motion expt. for classroom 4–68595
- reflection in convex and concave mirrors, equivalence 4–54790
- relativity experiment, undergraduate, using particle detectors 4–62372
- rubber band experiments for students 4–54794
- rubber band oscillations, force law obtained 4–62382
- Rutherford scattering apparatus, simulation for students 4–54801
- thermionic emission, nuvistor triode characts. determ. 4–76357
- tone generator for classroom use 4–68601
- toy whistle for acoustic demonstrations to children 4–54791
- transistor characteristics, circuit for displaying on oscilloscope, educational 4–54796
- I$_2$, vibrational analysis of spectrum, bond length and potential energy curves 4–58712
- KF and βZnS, X-ray powder diffraction photographs compared 4–58715

dendrites
- *see also crystal growth*
- alloy, arrayed dendritic growth 4–76412
- cellular and dendritic growth, theory 4–49649
- growth, capillarity-limited steady-state, numerical results 4–79251
- growth, capillarity-limited steady-state, theory 4–79250
- PVC, soln. grown amorphous film, metal induced recrystn. 4–75741

dendrites continued
- schlieren type microscopy, modified form, study of cryst. growth, dendritic cryst. 4–66846
- Ag-Cu(Pd)(Sn) alloys, multivariant analysis of dendrite structures, pattern recognition approach *(Japanese)* 4–61347
- Al, growth-twinned dendrites, crystallographic details 4–76441
- Al-Cu (3.7 wt.%) alloy, solidification microstruct. effect on corrosion behaviour 4–49775
- Al-Cu alloy, columnar, solidification microstruct. effect on corrosion behaviour 4–49791
- Al-Cu system, cellular and dendritic growth, expt. 4–49648
- Al-Cu(4.5 wt.%) alloy, solidification substruct. and solute distribs. at solid/liq. interface, quenching effects *(Japanese)* 4–45503
- Al-Cu(4.5 wt.%) alloy, solute redistrib. in duplex dendritic struct. 4–49696
- Al-Zn eutectic, unidirectionally solidified, cellular struct. *(Korean)* 4–67791
- Co superalloy, directional solidification struct. and mech. characts. 4–61409
- Cu alloys, binary, dendrite arm spacings 4–45494
- Fe-Ni(8wt%) alloy, controlled solidification 4–70440
- Fe-Ni(8wt.%) alloy, controlled solidification 4–67754
- GaAs:Se, cryst. conditions effect on elec. props. 4–44912
- GaAs:Te, cryst. conditions effect on elec. props. 4–44912
- K$_2$O-SiO$_2$ melt, cristobalite dendritic precip. kinetics 4–44480
- NaCl, dendritic freezing of aqueous solns., mag. and elec. field effects 4–67027
- Pb-Sn(46 wt.%) alloy, gravity segregation during remelting of dendritic alloys 4–45556
- Si, Fe coating, below eutectic point, growth characts. 4–44811
- Sn-Pb alloys, off-eutectic, dendrite-composite transition 4–49658

dendritic crystals *see dendrites*

densification
- *see also density; powders; sintering*
- alloyed sintered materials prod. by dynamic hot pressing 4–49870
- carbides, densification kinetics in hot pressing 4–67914
- composite, laminated reinforced, specific work of densification in dynamic hot pressing 4–80086
- nuclear reactor fuel, impact on US LWR industry 4–81661
- nuclear reactor fuel, influence of microstruture on in-pile densification 4–81573
- porosity control by extreme Kirkendall effect 4–80051
- powder, compacted, compaction press. rel. to porosity and tensile strength 4–64659
- powder, compacted systems, elastic recovery and surface area changes 4–64658
- powder, explosive compacting for flat compact fabrication *(Russian)* 4–53789
- powder, spherical, tap densification simulation by Monte Carlo technique 4–64656
- powder consolidation, principle of contact equilibration 4–70535
- refractory, hydrodynamic formation 4–49904
- steel, cast, homogenization treatment and hot isostatic pressing effect on microporosity 4–45682
- steel, stainless cold-worked neutron irradiated EBR-II fuel pin cladding, microstructure 4–81655
- viscous porous solid, densification during dynamic pressing 4–70534
- Al, porous, shock compressibility at l.p. *(Russian)* 4–61478
- Al-Al$_2$O$_3$, composite material, density and mechanical props. 4–82970
- Al$_2$O$_3$, sintering kinetics, effect of iron oxide 4–45744
- BaTiO$_3$, initial sintering kinetics, influence of Ba/Ti ratio 4–45748
- Be$_4$B, hot pressing and mech. characteriz. 4–45751
- BeO, hot isostatic pressing, microstruct. and fracture characts. 4–45759
- C beads, densification by heat treatment under 5 kbar press., texture changes 4–49874
- CoO, final-stage densification during press.-sintering diffusion model 4–45742
- Cu, porous, shock compressibility at l.p. *(Russian)* 4–61478
- Cu/graphite powder composites, resist. meas. during compaction 4–82968
- Fe powder, magnet prod. and effect of technological factors on mag. props. 4–70537
- LaB$_6$ powder, compacted at high temp. and pressure, decomposition 4–49862
- LiFe$_5$O$_8$, processing and properties, effects of sintering, temp., and stoichiometry 4–70549
- LiFe$_5$O$_8$ and LiFe$_{4.7}$Mn$_{0.3}$O$_8$, prep. technique and calcination temp. effect on densification 4–61480
- MgCr$_2$O$_4$, oxygen activity influence on sintering behaviour 4–53812
- MgO, pure dense, grain growth 4–49898
- MnZn ferrites, improved e.m. props. from hot-pressing *(Russian)* 4–45259
- Mo, fine powder, physicochem. props., compressibility and sinterability 4–49868
- Mo, porous, shock compressibility at l.p. *(Russian)* 4–61478
- Mo, powder preforms, hot and cold pressing characts. 4–49867
- Ni/Cr powder mixtures, dispersion strengthened, pressing behaviour 4–70532
- SiC bodies, isostatic pressing 4–61507
- Si$_3$N$_4$, hot pressing, Y$_2$O$_3$ additive applic. 4–53808
- Si$_3$N$_4$, synthesis, characteriz. and consolidation 4–53803
- Si$_3$N$_4$, work-of-fracture, yield correlation 4–73342
- Si$_3$N$_4$ containing MgO, hot pressing behaviour 4–53810
- SmCo$_5$, solid-phase sintering, kinetics, mechanism and effects 4–64576
- TiB$_2$ powder, hot pressing characts., creep phenomena 4–49908
- (U,Pu)O$_2$ fuel, densification during fast reactor irrad. 4–66267
- (U$_{0.75}$,Pu$_{0.25}$)O$_2$, high-density, fabrication by hot pressing 4–59841
- UO$_2$, high-density, fabrication by hot pressing 4–59841
- UO$_2$, in-pile densification characteristics 4–81664
- UO$_2$, nuclear reactor fuel thermal performance, anal. of densification and relocation effects 4–81662
- UO$_2$, sintered, grain growth and densification, effect of titania 4–81624
- UO$_2$ nuclear reactor fuel densification program 4–81663

densification continued
- UO_2 sintered, in-reactor densification, depend. on temp. and microstruct. 4−81632
- W, porous, shock compressibility at l.p. *(Russian)* 4−61478
- Y_2O_3 granular ceramics obtained by sintering and h.f. fusion, characteriz. 4−61506

densimeters *see densitometry*

densitometers *see densitometry*

densitometry
- *see also photometry*
- afocal sensitometer for photographic materials 4−80941
- colour, film characteristics 4−51086
- colour, response functions 4−42825
- dosimeter, thin film, using laser based optical densitometer system 4−46826
- electronic image analysis 4−42934
- image processing, digital, rotating drum scanner display system 4−55121
- linear microdensitometer, design considerations 4−51092
- linear microdensitometer, efflux optics 4−51093
- linear microdensitometer, optical design and test results 4−51091
- microdensitometer, film scanners, EDP scanning microscope 4−51094
- microdensitometer, laser interferometer controlled 4−46718
- microdensitometry optics, review 4−51089
- microdensitometry standarisation 4−51090
- negative granularity transformations in single stage negative positive colour photographic processes *(Russian)* 4−77116
- nuclear fuel elements, dimens. changes, neutron radiographs, electronic image analyzer applic. 4−50069
- photogrammetry, stereopair evaluation using analytical plotter 4−46720
- plasma optical interferogram processing by digital computer *(Russian)* 4−82030
- polyacrylamide gel electrophoregrams, microphotometer modification 4−46922
- source intensity compensating circuit, optical transmission meas. 4−46647
- spatial pulse modulation for coherent optical densitometry 4−59362
- transfer function compensation, photographic emulsion meas. 4−51098
- twin beam gamma-gamma densitometer for oil and gas boreholes *(Russian)* 4−54306
- U alloy castings, densitometric meas. of thickness of defects revealed by γ radiography *(French)* 4−73401

density
- *see also atmospheric pressure and density; density control; density measurement; density of gases; density of liquids; density of solids*
- lymphocyte specific gravity, relationships with human diseases 4−46363
- stars, gravit. optics calcs. 4−80454

density, atmospheric *see atmospheric pressure and density*

density, vapour *see density of gases*

density control
- ceramics, sintering rate and ultimate shrinkage control by gas composition 4−45735

density measurement
- *see also gravimetry; hydrometers*
- air jet fluctuations, crossed beam correlation meas. 4−43988
- dielectric liquid during elec. breakdown, ultra high speed laser Schlieren system obs. 4−82653
- Earth, possible determ. using passage of neutrinos from meson decay *(Russian)* 4−64730
- gamma density gauges, use of Monte Carlo simulation of photons in spheric media 4−55037
- gamma density gauges, use of Monte Carlo simulation of proton in two-layered media 4−55036
- gamma ray backscatter, surface density gauge, eqn., count rate rel. to density 4−73982
- gamma-ray backscatter gauges, comp. errors, elimination possibilities 4−73983
- gas, in supersonic stream, nonstationary, using X-ray absorption 4−51242
- gas in high velocity flows, holographic interferometric technique 4−46992
- gradient column method for small fragments before and after irrad. 4−59840
- holographic interferometer, for real time density measurement, short duration flows in shock tubes 4−71299
- irradiated fragments UO_2 reactor fuel, apparent density determ. 4−74187
- liquid metals and alloys, meas. techniques review 4−64522
- plasmas, high temp. and density, X-ray diagnostic equipment 4−60328
- radiometric monitoring by sequential statistical analysis of time intervals 4−62410
- sediment density, silt analysis, air entrainment in water 4−55115
- solid, appl. of single pan analytical and microanalytical balances 4−71294
- transonic two-dimens. flow density meas. with shearing interferometer 4−59023
- turbulent diffusion meas., portable laser light scatt. probe 4−46984
- Al_2O_3, alumina, physical density meas. by optical method 4−59013
- Cs, density of saturated vapour meas. using resonance absorption of 8521 Å radiation 4−42761
- Pu, self-heating effects in density meas. with displacement method 4−63278
- Si, density standard, spherical interferometer on steel and hydrostatic weighing expt. 4−73980
- W wires weighing about 1.3 mg, comparative density measurements with Si and CaF_2 4−74186

density of gases
- binary mixtures, two-phase, saturated densities, rectilinear diameter 4−52874
- compressed mixtures, calc. method 4−52326
- ethane, effect on slow electron capture by oxygen, at high pressure 4−52273
- ethylene, effect on slow electron capture by oxygen, at high pressure 4−52273

density of gases continued
- hard sphere gas, three dimensional calc. of transport coeffs. in powers of density 4−62752
- measurement in high velocity flows, holographic interferometric technique 4−46992
- snow crystal habit, at small excesses of vapour density 4−61782
- supersonic stream, nonstationary, gas density meas., using X-ray absorption 4−51242
- CO_2, dissociation in shock waves, rates from densitometry 4−78506
- Cs, density meas. using resonance absorption of 8521 Å radiation 4−42761
- N_2, effect on slow electron capture by oxygen, at high pressure 4−52273
- Na, very low vapour density, optical reson. fluoresc. meas. 4−48173
- S, vapour density, saturated and unsaturated, continuous gravimetric anal., 0.5-1.5 atm., 400-1000°C 4−44669
- Se, vapour composition and crit. consts. 4−79143

density of liquids
- *see also hydrometers*
- alloy, meas. techniques review 4−64522
- alloys, binary change in molar volume during formation *(Russian)* 4−52678
- anisotropic superfluids near Tc, physical significance of components 4−44720
- binary mixtures, two-phase, saturated densities, rectilinear diameter 4−52874
- compressed mixtures, calc. method 4−52326
- emulsions, liquid-solid type, conc. depend. liq. density changes 4−64653
- fluorides, molten, single and binary melts, summary of data 4−70019
- liquefied gases, method for density prediction 4−56792
- liquids, automatic sequential mixing, precision density meas. 4−59019
- metal, meas. techniques review 4−64522
- seawater specific vol. direct meas., $-2°$ to 40°C, 0 to 1000 bars 4−73521
- sequential photography, during elec. breakdown, ultra high speed, for dielec. liquid breakdown obs. 4−82653
- water, random tetrahedral model, distrib. function and ang. deforms. 4−78882
- water, self-diff. coeffs. and rot. correl. times, theoret. determ. 4−56896
- water in pores, mean density rel. to pore filling 4−64660
- Al_2O_3-BeO system melts, conc. and temp. depend. 4−70538
- Bi, pycnometric method *(Polish)* 4−67743
- CO_2, eqn. of state 4−44645
- CO_2 + ethane, phase equilib. and densities, BWR eqn. 4−63889
- Cd, pycnometric method *(Polish)* 4−67743
- Cd-Bi alloy, pycnometric method, and molar vol. *(Polish)* 4−67743
- $H_2{}^{17}O$, absolute viscosity, density meas. rel. to temp., isotope effect investig. 4−52926
- ^3He, liq., superfluidity, review 4−63961
- ^3He, superfluid, A- and B-phases at melting curve, viscosity and density meas. 4−44730
- ^4He normal component density at higher pressures, roton spectral range depend. *(Russian)* 4−52958
- Zn, pycnometric method *(Polish)* 4−67743
- Zn-Al alloys, liq. 4−64523
- Zn-Cd alloy, pycnometric method, and molar vol. *(Polish)* 4−67743

density of solids
- alkali metaphosphate glasses, comp. depend. 4−60553
- amorphous semiconductor, relaxed continuous random network model 4−60412
- cast materials, local homogeneity inspection by attenuation meas. of monochromatic X-rays *(French)* 4−73404
- glass, silicate, role of Mg ions from density and viscosity meas. *(German)* 4−45798
- ice, vitreous random tetrahedral model, distrib. function and ang. deforms. 4−78882
- inert gases, solid layers 4−70378
- lead phosphate glass, prep. and props. 4−49968
- metallic glasses, mech. characts. 4−76453
- polymer, cryst., thermodynamic stability in transition region 4−44489
- polymer, packing density change during phys. transforms. *(Russian)* 4−50025
- rock density changes in tectonic structures and tectonic-magmatic bodies 4−64792
- rock density maps rel. to gravitational field interp. *(Russian)* 4−54147
- rocks, South Urals gravitational anomalies from borehole meas. of density *(Russian)* 4−57900
- silica, disperse, density, and effect of gas saturation on quartz glass 4−53798
- steel, martensite, medium-C, density change on deform. 4−67875
- 1,3,4-thiadiazole, 220 K, cryst., mol. struct., parameters, density determ., X-ray diffr. meas. 4−56727
- univalent halides, phase transitions and elasticity-density relations 4−67034
- Al-Al_2O_3, composite material, density and mechanical props. 4−82970
- AlN, film, rel. to device appls. 4−45463
- Al_2O_3, alumina, physical density meas. by optical method 4−59013
- As-Te-Se system, binary glasses, rel. to struct. 4−79345
- C composite, glassy matrix, C-fibre reinforced, strength changes on graphitization and mechanism 4−53831
- Cs_2O_3PF, thermodynamic props. calc. from optical constants, densities and mag. susceptibilities determ. 4−45261
- CuB_{24}, single cryst. growth and struct. 4−66877
- α-Fe, solute effects on lattice parameter and density 4−45511
- In-Ge-Te ternary system, rel. to phase equilib. 4−49643
- K_2O_3PF, thermodynamic props. calc. from optical constants, densities and mag. susceptibilities determ. 4−45261
- Li_2O_3PF, thermodynamic props. calc. from optical constants, densities and mag. susceptibilities 4−45261
- Na_2O_3PF, thermodynamic props. calc. from optical constants, densities and mag. susceptibilities determ. 4−45261
- Pd-Si alloys, glassy, defect structure and effects 4−67809

density of solids continued
  Pu, self-heating effects in density meas. with displacement method 4−63278
  $Rb(D_xH_{1-x})_2PO_4$, high-temp. phase transition obs. 4−82275
  SF_6, solid layers 4−70378
  Sb-S-Br, glass formation region characts. 4−44473
  α-U_2N_3, nonstoichiometric, X-ray and density studies 4−63276
  UO_2, small fragments density meas. technique for before and after irrad. 4−59840
  ZnS single crysts., stoichiometry deviations from precision density meas. 4−69795
  ZnS single crysts. with stoichiometry deviations, thermodynamic analysis of intrinsic defects 4−69796
density of states, electron *see electronic density of states*
deoxyribonucleic acids *see DNA*
deperming *see demagnetisation*
depolarisation *see polarisation*
desalination
  cellulose acetate membrane, reverse osmosis props. rel. to desalination 4−61638
  ion transport through ion exchange membranes, electrochemical polarisation characteristics 4−73454
  nuclear reactor, heavy-water moderated, light-water cooled, natural uranium, optimisation for desalination 4−81544
  nuclear reactor desalination plant, feasability study 4−81545
  seawater, thermodynamic props. 4−70664
desalting *see desalination*
design aids
  see also design engineering; nomograms
  No entries
design engineering
  see also project engineering; systems engineering
  10 MW MHD generator, design and modeling of gas flow system 4−63707
  aviation, general, emission and noise laws implications 4−58632
  blanket conceptual design for fusion power reactor 4−55963
  canister and pipe, underground nuclear emplacement 4−81676
  conceptual θ-pinch power plant design 4−55955
  cylindrical pressure vessels, influence of head thickness on yield pressure 4−81185
  fusion power plant based on θ-pinch concept 4−55961
  fusion reactor blanket design verification neutronic analysis 4−55945
  fusion reactor blanket first wall damage rel. to loading and exchangeability 4−63303
  fusion reactor design parameters, temperature coefficients and stabilisation 4−55950
  fusion reactor structure renewal and maintenance problems 4−55934
  fusion reactor-torch complex design and operation 4−55960
  gas lasers, electron beam controlled, h.v. pulse generator and other design problems 4−59408
  inertially confined fusion reactor design 4−55953
  large deflection elastic-plastic dynamic response of stiffened shells of revolution, computer code DYNAPLAS 4−81134
  laser controlled thermonuclear reactor engineering design 4−55952
  machine tool acoustical enclosure 4−65316
  machine tools, impact noise laws implications 4−65314
  nuclear power plant standards modernization, procedures for use of plane strain and elastic-plastic fracture mechanics 4−47766
  porblems of fusion research, symposium, Princeton (1973) 4−55933
  Princeton Reference Design Reactor heat transfer system and blanket design 4−55946
  steam generators and heat exchangers, assessment of actual loading conditions according to probabilistic criteria 4−47764
  stiffened shells of revolution, inelastic nonlinear analysis by numerical integration, computer program STARS-2P 4−81186
desk calculators *see calculating apparatus*
desk-top computers *see minicomputers*
desorption
  crystallographic distribution of field desorbed species 4−75674
  dissociative vaporisation, terrace-ledge-kink model 4−75624
  excited molecules from catalyst surface, quenching, wall energy transfer investig. 4−50160
  field desorption mass spectrometry, emitter activation 4−46893
  field electrode, improvements and possibilities of vacuum usage *(French)* 4−80862
  ice, sticking coefficient and flash desorption of CO_2, critical cluster size determ. 4−48843
  isothermal and programmed thermal desorption meas., clarification of kinetics 4−63990
  isothermegraph, automatic apparatus for specific surface and pore size distrib. meas. in porous solids *(French)* 4−42920
  metal, CO desorption, electron and photon induced 4−79238
  photoresists, gases from surface, anal. using monopole mass spectrometer 4−55159
  polymer solution, conc., thermodynamic props. 4−54099
  polystyrene, of nitrogen and helium, temp. depend., 100-410K *(Russian)* 4−52944
  preflashover and electron-stimulated desorption in high electric fields 4−56985
  silicas of varying pore vol., nitrogen and mercury pore size distribs. 4−53930
  soil layer, dry, desorption and sorption processes effect on water evap. 4−68045
  solid surface, of gas, effective adsorpt. surface determ. *(German)* 4−56983
  steel, oxide film formation and use to impede outgassing 4−81646
  thermal, activation energy determ. 4−48850
  thermal adsorption curve analysis 4−56986
  two-dimensional lattice, of diat. gas, dissoc. adsorpt. investig., kinetic model 4−76620
  water vapour, transient desorption by rocket surface coatings rel. to errors in upper atmosphere expts. 4−50401
  AL_2O_3, growth and desorption of layers on tungsten cryst. planes, FEM 4−69962
  Ag surface, field desorption products including O_2, mass spectrometry obs. 4−63989
  Ag(111), chemisorption of O_2 4−48860
desorption continued
  α-Al_2O_3, photodesorption of NO, product kinetic energy determ. by time-of-flight method *(Russian)* 4−63991
  C black, of propane, specific surface meas. 4−46563
  CdS, class I crysts., thermally stimulated desorpt. and its effect on elec. props. 4−67249
  Cu crystals, angular distribs. of desorbed H_2 4−75709
  H, detection in surfaces by ultrasonic technique, determin. of conc. profiles 4−51001
  Mo tips, of Si, field emission microscope obs. 4−63982
  Ni, adsorption of H_2, flash desorption and laser induced thermal desorption obs. 4−67097
  Ni, chemisorption of H_2, absolute desorption rate meas. 4−48855
  Ni (100) crystal, kinetics of He thermal desorption 4−63988
  Ni film, CO adsorption states obs. 4−75703
  Ni surface, of H_2, isothermal and programmed thermal desorption meas., clarification 4−63990
  Ni-SiO_2 catalyst, adsorption of acetylene, saturation magnetis., LEED and thermodesorption meas. *(French)* 4−44776
  Ru, of CO and O_2, work function meas. 4−80209
  Si(111), chemisorption of In, flash desorpt. obs. 4−56992
  Ta, of SiO, energy determ., FEM *(Bulgarian)* 4−82321
  Ta, thermal desorpt. of O_2, FEM study *(Bulgarian)* 4−82317
  W, adsorption, of O_2, at (110) face, electron stimulated desorption 4−56975
  W, laser radiation interaction, crit. flux density and desorption, field emission microscopy 4−61278
  W, of Ho, action of elec. field *(Bulgarian)* 4−48848
  W, of lanthanide atoms and ions, heats of desorption determ. 4−56987
  W angle cryst., flash desorption of adsorbed ethylene and H_2 4−52985
  W of O, flash method, coverage and temp. depends. 4−60689
  Zn_2SiO_4:Mn surface, electron-induced desorption of $O_2 \propto$ cathodoluminescent efficiency change 4−48849
detection (demodulation) *see demodulation*
detector circuits
  see also demodulation
  peak detector, for mass spectrometer applic. 4−58945
  turbulent flow boundary detector using differentiating circuits 4−55170
detectors
  see also electric sensing devices; hydrophones; microwave detectors; nonelectric sensing devices; particle detectors; radiation detectors
  light sensing devices applications, non-scanned 4−71187
  marginal oscillator detector for ion cyclotron resonance spectrometers 4−71217
  marine nuclear logging methods, review 4−61897
  meteorological, review 4−50408
  micrometeoroids, Prospero satellite 4−58277
  position-sensitive detector, time-resolved position meas. applic. 4−54826
  water pollution instrumentation review 4−65288
determinants
  see also matrix algebra
  even-order functions of two variables, determinant criterion of sign-specificity *(Russian)* 4−55213
  Hill determinant applied to quadrupole mass filter studies 4−46892
  Kron's determinant, scanning algorithm 4−55189
detonation
  see also explosions; shock waves
  Chapman-Jouguet, motion of induced plane shock wave 4−56408
  detonation-shock combined wave propag. velocity 4−56412
  explosive-loading function, close-field optical analysis 4−68615
  high density explosive products, thermal eqn. of state 4−53962
  imploding, variable energy-released-per-particle model 4−44036
  laser supported detonation waves, ignition and propagation 4−60203
  Percus-Yevick equation of state calcs. 4−69586
  shock wave stability in spinning config. *(Russian)* 4−52435
  wave front in gas-mixture, press. determ. *(Russian)* 4−52436
  Cu plate, plastic wave obs. on charge detonation in aperture *(Russian)* 4−57755
  H_2-F_2-He mixtures, population inversion behind blast waves 4−69041
  H_2-O_2 mixture, detonation front irregularities at h.p. *(Russian)* 4−52437
  H_2-O_2 mixture, e.m. detonation in mag. annular shock tube 4−44041
  O_2-acetylene mixture, detonation front irregularities at h.p. *(Russian)* 4−52437
  O_2-methane mixture, detonation front irregularities at h.p. *(Russian)* 4−52437
deuterium
  adsorption on quartz-Pd resonator, effect on freq. *(German)* 4−68809
  afterglow, r.f. modulated electron beam ion heating 4−44259
  arc, temp. and electron density radial distribs., spectroscopic meas. 4−75346
  atom, 200 A neutral beam source test facility 4−59859
  atom, Balmer α line, Rydberg constant determ. 4−56005
  atom, deuteron polarisation effect on isotope shifts 4−51954
  biopolymers, H-D exchange, rapid transfer apparatus for obs. of i.r. absorption spectrum 4−58808
  catalytic reactions on oxides, gas chromatograph-mass spectrometer obs. 4−46898
  chemisorption on Ni, magnetocatalytic effects, expt. evidence 4−57883
  chemisorption on W, relative sticking coeffs. 4−56990
  collision induced fundamental band, temp dependence 4−66522
  cosmic abundance, scalar field postulation for speeding up expansion of Universe 4−58213
  D-T fusion reactor, cross-section sensitivity of T breeding in reactor blanket 4−51908
  D-T fusion reactor, effect of high-Z impurities on ignition and Lawson conds. 4−51909
  deuteration of $K(H_{1-x}D_x)PO_2$, effect on ferroelec. transition temp., and D distrib. coeff. 4−61111
  diffusion in borosilicate glass, Pyrex, chemical interaction 4−61535
  diffusion in Nb, room temp., coeff. and heat of transport determ. 4−52940

deuterium continued

- diffusion in Ta *(Russian)* 4-67063
- diffusion in vitreous B_2O_3, thermal history depend. 4-67066
- electromigration and permeation in Ag 4-82287
- fusion reactor, tritium plasma, deuterium ion beam 4-47807
- galactic nucleus, D formation by γ-activity 4-58410
- intermolecular potentials determ., from second virial coeff., polarisabilities, quadrupole moment 4-66526
- interstellar, detection, DCN microwave spectrum, HD u.v. spectrum 4-80652
- ion-molecule reaction, thermal energy rate consts. 4-53970
- isotopic content in hailstones *(French)* 4-68195
- kinetic isotope effect calcs. involving hydrogen isotopes, anharmonicity correction 4-54006
- laser spark, charact. expansion vel. 4-78789
- molecule, absorption spectrum, 1100 to 840 Å, rot. and vibr. constants 4-60050
- molecule, electric and magnetic properties, nuclear motion corrections 4-72165
- molecule, electron scattering, appl. of modified extended-range theory 4-66514
- molecule, positron scattering, cross section meas. 4-56302
- molecule, rotational excitation by thermal electrons 4-48134
- neutral beam injectors for mirror machines 4-59860
- neutral beam R & D at Lawrence Berkeley Lab. 4-59858
- origin in supernova explosions 4-58380
- pellets, 50 μ, production technique 4-56500
- permeation through nuclear reactor structural metals and oxidised metals at low pressures 4-51895
- pionic atom, relation between energy level widths, imaginary part of πd scatt. length 4-72104
- planetary atmospheres, D enrichment of metallic H and D/H ratio in giants 4-62035
- plasma, collisionless $\beta = 1$, flute instabilities during magnetic compression 4-48426
- plasma, ion-ion hybrid reson. *(German)* 4-52584
- plasma, laser heating, inhomogeneous hydrodynamic model 4-66754
- plasma, laser produced, Brillouin backscattering and parametric double resonance 4-48425
- plasma, laser produced, fast electron meas., X-ray spectra 4-44404
- plasma, Ne seeded, emission spectrum of highly ionised atoms 4-59921
- plasma focus, dense, ion temp. and mag. field meas. 4-44400
- plasma focus, neutron emission, hard X-rays 4-52618
- plasma formation in microwave discharge 4-78782
- plasma thermonuclear burn characts. of compressed D-T microspheres 4-78790
- production, high isotopic purity, electrolytic prep. from D_2O 4-81031
- protium-deuterium kinetic isotope effects, Arrhenius pre-exponential factor, quantum mech. tunnelling 4-55315
- pulsed D-Li nuclear reactor design 4-63285
- rarefied gas flow in capillary network, temp. depend. *(Russian)* 4-69596
- reaction with methyl atomic radical, using crossed beams, prod. investig. rel. to collision energy 4-50128
- recovery, from water by laser photolysis 4-50191
- solid, dielectric constant, temp. depend. 4-57454
- solid, solubility of Ne *(Russian)* 4-44677
- spectral line broadening, by D_2 in HF vibr.-rot. lines in 1st overtone band, investig. 4-60085
- supernova shock wave dissipation mechanisms 4-83223
- supernova shock waves, ^2D production 4-62108
- thermonuclear reactor neutral beam injection efficiency, effect of component performance perturbations 4-63304
- tritium-deuterium relative kinetic isotope effects, quantum mechanical tunnelling 4-55316
- Z-pinch, instability development, neutron emission 4-78764
- $Ar + D^+$, L-shell ionization by 50-600 keV ion impact 4-74913
- $B^+ + D_2 = D + BD^+$, reaction cross section 4-76588
- $C_2 + Cl$, reactive collision, exact quantum mech. anal. 4-45908
- D-D fuelled laser-compression fusion reactor, typical cost estimation 4-51907
- D-T fuelled fusion reactor, distributional characteristics of tritium in structures and fuels 4-74809
- D-T fuelled laser-compression fusion reactor, typical cost estimation 4-51907
- D-T fusion reactor, thermal state calcs. for blanket of Nb/Li mixture 4-69340
- D-T mixture, compression by heating shell with relativistic electron beam, fusion reaction initiation 4-44290
- D-T neutron generator, Fermi age to In resonance in graphite 4-74775
- D-T pellets, microexplosion evaluation for laser-fusion reactor concept, mag. field cavity-wall protection 4-69311
- D-T pellets, supercompression using high current density electron beams 4-44289
- D-T plasma, laser heated, fusion energy prod. 4-44287
- D-T plasma, laser pulse shaping, superthermal electron tail effects 4-78783
- D-T plasma ball with coating, laser compression, numerical anal. of averaged eqns. 4-48444
- D-T Tokamak fusion reactor, transmutations, radioactivity and afterheat 4-63290
- $D + Cl_2$, isotopic collinear reactive system, quantum mech. treatment 4-53989
- $D + ClF_3$, mol. beam kinetics, scatt. angles 4-50157
- $D + ClF_3$, mol. beam kinetics scatt. angles, comment 4-50158
- $D + ClI \rightarrow DI + Cl$, trajectory calcs. using LEPS pot. surfaces 4-52293
- $D + H_2 \rightarrow HD + H$, collinear reactive scatt., integral eq. approach, scatt. matrices calc. 4-83015
- $D + I_2$ reaction, classical trajectory calcs. of ang. distrib. 4-50153
- $D + NO_2$ reactive scattering, isotope effect on angular distrib. investig., mechanism 4-80174
- D^- pairs in KCl, i.r. absorpt. of coupled local mode oscills. 4-45338
- $D^- + He(Ar)(H_2)(N_2)(O_2)$, electron detachment cross section 4-81735

deuterium continued

- D^+, beam, variation in composition as source parameters are varied *(French)* 4-78379
- $D^+ + H$, mass depend. of charge transfer cross section 4-74911
- $D^+ + H_2O$, cross section energy depend., 10 to 25 keV *(French)* 4-78508
- D^+ + inert gas, 3s, 4s electron capture cross section 4-47908
- D_2, metastable $c^3\Pi_u$ state, quenching by electric field 4-48076
- para-D_2, spin-lattice relax. temp. depend., spin-echo meas., 1.5-3K 4-53326
- D_2 autoionisation final states energy distributions 4-69527
- D_2-Ar mixture, vibr. energy transfer to N_2 from DF investig. rel. to temp. 4-48141
- D_2-HD mixture, relative diffusion coeff., 240-420K 4-66547
- D_2-He, D_2-Ne collision induced fundamental band temp dependence 4-66522
- D_2-K^+, elastic scatt., repulsive potential *(Japanese)* 4-43885
- D_2-methane, u.s. absorption *(German)* 4-52823
- D_2-SF_6 chemical laser, repetitively pulsed electron beam initiated 4-55460
- $D_2 + Ar^+$, charged transfer in collisions, energetics 4-53984
- $D_2 + Cs$, Cs $^2P_{1/2} \leftrightarrows {}^2P_{3/2}$ mixing cross section, temp. depend. 4-51978
- $D_2 + D_2$ and $D_2 + H_2$ collisions, vibr. relax. rel. to temp. investig. 4-69533
- $D_2 + D_2(H_2)$, vibr. energy transfer, semiclassical S-matrix calcs. 4-56311
- $D_2 + F$, chemical laser, rate consts. from stimulated emission 4-70602
- $D_2 + H^+ \rightarrow HD^+ + D$, semiclassical ground-first excited state transition anal. 4-67998
- $D_2 + HD(H_2)(^3He)(^4He)(Ar)(D_2)$, vibr. relax. of Raman excited D_2 at 300K 4-52284
- $D_2 + He$, quantum mech. scatt. of asymm. mols., comparison to $He + HT$ 4-75058
- D_2 + hydrocarbon elastic scatt., glory undulations 4-75030
- $D_2 + I$, elastic scatt., intermolecular pot. 4-66528
- $D_2 + Kr^+(^2P_{3/2}) = KrD^+ + D$, activation energy 4-76584
- $D_2 + Na^+$, large angle inelastic scatt. 4-57832
- D_2^+, 0.2-2.6 keV, dissociation, collision-induced 4-75027
- D_2^+, ground state, props. of adiabatic energy curves 4-60020
- D_2^+, non-adiabatic calcs. for lowest energy levels 4-81761
- $D_2^+ \rightarrow D^+ + D$, collision induced, 0.4-2.6 keV 4-56319
- $(D_2)_2$, Van der Waals complex, i.r. spectrum, rot. transitions 4-60061
- $D(H) + He^* \rightarrow HeD(H)^+ + e$, merging beam reacts. investig., effective cross sections determ. 4-61580
- DT plasma, production by laser beam focusing on pellet, ignition conditions 4-44263
- $D\alpha$-line search in Orion Nebula 4-68459
- $F + D_2 \rightarrow DF + D$, Monte Carlo calcs. of reaction rates and energy distribs. of products 4-61604
- $F^+ + H_2(D_2)$ reaction cross section, isotope effect 4-76589
- H_2-D_2 liquid and solid solns., excess thermodynamic functions *(Russian)* 4-52910
- H_2-D_2 mixture, relative diffusion coeff., 240-420K 4-66547
- $H_2 + D_2$, vibr. energy transfer, collinear, pot. surface effects 4-66516
- $H_3^+ + D_2 \rightarrow D_2H^+ + H_2$, reaction kinetics, 0.22-5.21 eV, crossed beam study 4-73409
- ^2H-^3H Tokamak toroidal fusion reactor plasma balance and feasibility 4-59869
- ^4He-D_2 mixture, relative diffusion coeff., 240-420K 4-66547
- LiF:D U band absorption, peak positions meas., 77K, using synchrotron radiation 4-79761
- $N_2 + D(D^+)$, 1-25 keV collisions, $N_2^+B^2\Sigma_u^+$ and $N_2C^3\Pi_u$ form. 4-81811
- Pd:H(D) system, supercond., isotope effect 4-70090

deuterium compounds

- *see also heavy water*
- deuterium bonded complexes, relative strengths of H and D bonds 4-72140
- molecular vibration frequencies, isotopic shifts, approx. calc. with computer *(Russian)* 4-43864
- CsD_2AsO_4, complex structure in ferroelectric phase 4-67535
- DBr, Ar-buffered, vibr. energy transfer from DF investig. rel. to temp. 4-48141
- DBr, u.v. spectra, 800-1000Å, assignment of autoionising Rydberg states 4-48002
- DCN, nuclear shielding, magnetic hyperfine structure 4-48093
- DCNO, i.r. bending-rot. spectrum, quasilinear mol. model 4-52162
- DCl, dissociative attachment, cross section as function of electron energy 4-48118
- DCl, i.r. and Raman line pressure broadening calcs. 4-78472
- DCl, rot. relaxation, distorted wave approx. 4-74966
- DCl^+, transition moment variation in $A^2\Sigma^+ \rightarrow X^2\Pi_i$ transition 4-52137
- DF, DCl, Einstein A coeffs, i.r. transition probabilities calc. using improved dipole curves 4-52096
- DF, pulsed laser, 2.6 to 4.2 μ range emission 4-51567
- DF, rot. mol., vibr.-rot. energy transfer, semiclassical theory 4-52281
- DF, stimulated emission, $F + D_2 \rightarrow DF + D$ reaction rate 4-70602
- DF, vibr. energy transfer to diat. mols., rates rel. to temp., relaxation investig. 4-48141
- DF, vibrational relaxation measurements by combined shock tube-laser induced fluorescence technique 4-72224
- DF-CO_2 laser, pulse profile and intracavity conditions determ. numerical procedure 4-74491
- $DF + CO_2$, temp. depend. of V to R,T energy transfer probabilities 4-48145
- $DF + CO_2$, vibr. excitation temp. depend. cross section in 'orbiting' collision 4-66517
- $DF + F$, vibr. relax. rate coeff. calc. 4-48147
- $DF + F$, vibr. relax. rate coeff. calc., comment 4-48148
- $DGeCl_3$, gas phase i.r. spectra meas., force consts. determ. *(German)* 4-72201
- DI in 3-methylpentane(-d_{14}), 20-300K, quantum yields on 254 nm irrad. 4-57865

deuterium compounds continued
- DNCS, rot.-vibr. spectrum, 300-4000 cm^{-} $-$°, P- and Q-branches 4−48027
- DO_2, near i.r. absorption spectrum, modulation kinetic spectroscopy 4−66433
- DO_2 from $H(D) + O_2$ reaction, Ar matrix i.r. spectra and vib. analysis 4−53975
- D_2O, dielec. const. determ. rel. to press., struct. investig. 4−61089
- D_2O, molecule, pot. surface determ., anal. of anharmonic vibrs. 4−72153
- D_2O-diamagnetic electrolyte solutions, effect of press. on deuteron spin-lattice relax., struct. breaking investig. 4−61015
- D_2O_2, force constants, dihedral angle depend. 4−78435
- D_3O^+, modified Urey-Bradley force field for normal coordinate treatment 4−72142
- $D_3O^+CH_3C_6H_4SO_3^-$, spectroscopy and normal coordinate treatment of oxonium ion D_3O^+ 4−45286
- DOF, HOF, mol. vibr., isotope effects, normal co-ord. anal. 4−74964
- $D(OH_2)_2^+$, hydrogen bonded, quadrupole coupling consts. 4−69526
- $D^{29}SiF_3$, gas phase i.r. spectra, force field calc. *(German)* 4−72202
- H_2-D_2, Van der Waals complex, i.r. spectrum, rot. transitions 4−60061
- HCl-DCl, mixed crysts., lattice dynamics, absorpt. spectra estimate using negative eigenvalue theorem 4−75601
- HD-Ar Van der Waals complexes, i.r. spectrum, intramolecular force study 4−43890
- HF + DF mixtures, vib. relax. obs. 4−56313

deuteron effects
- *see also nuclear reactions and scattering due to deuterons*
- energy dispersion in passage through metallic absorbers, influence of surface state *(French)* 4−62512
- titanium-tritide, model for neutron yield decay 4−42872
- LiF, damaged region depth meas. 4−56782

deuteron interactions
- *see also hyperon-deuteron interactions; nuclear reactions and scattering due to deuterons*
- high energy, experimental cross sections compared with diffraction model, Glauber corrections 4−63053
- $dp \to ppn$, 3.3 GeV/c, spectator nucleon angular distribution anisotropy, from relativistic contraction of wave function 4−43438
- $dp \to pp p\pi^-$, 25 GeV/c diffraction dissociation of neutrons 4−74684
- $\delta d \to \rho^0 d$, relativistic correction to double scatt. Glauber formula 4−81398
- ed deep inelastic cross sections, extraction of σ_l/σ_t 4−71686
- ed disintegration process, semi-relativistic theory 4−43417
- ed measurements in third resonance region 4−77848
- $\gamma \to \rho^0(\omega,\rho^-)d$, 1-5 GeV, effective meas. distrib., total and differential cross sections 4−77817
- $\gamma d \to d\pi\pi$, 7.5 GeV linearly polarised beams, ρ^0 production 4−47526
- $\gamma d \to pp\pi^-$ $(nn\pi^+)$, 160 to 220 MeV photons yields, cross section ratio *(Russian)* 4−66046
- $\gamma d \to \pi^0 d$, 240 MeV/c -1000 MeV/c coherent photoproduction, differential cross section 4−77818
- $\gamma d \to \pi^0 d$, resonance region, discussion of recent experimental data 4−77829
- $\gamma d \to \pi^0 pn_s$, spectator model allowing for final state interactions, $\Delta(1236)$ region 4−55611
- $K^\pm$ d total cross sections, 50-200 GeV/c 4−77938
- $K^0{}_l d \to K^0{}_s d$, 5 and 10 GeV/c, using phenomenological fit in Glauber multiple scattering theory 4−74676
- $K^+d \to K^0\pi^+d$, 4.6 GeV/c, effective exchange trajectory 4−63025
- $K^+d \to K^0\pi^+np_s$, 3 to 5 GeV/c, backward production of K* (892) 4−63024
- $K^+d \to K^+\pi^-pp_s$, 4.6 GeV/c, backward production of K* (892) 4−63024
- $K^+d \to K^+\pi^+\pi^-pn$, 12 GeV/c, search for evidence of $\Delta(1236)$-$\Delta(1236)$ component of deuteron 4−69194
- $K^+d \to K^{*0}(1420)pp_s$, meas. of K*(1420) decay branching ratio 4−59630
- $K^\pm d \to K^{*\pm}(892)d$, effective exchanged trajectory 4−63025
- μd deep inelastic scattering, 7.3 GeV, neutron structure function 4−71685
- nd wave functions, two particle square well potential *(Russian)* 4−66084
- $\nu_e d \to np\nu_e$, 2.2 to 5.0 MeV, neutral current limit meas. 4−59541
- $pd \to {}^3He$ + neutral meson, 3 GeV, meson spectra by missing mass technique 4−74675
- pd and pd total cross sections, 50-200 GeV/c 4−77937
- pd low energy cross-sections meas. 4−59599
- $pd \to nd\pi^+$, 1.825 GeV/c, peripheral processes, box diagrams 4−77918
- $pd \to pd\pi^0$, 1.825 GeV/c, peripheral processes, box diagrams 4−77918
- $pd \to \pi^+\pi^-(n)$, below 400 MeV/c, angular distrib. meas. 4−59601
- pd reaction at 5.55 GeV/c, search for Δ-Δ component in ^2H wave function 4−69193
- $\pi^\pm$ d total cross sections, 50-200 GeV/c 4−77938
- πd, total cross section Glauber screening correction, Pomeron effects 4−71749
- $\pi d \to \pi pn$, differential cross section near 3-3 resonance, off-mass-shell effects 4−43429
- π^+d, 4 GeV/c, backward production of meson resonances 4−69191
- π^+d, cross section and polarisation data compilation (1968-1972) 4−66083
- $\pi^+d \to d\pi^+\pi^+\pi^-$, 11.7 GeV/c coherent interaction 4−77925
- $\pi^+d \to \pi^-$ + anything, 24 GeV/c, inclusive spectra, longitudinal momentum distribs., two particle correlations 4−59645
- $\pi^\pm d \to \pi^+p$ + spectator neutron, π^-n + spectator proton, binding corrections in (3,3) reson. region 4−77897
- $\pi^\pm d \to \pi^\pm\pi^+\pi^-pn$, 15 GeV/c, search for evidece of $\Delta(1236)$-$\Delta(1236)$ component of deuteron 4−69194

deuteron photodisintegration
- $\gamma d \to pp\pi^-$ $(nn\pi^+)$, 160 to 220 MeV photons yields, cross section ratio *(Russian)* 4−66046
- p angular distribution deduced from measurements of reaction $^2H(e,e'p)n$ 4−43518
- ^2H photodisintegration, 15-25 MeV, total cross section 4−78035

deuteron polarisation
- ed elastic scattering, deuteron polarisation, form factor depend. 4−69160
- ^3H, tensor polarisation losses by 60-370 keV deuteron beam *(Russian)* 4−74757
- $^3H(d, n)^4He$ polarisation transfer reaction, formalism 4−55841
- $^3H(d,d)^3H$ elastic scatt., 11.4 and 14.4 MeV polarised deuterons, vector and tensor analysing-powers 4−78089
- $^3He(d, p)^4He$ polarisation transfer reaction, formalism 4−55841

deuteron reactions *see deuteron interactions*

deuteron scattering
- *see also hyperon-deuteron scattering; nuclear reactions and scattering due to deuterons; proton-deuteron scattering*
- coherent scattering on deuterium, formalism in Glauber theory including spins 4−55799
- Glauber formula, relativistic corrections 4−81398
- hadron + d scatt. high-energy, multiple scatt. expansions in several particle dynamics 4−71385
- hadron-deuteron elastic scattering, screening correction, rel. to high energy inclusive processes 4−74697
- dd, Coulomb interference region, extraction of nn scattering amplitude, 845 MeV/c 4−74656
- ed elastic and inelastic scatt., polarisation effects 4−51714
- ed elastic scattering, deuteron polarisation, form factor depend. 4−69160
- nd, 14 to 146 MeV, impulse approx. anal. of ^2H structure 4−59752
- $pd \to pd$, 1.825 GeV/c, comparison with Glauber multiple scattering theory 4−77918
- πd, elastic differential cross section, 3-3 resonance region 4−43427
- πd elastic, 114-256 MeV, study in multiple scatt., and of Brueckner model 4−59609
- πd elastic backward scattering by isobars in d 4−55666
- πd scattering length meas. from K_α X-rays of π^-d mesic atom 4−59607
- π^-d elastic scatt. at 1.06 GeV/c, small momentum transfers, cross section *(Russian)* 4−71955

deuterons
- *see also cosmic ray deuterons*
- backward emission following 0.7-6 GeV particle bombardment of nuclei, invariant effects 4−59723
- e.m. structure anal. at large momentum transfer 4−71781
- identification cct. 4−77233
- ion beam separation, inexpensive bending magnet system for low energy beams 4−58907
- Pauli break-up, qualitative features from configuration space viewpoint 4−63182
- production by fast electron interaction with nuclei *(Russian)* 4−66183
- Z pinch, deuteron ion collisions as source of neutron emission 4−48446
- μ^- capture rate, axial-vector to vector coupling constants ratio 4−63145

developers (photographic) *see photographic materials*

development, photographic *see photographic process*

development management *see research and development management*

diagnosis, patient *see patient diagnosis*

diagnostics, plasma *see plasma diagnostics*

diagrams
- *see also circuit diagrams; Feynman diagrams; nomograms; phase diagrams*
- bose gas with strong interaction potential, self consistent field approx. 4−51458
- global, as tool of gauge theories 4−59504
- large angle scattering, correspondence principle relating inclusive and exclusive processes 4−55626
- perturbation theory, eigenvalue and eigenfunction correction technique 4−55329
- pinning, application to study of surface modes in spin wave resonance 4−53312
- planar, in gauge theory for strong interactions 4−59577
- quasiparticle-phonon coupling in spherical nuclei 4−43479
- two-loop, in Yang-Mills theory 4−59488

diamagnetic properties of substances
- *see also de Haas-van Alphen effect; diamagnetism*
- furan, diamag. anisotropy, ring currents and chem. shifts 4−52063
- graphite, susceptibility calc., trigonal warping of Fermi surface 4−60944
- MBBA nematic phase volume diamagnetic anisotropy from 274K to 318K 4−70139
- oxadiazoles, diamag. anisotropy, ring currents and chem. shifts 4−52063
- permeability props. in a.c. field *(Russian)* 4−57252
- perspex thermo-electrets, magnetic susceptibility variation with time 4−45234
- Ag_3AsS_3 susceptibility, anisotropy obs. 4−52707
- Ag_3SbS_3, susceptibility, anisotropy obs. 4−52707
- BH_3NH_3, LCAO MO SCF calcs. of elec. field gradients, diamag. props., dipole moments 4−81768
- $BaNb_{0.8}S_3$, prep., elec. and mag. props. 4−60455
- $BaTa_{0.8}S_3$, $BaTa_{0.8}Se_3$, prep., elec. and mag. props. 4−60455
- Bi:Sn(Pb), mag. susceptibility meas. rel. to band structure, impurity effects 4−79281
- Co complexes of porphyrins, optical and mag. props., effect of complex form. and metal valency *(Russian)* 4−45329
- Cu complexes of porphorins, opt. and mag. props., effect of complex formation and metal valency *(Russian)* 4−45329
- Cu-Ni alloys, susceptibility, conc. and temp. depends. 4−53212
- Cu_2Sb, temp. indepent. diamag. susceptibility 4−53322
- Ga-Sn alloys, solid and liq., mag. susceptibility meas. *(Russian)* 4−79496
- MgF_2, mag. susceptibility of gamma-irrad. single crysts. 4−66934
- Nb_3Sn tape superconducting coil performance in He gas up to 17K, obs. 4−59875
- $Pb_{0.94}Sn_{0.06}Se$, p- and n-type, meas. of mag. susceptibility 4−49155
- PbTe:Sb(Ag), susceptibility, impurity effects, 80-400K *(Russian)* 4−82550
- YbH_2, mossbauer studies 4−73055
- YbTe, thin film, meas. of mag. circular dichroism by visible and u.v. absorpt. spectra 4−53551

diamagnetic resonance *see cyclotron resonance*

diamagnetism
- *see also cyclotron resonance; de Haas-van Alphen effect; diamagnetic properties of substances*
- interacting electrons in solids, diamag. susceptibility determ. 4−60938
- neutral molecule, theory 4−81744
- superconductor, type II, irreversible, flux expulsion 4−45053
- superconductors, isotropic and Josephson-coupled layers, precursor diamagnetism 4−57224

diamond
- adsorption of CO on (111) surface, extended Huckel theory 4−60686
- amorphous, electronic struct., self consistent cluster theory 4−72677
- band structure, matrix elements in semi-empirical equivalent orbital method 4−69469
- bond charge model of lattice dynamics, phonon and X-ray scatt. spectra 4−52834
- Brillouin scattering, elastic consts. determ. 4−56796
- cathodoluminscence from H3 centre, decay time reduction rel. to defect interactions 4−53538
- crystallisation, space-filling by branching columnar single-cryst. growth 4−72440
- crystallisation from vapour with perodic pulse supersaturation 4−79869
- effective mass approx. for excitons and impurities 4−75806
- electron energy loss spectra 4−52795
- film grown from vapour, electron diffraction exam. of struct. 4−79248
- GR1 doublet, effect of uniaxial stress 4−49404
- growth from vapour at subatmospheric pressure, kinetic study with recording microbalance 4−67712
- growth-sectorial dependence of defects 4−69793
- Hartree-Fock directional Compton profiles calcs. 4−60515
- ion-implanted, struct transitions 4−72502
- laser window material, high-power 4−42820
- LCAO calculations for N and B interstitials 4−48926
- luminescence and absorpt. meas., diamond cryst. 4152 Å system, modulation technique 4−67608
- natural, formation of trigons at {111} faces during etching 4−82326
- natural and synthetic, linearly polarised luminescence from linear defects 4−79804
- natural growth by sulphide reduction of CO_2 4−54130
- optical spectrum, dielectric response, Wannier representation 4−73131
- phonon scattering by impurity N_2 platelet precipitate, aggregation investig. 4−63837
- powder, epitaxial synthesis, intermixing influence 4−45866
- powder-filled epoxy resin composite, thermal cond., obs. between 2 and 300K 4−53835
- pressure vessel, Raman spectroscopy under pressure 4−71201
- radiation counter, characteristics 4−46852
- radiation detector, intrinsic resolving time 4−74117
- stacking fault energy, pseudopotential calc. 4−56761
- synthesis, press. meas. with piston gauge 4−58771
- synthesis from graphite with metal catalyst, mechanism 4−56883
- synthetic, anomalous microdistrib. of dispersed N impurities, exptl. obs. 4−56767
- thermoluminescence, pre-excitation and excitation investig. rel. to temp., energy level model 4−76324
- trigons, comparison with etch patterns in Fe_3O_4 4−56999
- twinned natural and synthetic crysts., anomalous X-ray refl. 4−60512
- vacancy, SCF Xα scatt.-wave anal. of many electron effects 4−53060
- vibronic spectra, 5032 Å transition, symmetry breakdown 4−79755
- X-ray photoemission meas. of valence band 4−75779

diaphragms
- *see also valves*
- flexing members of Harwell thermomechanical generator, fatigue characteristics 4−64690

dichroism
- *see also pleochroism*
- alkali halide, extinction technique for optical storage using anisotropic colour centres 4−73097
- anthracene, and substituted anthracenes, polarisation spectra, excited states, transition moments investig. 4−78439
- anthraquinone-β-sulfonic acid, oriented in polyvinyl alcohol film, dichroism depend. on degree of extsn. 4−49324
- benzene, B_{2u} state, mag. circular dichroism, absorpt. spectra meas., rot. strengths calc. 4−81775
- benzene derivatives, mag. circular dichroism, mag. moments 4−81770
- benzoic acid, oriented in polyvinyl alcohol film, dichroism depend. on degree of extsn. 4−49324
- benzole derivatives, magnetic circular dichroism spectra, mol. orbital calcs. 4−43818
- camphorquinone, circularly polarized luminesc., stereochem. 4−67637
- β-carotene, in stretched polyethylene films, linear dichroic spectra 4−72172
- chiroptical spectra of molecules with nearly degenerate electronic states 4−78437
- circular, meas. by stopped flow system with millisec. resolution 4−46627
- circular dichroism, circularly polarised light absorpt. rate calc., quantum electrodynamic theory 4−61126
- circular dichroism, induced, differential absorpt. rate calc., quantum electrodynamical method 4−67547
- circular dichroism spectrometry, Fourier method for digital data smoothing 4−77073
- cyclononatetraenide anion, mag. circular dichroism, Faraday A term for 250 nm and 320 nm bands 4−47975
- dimethyl aniline, polarized spectrum, new electronic transition, 265 nm linear dichroism study 4−74976
- dinaphth[de-1,2,3; d'e'-5,6,7]azulene, in stretched polymers, polarized absorpt. spectra, linear and mag. circular dichroism 4−57564
- ellipsometric measurement, ratio of complex eigenvalues determ. 4−51052

dichroism continued
- halogenobezenes, mag. circular dichroism, Faraday A term of ${}^1A_{1g} \rightarrow {}^1E_{1u}$ transition, mag. moment 4−47976
- indole derivatives, magnetic circular dichroism spectra, mol. orbital calcs. 4−43818
- liquid crystals, determ. of ordering from dichroism of dissolved dyes 4−52691
- magnetic circular, e.p.r. detection, sensitivity parameters *(French)* 4−57352
- microspectrophotometer, computer-assisted, linear dichroism meas. in single cells 4−77260
- molecule in dense media, chem. substitution effect on absorpt. spectra and MCD 4−52112
- naphthalene in polymer matrices, polarised spectra, linear dichroism obs. 4−81771
- naphthalenes, monosubstituted, electronic transition polarisation, dichroism method 4−67548
- p-nitroaniline, oriented in polyvinyl alcohol film, dichroism depend. on degree of extsn. 4−49324
- optical circular dichroism meas. and recording spectrograph 4−77078
- optical purity determination by circular polarisation of luminesc. 4−67638
- organic liquid, i.r. circular dichroism of C*-H and C*-D stretching modes 4−52147
- organic liquid, i.r. circular dichroism of C*-H and C*-D stretching modes 4−52148
- organic molecules mag. circular dichroism, B terms calc. using perturbation formula 4−52058
- poly[($\pm$)-β-aminobutyric acid], drawn film, orientation phenomena, i.r. dichroism, X-ray diffraction 4−48525
- spectrometry, improved method 4−54933
- tetragonal molecular system, Jahn-Teller instability and mag. circular dichroism for E-orbital state 4−56171
- transition metal oxy- and thio-anions, visible u.v. spectra and mag. circular dichroism 4−49375
- transition metal phthalocyanines, MCD spectra, charge transfer bands assignment 4−67576
- transition metal phthalocyanines, orbital reduction factors in lowest excited states, MCD spectra 4−67577
- $[Mo_6Cl_8]^{4+}$, mag. susceptibility and mag. circular dichroism spectra, ground state config. 4−63397
- Br_2, mol. in soln., mag. circular dichroism, overlapping $0_u{}^+({}^3\pi)$ and ${}^1\pi$ bands 4−67599
- $(CH_3NH_3)_2$ $CuCl_4$ single crystals, magneto-optical study *(German)* 4−79705
- CaF_2:Dy^{3+}, spin-lattice relax., mag. circular dichroism obs. 4−79768
- Cl_2, mol. in soln., mag. circular dichroism, overlapping $0_u{}^+({}^3\pi)$ and ${}^1\pi$ bands 4−67599
- CoF_2, antiferromag., circular and mag. circular dichroism meas. 4−57567
- Cr(III) ion, absorpt. and mag. circular dichroism spectra 4−49401
- Cs_3CoBr_5, absorpt. spectra and mag. circular dichroism of spin-forbidden ligand field transitions 4−61180
- Cs_2ZrCl_6:Mo^{4+}, MCD and u.v. absorpt. spectra, temp. depend. and assignments 4−49402
- Cu(II) complexes with tridentate amino acids, circular dichroism and electronic spectra 4−61185
- FeF_2, antiferromag., circular and mag. circular dichroism meas. 4−57567
- I_2, mol. in soln., mag. circular dichroism, overlapping $0_u{}^+(3\pi)$ and ${}^1\pi$ bands 4−67599
- $IrCl_6{}^{2-}$, octahedral, Ham effect in ${}^2T_{2u}$ excited state charge transfer 4−73127
- $KAl(SO_4)_2.12H_2O$:Cr, electric field induced optical activity and circular dichroism 4−82687
- KCl, polarised absorption of F_2-centre triplet state 4−69992
- KCl:Na, dichroism, bidirectional holographic information storage 4−80923
- $KMgF_3$:C, magnetic circular dichroism, visible-near u.v. region 4−49369
- $KMgF_3$:Mn^{2+}, mag. circular dichroism, phosphorescence excitation spectrum 4−73171
- K_2MnF_4, antiferromagnet, mag. circular dichroism of ${}^4A_1$, ${}^4E$ region 4−57558
- $KZnF_3$:Mn^{2+}, mag. circular dichroism, phosphorescence excitation spectrum 4−73171
- MgO, elec. field induced dichroism of V^--centre 4−73102
- MgO:Co^{2+}, mag. circular dichroism in visible-u.v. region 4−64410
- $Mn(CO)_5X$, X=Cl, Br, I, MCD and absorpt. spectra 4−52128
- MnF_2, antiferromag., circular and mag. circular dichroism meas. 4−57567
- MnF_2, antiferromagnet, mag. circular dichroism of ${}^1A_1$, ${}^4E$ region 4−57558
- α-$NiSO_4.6H_2O$, optical activity, absorption spectrum, circ. dichroism 4−53438
- α-$NiSeO_4.6H_2O$, optical activity, absorption spectrum, circ. dichroism 4−53438
- O_2, matrix-isolated mag. circular dichroism spectra 4−78440
- Os(III) meridional complexes, mag. circular, bonding study 4−43834
- Ru(III) meridional complexes, mag. circular, bonding study 4−43834
- UO_2, mag. circular dichroism, 13000-17000 cm^{-1} 4−45319
- $Y_3Fe_5O_{12}$, film, mag. circular and linear dichroism, absorption 4−73218
- YbTe, thin film, meas. of mag. circular dichroism by visible and u.v. absorpt. spectra 4−53551

dictionaries *see glossaries*

dielectric breakdown *see electric breakdown*

dielectric breakdown diodes *see space-charge limited devices*

dielectric constant *see permittivity*

dielectric depolarisation
- ceramic, ferroelectric-antiferroelectric transition with sharp temp. drop, energy conversion *(French)* 4−61112
- styrene-acrylonitrile copolymers, mol. mobility obs. using thermodepolarisation currents 4−49294
- thermally stimulated, rel. to cond. 4−53362

- **dielectric depolarisation** continued
  - LiF(:Mg), thermally activated effects, dipole reorientation 4−82659
  - TiO_2, single cryst. and ceramic samples, defect obs. by thermally stimulated depolarisaton currents 4−57099
- **dielectric devices**
  - *see also capacitors; ferroelectric devices; insulators; piezoelectric devices; space-charge limited devices*
  - electret probe, fabrication and application 4−80956
- **dielectric function**
  - alkali metal, 250-630 nm., expt. 4−45324
  - Cole-Cole formulae confronted with expt. data 4−70246
  - dielectric slab system, interaction energy calc. for systems of (ε_3-ε_2-ε_1) geometry 4−60839
  - electron gas, one dimensional, linear response 4−67144
  - electron gas, temp. depend., rel. to free energy 4−44679
  - electron gas, with arbitrary degree of degeneracy *(German)* 4−51452
  - ferromagnetic semiconductor, heavily doped, screening, uniform state instability and charge carrier scattering 4−79340
  - fluorene vapour and single crystals electron energy loss spectra 4−75553
  - graphite, pyrolytic, π and σ valence bands, reflectivity meas. and complex dielectric function calc. 4−82365
  - inelastic light scattering determination 4−61135
  - inhomogeneous metallic systems, hydrodynamic response anal. 4−74961
  - interface stability, with ion or dipole layers 4−44749
  - metal, semicond. interface influence on supercond., image term 4−79442
  - microscopic optical fields and mixing coeffs. of X-ray and optical freqs. 4−73096
  - one dimensional Peierls insulator, Penn's model 4−72715
  - reflection, internal, molecular band region spectra, opt. characts. determ. by Kramers-Kronig method *(Russian)* 4−45278
  - Rochelle salt, permittivity dispersion, 1 Hz to 300 GHz 4−79687
  - semiconductor, disordered, electronic dielec. susceptibility *(Russian)* 4−72678
  - semiconductor, zero-gap, anomalous interband dielec. const., theory 4−79668
  - semiconductor model, calc. in random-phase approx. 4−45230
  - superconvergence and sum rules, phys. meaning, comparison with expt., and generalization 4−45264
  - TTF-TCNQ films, frequency-dependent i.r. conductivity 4−53440
  - Wannier representation, appl. to diamond optical spectrum 4−73131
  - water, liq., optical, dielec. props. meas. rel. to collective electronic oscills. investig. 4−60398
  - Ag, low temp. limit of static and thermoderiv. behaviour, transitions involving Fermi surface 4−79745
  - Ag film, electron energy loss calcs., 20 to 120 eV 4−53387
  - AgPd, dilute, optical props. exam. in terms of Anderson model 4−82712
  - Al, phonon dispersion and liquid resist., calcs. using self-consistent dielec. function 4−44615
  - AlN, polycryst., optical props. meas. between 0.10 and 25 μ 4−45260
  - Ar crystal, lattice dynamics *(Russian)* 4−44629
  - Au film, electron energy loss calcs., 20 to 120 eV 4−53387
  - AuNi, dilute, optical props. exam. in terms of Anderson model 4−82712
  - Cu film, electron energy loss calcs., 20 to 120 eV 4−53387
  - CuNi, dilute, optical props. exam. in terms of Anderson model 4−82712
  - Fe garnet film, epitaxial, optical props. 4−49388
  - GeSe, cryst. and amorphous, far i.r. absorp., h.f. and l.f. dielec. consts. detn. 4−45289
  - He gas, density depend. dielec. function, short range electronic distortion 4−72273
  - HgTe, reflectivity meas. between 8-300K 4−53442
  - KCl(Br), rel. to microscopic calc. of phonon spectrum 4−79123
  - Li, refl. meas., u.v., Fresnel anal. 4−79695
  - LiF, optical props. investig., Hartree-Fock band struct. calcs. 4−70320
  - MnF_2, i.r. lattice-vib. spectra 4−82696
  - Mo, refl. and dielec. function, 0:1-35 eV 4−79747
  - Ne crystal, lattice dynamics *(Russian)* 4−44629
  - Ni film, electron energy loss calcs., 20 to 120 eV 4−53387
  - Pd film, electron energy loss calcs., 20 to 120 eV 4−53387
  - Pt film, electron energy loss calcs., 20 to 120 eV 4−53387
  - $RbClO_3$, polar isotope modes, dielec. function generalized expression 4−60572
  - Si, lattice dynamics and dielec. screening, Penn dielec. function calcs. 4−44626
  - α-Sn, pseudopotential calc., valence bands 4−57038
  - Ta, refl. and dielec. function, 0.1-35 eV 4−79747
  - U film, 2 to 220 eV spectral region, electron energy loss spectra 4−53388
  - V, refl. and dielec. function, 0.1-35 eV 4−79747
  - YIG, film, epitaxial, optical props. 4−49388
- **dielectric hysteresis**
  - Rochelle salt, Be-doped, internal bias 4−82672
  - tunnel-diode comparator with controlled hysteresis 4−51164
  - CaF_2, ferroelectric behaviour 4−53380
  - $Ca_2Nb_2O_7$ single crysts., ferroelec. props. 4−64351
  - KIO_3, 120° shift in ferroelectric polarisation, and characteristics 4−82676
  - $PbZrO_3$, temp. depend. of elec. quadrupole interaction 4−76228
  - SbSI, illumination influence on double hysteresis loops near phase transition temp. 4−57487
  - SbSI, photo-ferroelectricity effect on hysteresis loop 4−64346
  - $SbSI_{0.35}Br_{0.65}$, repolarization, influence of illumination, electronic mechanism 4−49312
- **dielectric loss angle** *see loss angle*
- **dielectric losses**
  - *see also loss-angle measurement*
  - acrylates, monomer type, 30-70°C 4−53370
  - aliphatic esters, in cyclohexane soln., dielec. consts., losses meas., dielec. relax. investig. 4−76212
  - alkali metaphosphate glasses, freq. and temp. depend. 4−60553
  - alkyl acetates, relax. times rel. to mol. size 4−45241
- **dielectric losses** continued
  - anthracene, rel. to freq.-depend. cond., 10^{-6} Hz to 32 GHz 4−67213
  - benzonitrile and mixtures with nitrobenzene, in soln., dielec. absorpt., relax. investig. 4−76331
  - bromoalkanes, monosubstituted, macroscopic viscosity rel. to dielectric relaxation and losses 4−76213
  - ceramic, foamed, dielec. characteriz. at mm wavelengths, cut-off filter potential 4−76215
  - dialkyl phthalates, supercooled liquid state 4−82657
  - electron tunnelling into single trapping level, calcs. 4−45231
  - esters, dielec. relax. rel. to internal rot. 4−57470
  - ferrocyanides, $A_2BFe(CN)_6.xH_2O$, (A = alkali, B = alkaline earth or transition metal), ionic mobility determ., rel. to struct. 4−48991
  - fluorides, binary, high losses due to F^- ion mobility *(French)* 4−61094
  - fluorotoluene, benzene dilute soln., mol. motion effect on dielectric relaxation 4−57467
  - He, liquid 4−70255
  - helical waveguide cavity meas. at 9 and 35 GHz 4−65489
  - hermatite ore, frequency dependence of dielectric constant and dielectric loss, 10^2-10^7 c/s 4−49290
  - hopping losses in polarisable dielectric media 4−61104
  - isoquinoline, pure liquid, dielectric relaxation, internal field effects 4−49300
  - liquid crystal, nematic, a.f. range 4−79702
  - N-p-methoxybenzylidene-p-butylaniline, nematic phase, dielec. meas., 1-120 × 10^3 kHz 4−45246
  - nitrobenzene and mixtures with benzonitrile, in soln., dielec. absorpt., relax. investig. 4−76331
  - nitrotoluene, benzene dilute soln. mol. motion effect on dielectric relaxation 4−57467
  - octanoyl chloride, benzene soln., dielectric behaviour at microwave freq. 4−57466
  - oligoester acrylate polymers, two dipole group loss regions *(Russian)* 4−57471
  - organic monomolecular layers, oxide layer effect 4−79674
  - phenylacetic acids, substituted, in dilute solns. of dioxane, dielectric absorption of microwaves 4−45239
  - picolines, α-, β-, γ-, pure liquid, dielectric relaxation, internal field effects 4−49300
  - polar solution, relax. parameters eval. from dielec. data 4−70253
  - polar solution, relax. parameters eval. using Budo eqns. 4−70254
  - polyethylene 2,6 naphthalate film, dissipation factor meas. *(Japanese)* 4−82655
  - polymer, glass transition region behaviour, mag. field effects 4−45247
  - polypyromellitimide, high pressures, dielectric losses and conductivity meas. *(Russian)* 4−82663
  - polystyrene, peroxide bonds and degradation products effect 4−70258
  - porcelain, hard, rel. to mineralogical comp. and microstruct. 4−49302
  - propylene carbonate (4-methyl-1,3-dioxolan-2-one), dielec. relax., 0-50°C, 0.5-35 GHz 4−45245
  - quinoline, pure liquid, dielectric relaxation, internal field effects 4−49300
  - relative permittivity, low loss dielecs., fixed cavity meas. 4−80951
  - sand-Al mixtures, frequency dependence of dielectric constant and dielectric loss, 10^2-10^7 c/s 4−49290
  - silicone fluid, dielectric props. 4−82658
  - βspodumene glass-ceramics, composition and heat treatment 4−67525
  - thermoplastic, dielec. props., molecular structure effects 4−82651
  - trifluoromonochloroethylene oligomers, expt. 4−82662
  - triglycine sulphate, change due to fragment loss in vacuum 4−70247
  - Au-Al_2O_3-Au, Cole-Cole diag. develop. rel. to time *(French)* 4−67288
  - Au-SiO_x-Au, a.c., freq. and temp. depends. *(French)* 4−75970
  - $(Ba,Sr)TiO_3$, solid soln., dielectric dispersion investigation in ferroelectric phase 4−64341
  - $BaTiO_3$, dielectric dispersion investigation in ferroelectric phase 4−64341
  - CaF_2:Na(Mn), dielectric props., freq. and temp. depend. 4−64327
  - Cu ferrites, comp., freq. and temp. depends. 4−57458
  - $Fe(CO)_5$-epoxy resin, s.h.f. absorbers *(Russian)* 4−53364
  - $GdDy(MoO_4)_3$, loss tangent permittivity meas. from 8.78 to 12.26 GHz 4−61117
  - HCl in liquid SF_6, multipolar interactions effect on solvent dielectric loss 4−44460
  - $K_{3/4}Bi_{1/4}Zn_{1/6}Nb_{5/6}O_3$, press. effect on dielec. relax. determ. 4−61103
  - KBr, with divalent cation impurities, dielectric losses meas. in range 5-500 kHz 4−61102
  - KBr:Pr^{3+}, relaxation of impurity vacancy dipoles 4−49406
  - KCl, with divalent cation impurities, dielectric losses meas. in range 5-500 kHz 4−61102
  - KCl:Pr^{3+}, relaxation of impurity vacancy dipoles 4−49406
  - $K_xMg_{x/2}Ti_{(8-x/2)}O_{16}$ Hollandite structure, dielec. loss and a.c. conductivity obs. 4−52934
  - KNO_2, press. depend., room temp. phase 4−45236
  - MgO, defect surface, H_2 interaction investig., elec. cond., dielec. loss studies 4−76621
  - NaCl, with divalent cation impurities, dielectric losses meas. in range 5-500 kHz 4−61102
  - NaCl:Pr^{3+}, relaxation of impurity vacancy dipoles 4−49406
  - NaI, permittivity, dielectric loss, freq. and temp. depend. 4−57451
  - $PbCl_2(Br_2)$, localised dipoles, dielec. relax. losses 4−67526
  - $Pb(ZnW)_{1/2}O_3$, paraelectric-antiferroelectric transition temp., press. depend. 4−73083
  - $Pb(Zr,Ti)O_3$, ferroelec. ceramic, field depend. 4−70267
  - $Pb(Zr,Ti)O_3$, solid soln., dielectric dispersion investigation in ferroelectric phase 4−64341
  - RbCl:Pr^{3+}, relaxation of impurity vacancy dipoles 4−49406
  - Sb_2S_3, ferroelec. transition 4−79690
  - YGdAlFe garnet, Fe content depend. 4−67407

dielectric materials
see also antiferroelectric materials; electrets; ferroelectric materials; insulating coatings; insulating materials; insulating thin films; insulation; piezoelectric materials
antiferromagnetic, two-dimensional, theory of two-exciton states 4−72736
applications, conf., San Francisco, USA (May 1974) 4−45912
elastic, diatomic, lattice dynamics theory 4−75584
electric fields and currents due to excess charges and dipoles in insulators, comment 4−76210
electric insulation and dielectric phenomena, conference, Varennes, Quebec, Canada, (Oct 1973) 4−82650
electron evanescent wave, interaction with matter, appl. to Cherenkov effect *(French)* 4−74478
film, current characts. under slow electron impact 4−79426
film, laser damage investigation 4−43342
film drying process in s.h.f. field *(Russian)* 4−65865
glass mixtures, DTA characterization technique 4−44478
n- hexane-neopentane mixtures liq. dielec., electron mobility rel. to conducting state energy 4−60821
interaction energy of dielec. slab system of (ε_3-ε_2-ε_1) geometry calc. 4−60839
layer, charge inhomogeneities imaging using mirror electron microscope *(German)* 4−48486
light velocity in mag. field 4−71497
loss meas. 4−65500
microwave holographic imaging of anomalies 4−51074
molecular crystals, Stark spectroscopic studies of dielec. breakdown and space charge effects 4−67529
nonlinear current flow problem, higher harmonics *(Russian)* 4−70025
oxides, props. rel. to stoichiometry 4−49021
photoconductivity, initial recombination and charge scavenging effects 4−82462
plasmogenic working materials in pulsed plasma accelerators, disintegration 4−44411
plastic, alpha particle detection, automatic counting technique 4−65516
polar, macroscopic and mol. relax., comparison 4−53365
polar dielectrics, orientational polarisation *(Russian)* 4−64325
polyethylene thin film, breakdown by surface discharges 4−67297
polymer dielectric, absorption and steady currents *(Reegal Zgmaae Retmam)* 4−79364
polymer film, thermal and radiation polarisation 4−64326
thermal properties, high temp. investigs. at Moscow Univ. 4−52897
Van der Waals forces between dielectric and permeable plates 4−62772
zeolite-metal system, positronium form. *(Russian)* 4−72492
GeO, multilayer mag. films, internal macrostresses *(Russian)* 4−67127
LiF, multilayer mag. films, internal macrostresses *(Russian)* 4−67127
LiF, thermal mixing of nuclear Zeeman and electronic spin-spin impurity interactions, theory 4−72709
PSe_x, glasses, struct. and physicochemical props. 4−44474
Pb chalcogenides, props. rel. to stoichiometry 4−49021
Pb(Zr, Ti)O_3 type solid solutions, electrical properties 4−53091
$PbZrO_3$, current-voltage characteristics and temperature dependence of electrical conductivity 4−53090
SiO, multilayer mag. films, internal macrostresses *(Russian)* 4−67127
$SrTiO_3$-La(Fe, Al)O_3, with controlled permittivity temperature coefficients 4−70250

dielectric measurement
see also capacitance measurement; loss-angle measurement; permittivity measurement
33 GHz semiconductor dielectric and Hall mobility meas. 4−65497
discharges, partial, using automatic level scanning device, computer-aided *(Italian)* 4−80943
electret probe application 4−80956
etching versus pyroelec. laser technique, ferroelec. domain obs. in TGS 4−49285
H_{11} mode circular waveguide, radial gap effects 4−65488
ionic solid, a.c. bridge and ionic thermocurrent methods comparison 4−67506
loss meas. on materials 4−65500
lossy dielectrics, dispersive Fourier transform spectrometry at submillimetric wavelengths 4−65444
materials with very low loss, spectrometry and recording at submillimetric wavelengths 4−65443
Nitellopsis cells with intracellular electrodes 4−76939
nonlinear, in cond. media using freq. sampling technique 4−67508
nonlinear dielectric effects, digital system 4−46738
partial breakdown sites in solids, technique for locating 4−57448
polymers, low-loss, radiometric meas. of submillimetric wavelengths 4−67509
properties by thermally stimulated current meas. 4−57447
resonant microwave cavity as probe for liquids and solids 4−67507
$Ce_{1-x}Ca_yO_{2-y-x}$, nonstoichiometric, ionic transference number meas. 4−52933
CeO_2, nonstoichiometric, ionic transference number meas. 4−52933

dielectric phenomena
see also dielectric hysteresis; dielectric losses; dielectric relaxation; dielectric resonance; electric strength; ferroelectric phenomena; loss angle; piezoelectricity; solvated electrons
auditory nerve filtres, discharge rates and loudness function derivation from 4−54650
axially symmetric electromagnetic fields in inhomogeneous dielectric media *(Russian)* 4−65864
electric insulation and dielectric phenomena, conference, Varennes, Quebec, Canada, (Oct 1973) 4−82650
e.m. irradiation of dielectric crystal, macroscopic theory 4−59341
Fermi fluid, two component, Landau theory *(Russian)* 4−79261
nonretarded van der Waals interaction with nonlocal dielectric permeability 4−82652
polar media, phenomenological description on basis of effective Hamiltonian 4−61099
polarisation fluctuations, space- and time-dependent 4−55300
quasi-one-dimensional metals, thread interaction effects on dielec. and supercond. behaviour *(Russian)* 4−72886

dielectric phenomena continued
S-polarized opt. props. of slab dielectric, effect of spatial dispersion 4−57491
secondary ferroics, symm. 4−73084
$KTa_xNb_{1-x}O_3$, anisotropy in paraelectric vibrational amplitudes 4−69865

dielectric polarisation
alkali halide crystals, ionic polarisability crystal radius relation 4−57462
alkali halide crystals, ionic polarizability, ionic radius, empirical relation 4−57460
alkali metal chlorate ion pairs, matrix isolated, vib. spectra 4−56215
alkaline earth compounds, ion polarisability-ionic cryst. radius relation 4−57461
bees wax, elec. cond., semicond., thermoelectret 4−79363
1,4-benzoquinone and related cpds., anomalous elec. polarisations, submm. spectra 4−66449
carnauba wax electrets, orientation, field strength depend. 4−70251
chalcogenides vitreous semiconductors, expt. review 4−79268
Cole-Cole plots and distribution functions of decay times 4−67528
collapsed stellar objects, electric polarization near Schwarzschild limit due to electron gravitational mass effects 4−50442
dicalcium strontium propionate, paraelec. electrostriction 4−73077
electret depolarization process, discharge current inversion *(Russian)* 4−67520
electric fields and currents due to excess charges and dipoles in insulators, comment 4−76210
electric polarisation calc. in crystals 4−49298
Fermi liquid, l.f. polarisation wave propag. 4−75660
ferroelectric, perovskite, elec. polarisation anisotropy of cubic paraelec. phase 4−79673
ferroelectric thin film, theory of phase transition characts., depolarisation effects 4−73089
ferromagneto-electric crystal, relativistic symmetries and lower bounds for polarisation to magnetisation ratio 4−82555
fluctuations, space- and time-dependent 4−55300
heteroorganic compounds, dipole moments calc. 4−53363
inorganic solids, charging processes 4−79400
ionic crystal, extra electron, extended polarisable ion lattice model 4−75751
linear isotropic dielectric, longit. polarisation induced by coherent radiation 4−74526
m.i.s. capacitors, use of bias stress for i.g.f.e.t. characterisation 4−57173
naphthalene, magnetically polarised photo-depolarisation 4−67521
nitrobenzene/benzene mixture, molecular hyperpolarisability, d.c. elec. field induced s.h.g. obs. 4−57459
nonpolar liquid, polarisability as function of temp. and pressure 4−82660
orientational polarisation of polar dielectrics *(Russian)* 4−64325
photoelectret with heterocharge, thermally stimulated depolarisation, theory 4−76211
polar liquid, temp. evolution of autocorrel. functions and spectral densities *(French)* 4−79670
polar media, phenomenological description on basis of effective Hamiltonian 4−61099
poly(vinylidiene fluoride), planar zigzag, uniaxially oriented samples, Raman spectra, elec. polarisation effects 4−70295
polyethylene, charge storage meas., mechanism 4−72873
polyethylene terephthalate electrets charge production, storage 4−70252
polymer dielectric film, thermal and radiation polarisation 4−64326
polymer solution, mol. mobility during phase separation, dipole polarisation relax. meas. 4−73372
polystyrene, film, depolarisation thermocurrent, glass transition 4−45238
polystyrene, step response meas., time law *(German)* 4−73080
polystyrene-diphenylmethane isodielectric mixture rel. to electrolytic cond. 4−82441
polyvinylidene fluoride, dipole reorientation, TSC obs. 4−57463
semiconductor, dielectric response function 4−45235
thermally stimulated depolarisation phenomena, correction to usual analysis 4−79672
triglycine fluoroberyllate, high press. effect 4−70263
triglycine sulphate, high press. effect 4−70263
triglycine sulphate, polarisation reversal, etching versus pyroelec. laser technique 4−49285
triglycine sulphate film, depolarisation field induced instability 4−45237
trigylcine sulphate, rel. to dispersion of permittivity in vicinity of phase transition 4−49311
unipolar crystal, state of polarisation in surface layer and pyroelectric responses 4−64334
water molecule and dimers, mol. polarisability and dielec. effect of medium in liq. phase *(French)* 4−56181
As_2Se_3, thermally stimulated depolarisation meas. 4−57464
$Bi_4Ti_3O_{12}$, ferroelec., nucleation site drift, depoling 4−70268
CaF_2, X-ray induced thermally activated polarization transfers 4−67517
CdTe film, electret effect 4−70084
HgI_2-polystyrene binder layers, photopolarization characts. 4−61096
KH_2PO_4, paraelectric phase, Raman spectra temp. depend. 4−57509
KH_2PO_4, press. and temp. depend. of spontaneous polarisation calc. 4−76229
KH_2PO_4 type ferroelectrics, statistics in cluster approximation 4−53384
KIO_3, 120° shift in ferroelectric polarisation, and characteristics 4−82676
KNO_2, press. depend., room temp. phase 4−45236
La metaniobate, electrophys. props., i.r. spectra 4−67511
LiF(:Mg), thermally activated effects, dipole reorientation 4−82659
NaCl in contact with metal electrodes, electrode polarisation phenomenon 4−67518
(Pb,La)(Zr,Ti)O_3 ceramic, elec. controlled secondary phase 4−67540
$PbHPO_4$, $PbDPO_4$ ferroelectric temp. depend. 4−70260
Pb(Zr,Ti)O_3, ferroelec. ceramic, field depend. 4−70267
RbH_2PO_4, press. and temp. depend. of spontaneous polarisation calc. 4−76229
SbSI, nonequilibrium carriers effect on polarisation distrib. 4−73090

dielectric polarisation continued
  $SbSI_{0.35}Br_{0.65}$, repolarization, influence of illumination, electronic mechanism 4−49312
  $Sn_2P_2S_6$, ferroelectricity, spontaneous polarisation, coercive force 4−73086
  $Zr_{0.85}Ca_{0.15}O_{1.85}$ space-charge polarisation at 400° to 950°C, obs. 4−53374
dielectric properties of gases
  dimethoxymethane, conform. struct. investig. using CNDO/2 calcs. and dielec. props. *(French)* 4−56058
  fluorene vapour electron energy loss spectra 4−75553
  Ar, Clausius-Mossotti function, 35°C and 12 kbar *(French)* 4−43910
  H_2, diat., second dielec. virial coeff. determ. from polarisability 4−69480
  N_2O and mixtures, fund. collision processes leading to breakdown at h.v. 4−75070
  SF_6, hexadecapole moment, dielectric and press. virial coeff. obs. 4−52338
  SF_6-N_2 mixtures, dielectric characts. and breakdown voltages 4−75401
dielectric properties of liquids and solutions
  acrylates, monomer type, dielec. relax. 4−53370
  aliphatic esters, in cyclohexane soln., dielec. consts., losses meas., dielec. relax. investig. 4−76212
  amino acids in aqueous soln., dielec. increments w.r.t chain conform. 4−56326
  aminoacids, linear chain, aqueous solns., complex permittivity, microwave region, temp. and conc. depend. *(French)* 4−57449
  4-aminophthalimide in n-propanol, luminesc. spectra, orientation relax. kinetics investig. 4−73174
  aqueous ion solns., freq. dependence, interpretation *(German)* 4−62487
  aqueous solns. of alkali metal halides, temperature inversion of conc. depend., rel. to association and hydration of ions 4−68029
  azobenzenes, liq. crystal, dielectric consts. and mol. struct. 4−56615
  azoxybenzenes, liq. crystal, dielectric consts. and mol. struct. 4−56615
  benzonitrile and mixtures with nitrobenzene, in soln., dielec. absorpt., relax. investig. 4−76331
  1,4-benzoquinone and related cpds., anomalous elec. polarisations, submm. spectra 4−66449
  benzyl acetate, liq., complex dielectric constant meas. 4−61100
  benzyl benzoate, supercooled state, comparison of viscoelastic, dielec. and light scatt. props. 4−67527
  benzyl propionate, liq., complex dielectric constant meas. 4−61100
  binary liquid system with normal components, dielec. const. approx. calc. *(Russian)* 4−73066
  bromoalkanes, monosubstituted, macroscopic viscosity rel. to dielectric relaxation and losses 4−76213
  butylbenzoate, liq. state, dielectric relaxation 4−57465
  α-chloroacrylonitrile in solns., relation between chem. shifts and dielec. consts. 4−57397
  chloroform, liq., solid, permittivity, i.r. spectra, residual absorpt. investig., mol. rot. 4−82693
  complex permittivity meas., expt. improvements, results for aliphatic alcohols 4−68733
  Debye extension between macroscopic electric and mechanical susceptibilities 4−61090
  dialkyl phthalates, supercooled liquid state 4−82657
  dielectric friction concept 4−67523
  dielectrophoretic forces, exptl. effects obs. 4−53357
  diethyl ether, supersaturated, prebreakdown phenomena obs. using gas bubble chamber 4−61106
  dimethoxymethane, conform. struct. investig. using CNDO/2 calcs. and dielec. props. *(French)* 4−56058
  dipolar liquids, microwave and far-i.r. absorpt. spectra interpret. w.r.t. librational and relax. motion 4−61250
  esters, dielec. relax. rel. to internal rot. 4−57470
  ethyl phenyl acetate, liq., complex dielectric constant meas. 4−61100
  fluid dielectric characteristics meter, 100 kHz to 10 MHz, −30° to +150°C *(Russian)* 4−80957
  fluorotoluene, benzene dilute soln., mol. motion effect on dielectric relaxation 4−57467
  heteroorganic compounds, dipole moments calc. 4−53363
  hole model of liquid dielectric, dipole moment 4−61085
  insulating oil, cable, dielectric response and conduction 4−45250
  isoquinoline, dielectric relaxation, internal field effects 4−49300
  liquid crystal, nematic, dielec. anisotropy 4−79702
  MBBA, dielectric obs. of nematic instabilities 4−66821
  methanol solutions in acetonitrile, dispersion of dielec. const. 4−54098
  microwave frequency, resonant cavity as probe 4−67507
  nitrobenzene, charge behaviour, static and pulsed high voltage, Kerr effect obs. 4−45249
  nitrobenzene and mixtures with benzonitrile, in soln., dielec. absorpt., relax. investig. 4−76331
  nitrobenzene/benzene mixture, molecular hyperpolarisability, d.c. elec. field induced s.h.g. obs. 4−57459
  nitrotoluene, benzene dilute soln. mol. motion effect on dielectric relaxation 4−57467
  nitrotoluene-hexane, critical solution, elec. permitt. as func. of temp. 4−61087
  nonelectrolyte solutions, nonlinear behaviour 4−61093
  nonlinear measurements in cond. media using freq. sampling technique 4−67508
  nonpolar, polarisability as function of temp. and pressure 4−82660
  octanoyl chloride, benzene soln., dielectric behaviour at microwave freq. 4−57466
  organic, internal field effect, Raman scattering cross section 4−53430
  permittivity measurement, rectangular pulse operation 4−42838
  phenylacetic acids, substituted, in dilute solns. of dioxane, dielectric absorption of microwaves 4−45239
  picolines, α-, β-, γ-, dielectric relaxation, internal field effects 4−49300
  polar liquid, temp. evolution of autocorrel. functions and spectral densities *(French)* 4−79670
  polar liquids, dielec. meas. interpret. procedures 4−67524

dielectric properties of liquids and solutions continued
  polybutylisocyanate, in solution, rotational friction, dipole moments, conformation, rigidity *(Russian)* 4−72262
  polycondensate between L-lysine and 1,3 benzene disulphonyl chloride, dielec. behaviour and conform. 4−82656
  polystyrene-diphenylmethane isodielectric mixture rel. to electrolytic cond. 4−82441
  propylbenzoate, liq. state, dielectric relaxation 4−57465
  pyridine-chloroform mixtures, nonlinear behaviour 4−61093
  quinoline, dielectric relaxation, internal field effects 4−49300
  relaxation parameters eval. from dielec. data 4−70253
  relaxation parameters eval. using Budo eqns. 4−70254
  silicone fluid, a.c. and d.c. props. 4−82658
  tetra-n-butylammonium salts, soln. in benzene, permittivity meas., relaxation investig. *(French)* 4−45229
  1,1,1trichloroethane, liq., solid, permittivity, i.r. spectrum, residual absorpt. investig., mol. rot. 4−82693
  trifluoromonochloroethylene oligomers, expt. 4−82662
  water, discharge, switching characts., self-breakdown 4−79675
  water, prebreakdown effects in nsec. range, optical investig. *(Russian)* 4−64329
  water, with ionic impurities, permittivity meas., B x v effects 4−61088
  water molecule and dimers, mol. polarisability and dielec. effect of medium in liq. phase *(French)* 4−56181
  D_2O, dielec. const. determ. rel. to press., struct. investig. 4−61089
  2,2-dichloropropane, liq., solid, permittivity i.r. spectrum, residual absorpt. investig., mol. rot. 4−82693
  H_2O, dielec. const. determ. rel. to press., struct. investig. 4−61089
  H_2O, dielec. relax. near 4°C rel. to bond breaking 4−45240
  KNO_3-$Ca(NO_3)_2$, melt, glass-forming, elec. relax. investig. in liq. and vitreous states 4−76214
  NH_3, liquid, pulse radiolysis, solvated electron yield meas., dielec. props. 4−54047
  $Tl_2(SO_4)_{3aq}$, ultrasonic absorpt. meas., ion assoc. investig. dielec. const. calc. 4−69860
  $(ZnSO_4)_{aq}$, ultrasonic absorpt. meas., ion assoc. investig., dielec. const. calc. 4−69860
dielectric properties of solids
  absorption current from electron tunnelling into single trapping level, calcs. 4−45231
  alkali halides, dielec. breakdown electrochem. aspects 4−61109
  alkali halides, effect of three-body forces on dielectric behaviour 4−49297
  alkali halides, second neighbour interaction effect 4−64322
  alkaline earth oxides, effect of three-body forces on dielectric behaviour 4−49297
  anharmonic crystal susceptibility, Green's function method 4−57534
  anthracene, cryst., exciton dynamics investig. using permittivity freq. depend. lineshape anal. 4−48940
  anthracene, rel. to freq.-depend. cond., 10^{-6} Hz to 32 GHz 4−67213
  cellulose, damp, moisture content depend. 4−45242
  ceramic, foamed, dielec. characteriz. at mm wavelengths, cut-off filter potential 4−76215
  ceramic discs, thin, piezoelec., pyroelec. and dielec. props. 4−64355
  chloroform, liq., solid, permittivity, i.r. spectra, residual absorpt. investig., mol. rot. 4−82693
  elastic dielectric, macroscopic field eqns., boundary conditions and eqns. of state 4−45252
  fluorene single crystals, electron energy loss spectra 4−75553
  fluorides, binary, dielec. const., temp. depend., high losses *(French)* 4−61094
  glasses, effect of thermal treatment and stress *(Polish)* 4−82957
  granular materials, composite type, effective heat cond., dielec. const. and elec. cond., steady-state conditions 4−64655
  hermatite ore, frequency dependence of dielectric constant and dielectric loss, 10^2-10^7 c/s 4−49290
  ice, dielectric constant, series expsn. in Bernal-Fowler-Pauling model 4−76208
  insulator, local field effects and low-optical-freq. dielec. response matrix, model 4−70245
  island films, dielec. props., statistical theory, surface material coeffs. 4−72879
  lunar soil sample 15301, 38, electrical properties 4−54433
  mammalian brain tissue dielectric meas. in S-band 4−65575
  Mercury, subsurface nature from microwave interferometry at 3.71 cms 4−62034
  microscopic theory, local field corrections 4−60559
  microwave frequency, resonant cavity as probe 4−67507
  molecular crystals, dielec. susceptibility, theory and appl. to simple point-dipole lattice 4−73064
  mylar, thin film capacitor, X-ray effects on dielectric conductance, dosimetry 4−68543
  oligoester acrylate polymers, relax. processes *(Russian)* 4−57471
  partial breakdown sites in solids, technique for locating 4−57448
  permittivity, conductivity, time domain spectroscopy, Fellner-Feldegg's thin cell method, math. anal. 4−61086
  polychlorotrifluoroethylene, α and γ relaxations lamellar thickness depend. 4−70257
  polychlorotrifluoroethylene, dielectric relaxation time, temp. and pressure depend., intermolecular interaction 4−45243
  polymer, glass transition region behaviour, mag. field effects 4−45247
  polymer, relax. props. at const. temp., $P(t)=(\theta D)^{-\alpha}[P_0-P(t)]$ equation generalization 4−49299
  polystyrene, peroxide bonds and degradation products effect on relax. 4−70258
  porcelain, hard, rel. to mineralogical comp. and microstruct. 4−49302
  sand-Al mixtures, frequency dependence of dielectric constant and dielectric loss, 10^2-10^7 c/s 4−49290
  screening, microscopic theory, effective charge 4−60568
  semiconductor, dielectric response function 4−45235
  semiconductor, nonlinear props, insulating electrode layer influence 4−70080
  soils, dielectric properties in 0.1-26 GHz range 4−54121
  space charge recombination, a.c. response results 4−75872
  styrene-acrylonitrile copolymers, mol. mobility obs. using thermodepolarisation currents 4−49294

dielectric properties of solids continued
thermoplastics, molecular structure effects 4−82651
1,1,1trichloroethane, liq., solid, permittivity, i.r. spectrum, residual absorpt. investig., mol. rot. 4−82693
Ag halides, dielectric constant theory using ionic shell model 4−45227
$AgNa(NO_2)_2$, dielectric const. ferroelectric dispersion and spin-lattice relax. 4−64356
AlF_3 film, between Al electrodes 4−53154
As-S-Se system glasses, dielec. consts., freq. and comp. depend. *(Japanese)* 4−49293
As-S(Se), glasses, composition depend. 4−75866
As_2Se_3, glassy, dielec.-const. study, immersion method 4−68736
$Ba_xLi_{5-2x}Nb_{5(1-y)}Ta_{5y}O_{15}$, crystallographic, dielectric and nonlinear optical properties *(French)* 4−64353
$Ba_{0.97}Sr_{0.03}TiO_3$, and growth 4−49573
$BaTiO_3$, grain-size effects 4−76222
CaF_2:Na(Mn), dielectric props., freq. and temp. depend. 4−64327
$CdHfO_3$, growth from melt, dielec. and optical props. *(Russian)* 4−53381
$CdSiAs_2$ single cryst., growth and phys. props. 4−49570
Cu ferrites, comp., freq. and temp. depends. 4−57458
2,2-dichloropropane, liq., solid, permittivity i.r. spectrum, residual absorpt. investig., mol. rot. 4−82693
$K_{3/4}Bi_{1/4}Zn_{1/6}Nb_{5/6}O_3$, press. effect on dielec. relax. determ. 4−61103
KBr, static dielectric constant, press. and temp. depend. obs. 4−67515
$KCl:Eu^{2+}(Yb^{2+})$, a.c. bridge and ionic thermocurrent methods comparison 4−67506
KD_2PO_4, symm. in paraelec. and ferroelec. phases, far i.r. and Raman spectra obs. 4−49347
KH_2PO_4 type ferroelectric, susceptibility, statistics in cluster approximation 4−53384
KNO_2, press. depend., room temp. phase 4−45236
La metaniobite, temp. and polarisation dependence, i.r. spectra 4−67511
La_2S_3, Debye-type relax. processes rel. to synthesis conditions 4−70256
LiF, thermal mixing of nuclear Zeeman and electronic spin-spin impurity interactions, theory 4−72709
Li_2O-TiO_2 system 4−45228
MgF_2, lattice dynamics calc. 4−69867
MoO_3, simultaneous action of a.c. and d.c. voltages 4−73067
$(NH_4)_2SO_4$, $NH_4H_2PO_4$, rel. to proton charge transfer mechanism 4−60799
$Na_4(AlSiO_4)_3Cl$, sodalite, elec. dipole centres, props. 4−61105
NaCl in contact with metal electrodes, electrode polarisation phenomenon 4−67518
NaCl:Sr, time depend. of a.c. capacitance under d.c. potential 4−67530
NaI, permittivity, dielectric loss, freq. and temp. depend. 4−57451
OH dilute system in NaCl, KCl, KBr, RbCl, 0.025 to 4.2K *(German)* 4−49287
$PbBr_2$, elec. dipole centres, props. 4−61105
$PbCl_2$, elec. dipole centres, props. 4−61105
$PbCl_2(Br_2)$, localised dipoles, dielec. relax. losses 4−67526
$Pb_3Ge_2O_7$, ferroelec. single cryst. props. 4−79669
PbO-GeO_2 glassy system, dielec. const., comp. depend. 4−44479
$Pb(Zr,Ti)O_3$, grain-size effects 4−76222
$PbZrO_3$, pure and doped with ferric oxide 4−67512
$Rb(D_xH_{1-x})_2PO_4$, high-temp. phase transition obs. 4−82275
Se, polycryst., dielectric constant dispersion *(German)* 4−73065
Se:Cl, dielectric constant dispersion *(German)* 4−73065
Se-Bi(-As), amorphous film, freq. and heat treatment depends. 4−67514
Si_3N_4, reaction sintered, characteriz. for high temp. radome applics. 4−61483
SiO_2, film, contact potential meas. of charge distrib. 4−75991
$SrTiO_3$, thin films obtained by cathode sputtering, dielectric properties 4−70404
Ta:N, film, anodisation, struct. and dielec. props. of oxide layer 4−72658
Ta_2O_5, thin film capacitor, X-ray effects on dielectric conductance 4−68543
$Zr_{0.85}Ca_{0.15}O_{1.85}$ space-charge polarisation at 400° to 950°C, obs. 4−53374

dielectric properties of substances
see also antiferroelectricity; coercive force; Curie temperature; dielectric depolarisation; dielectric function; dielectric materials; dielectric measurement; dielectric phenomena; dielectric polarisation; dielectric properties of gases; dielectric properties of liquids and solutions; dielectric properties of solids; electric strength; ferroelectricity; permittivity; piezoelectricity; pyroelectricity
many-body dielectric theories, reduction to Onsager eqn. 4−76206
measurement method, by thermally stimulated current. 4−57447
N-p-methoxybenzylidene-p-butylaniline, nematic phase, dielec. meas., absorpt., 1-120 × 10³ kHz 4−45246
plasma, dielectric tensor, anisotropy in mag. field, invariant theory 4−64229

dielectric relaxation
see also dielectric resonance
acetophenones, carbon tetrachloride soln., dielectric relaxation, dipole moment 4−57468
acrylates, monomer type, 30-70°C 4−53370
alcohol + nonpolar solvent, time domain reflectometry obs. 4−53366
aliphatic esters, in cyclohexane soln., dielec. consts., losses meas., dielec. relax. investig. 4−76212
alkyl acetates, relax. times rel. to mol. size 4−45241
4-aminophthalimide in n-propanol, luminesc. spectra, orientation relax. kinetics investig. 4−73174
anthracene, rel. to freq.-depend. cond., 10^{-6} Hz to 32 GHz 4−67213
benzonitrile and mixtures with nitrobenzene, in soln., dielec. absorpt., relax. investig. 4−76331
benzyl acetate, liq., complex dielectric constant meas. 4−61100
benzyl benzoate, supercooled state, comparison of viscoelastic, dielec. and light scatt. props. 4−67527
benzyl propionate, liq., complex dielectric constant meas. 4−61100

dielectric relaxation continued
bromoalkanes, monosubstituted, macroscopic viscosity rel. to dielectric relaxation and losses 4−76213
butylbenzoate, liq. state, dielectric relaxation 4−57465
Cole-Cole plots and distribution functions of decay times 4−67528
1,2-dichloropropane, dielectric relax. between 20 and 70C by Surber's method, isomeric effects 4−57469
dielectric friction concept 4−67523
α,ω-dihaloalkanes, benzene soln., dipole moments, dielectric relaxation 4−56175
dipolar liquids, microwave and far-i.r. absorpt. spectra interpret. w.r.t. librational and relax. motion 4−61250
dipole relaxation in strong fields, vol. charge effect *(Russian)* 4−57474
esters, nematic, dielec. dispersion, positive anisotropy 4−82114
esters, rel. to internal rot. 4−57470
1,2-ethanedithiol, dielectric relax. between 20 and 70C by Surber's method, isomeric effects 4−57469
ethyl phenyl acetate, liq., complex dielectric constant meas. 4−61100
ferroelectrics, slow relax., dielectric constants near field induced critical point 4−76225
fluorotoluene, benzene dilute soln., mol. motion effect on dielectric relaxation 4−57467
glasses, phase separated, single and multi-ion transport 4−76552
isoquinoline, pure liquid internal field effects on relaxation time 4−49300
linear response theory, numerical evaluation 4−53368
macromolecular chain, bond orientation correls., applic. to relax. phenomena *(French)* 4−48159
methanol solutions in acetonitrile 4−54098
m.i.m. system, thermal elec. characts., electron trap parameters determ. 4−82496
nitrobenzene and mixtures with benzonitrile, in soln., dielec. absorpt., relax. investig. 4−76331
nitrotoluene, benzene dilute soln. mol. motion effect on dielectric relaxation 4−57467
octanoyl chloride, benzene soln., dielectric behaviour at microwave freq. 4−57466
oligoester acrylate polymers, two dipole group loss regions *(Russian)* 4−57471
paraldehyde, vapour phase dielec. relax. spectra, dipole moment determ. 4−81782
phenylacetic acids, substituted, in dilute solns. of dioxane, dielectric absorption of microwaves 4−45239
picolines, α-, β-, γ-, pure liquid internal field effects on relaxation time 4−49300
PMMA, depolarization thermocurrents, dielectric relaxation time temp. depend. 4−44947
PMMA, glassy state, structure rel. to dielectric behaviour 4−56626
polar dielectric, macroscopic and mol. relax., comparison 4−53365
polar liquid, temp. evolution of autocorrel. functions and spectral densities *(French)* 4−79670
polar liquids, Debye dielectric relaxation theory, rotational Brownian motion of sphere 4−82096
polar liquids, dielec. meas. interpret. procedures 4−67524
polar medium, analysis of conflicting theories 4−53369
polar solution, relax. parameters eval. from dielec. data 4−70253
polar solution, relax. parameters eval. using Budo eqns. 4−70254
polychlorotrifluoroethylene, α and γ relaxations lamellar thickness depend. 4−70257
polychlorotrifluoroethylene, dielectric relaxation time, temp. and pressure depend., intermolecular interaction 4−45243
polymer, const. temp., $P(t)=(\theta D)^{-\alpha}[P_0-P(t)]$ equation generalization 4−49299
polymer, use of fractional integral operators 4−53358
polymer chain, Monte Carlo simulation 4−82664
polymer dielectric, absorption and steady currents *(Reegal Zgmaae Retmam)* 4−79364
polymer solution, mol. mobility during phase separation, dipole polarisation relax. meas. 4−73372
polymers, depolarization thermocurrents, dielectric relaxation time temp. depend. 4−44947
polystyrene, film, depolarisation thermocurrent, glass transition 4−45238
polystyrene, peroxide bonds and degradation products effect 4−70258
polystyrene, polarisation current meas. *(German)* 4−73080
polystyrene-diphenylmethane isodielectric mixture rel. to electrolytic cond. 4−82441
polyvinylidene fluoride, dipole reorientation, TSC obs. 4−57463
1,2-propanedithiol, dielectric relax. between 20 and 70C by Surber's method, isomeric effects 4−57469
propylbenzoate, liq. state, dielectric relaxation 4−57465
propylene carbonate (4-methyl-1,3-dioxolan-2-one) non-aq. soln., permittivity and losses, 0-50°C, 0.5-35 GHz 4−45245
quinoline pure liquid internal field effects on relaxation time 4−49300
rotational Brownian motion, experimental test 4−62746
salicyl aldehyde, carbon tetrachloride soln., dielectric relaxation, dipole moment 4−57468
single axis rotator with two equivalent sites 4−53367
solutions, time, non-linear function of solvent viscosity 4−68035
supercooled liquids, molecular motion determ. 4−45244
tetra-n-butylammonium salts, soln. in benzene, permittivity meas., relaxation investig. *(French)* 4−45229
tri-n-butylammonium iodide soln. in o-terphenyl in supercooled liquid state, molecular motion determ. 4−45244
tri-n-butylammonium picrate soln. in o-terphenyl in supercooled liquid state, molecular motion determ. 4−45244
trifluoromonochloroethylene oligomers, expt. 4−82662
trigylcine sulphate, rel. to dispersion of permittivity in vicinity of phase transition 4−49311
viscoelastic materials, relaxation data analysis, graphical methods 4−50008
As_2Se_3, obs. of band gap energy levels by stimulated currents 4−49301
$CaF_2:Ce^{3+}$, dipole orientation and aggregation investigation 4−61101

dielectric relaxation continued
- CaF_2:Na(Mn), dielectric props. obs., freq. and temp. depend. 4−64327
- $Ge_{10}As_{30}Si_{13}Te_{47}$, obs. of band gap energy levels by stimulated currents 4−49301
- H_2O, near 4°C rel. to bond breaking 4−45240
- $K_{3/4}Bi_{1/4}Zn_{1/6}Nb_{5/6}O_3$, press. effect, lattice distortion 4−61103
- KNO_3-$Ca(NO_3)_2$, melt, glass-forming, elec. relax. investig. in liq. and vitreous states 4−76214
- La_2S_3, Debye-type relax. processes rel. to synthesis conditions 4−70256
- NH_4ClO_4 crystals, thermal decomposition, relax. and proton diffusion correlation times 4−72588
- NH_4SO_4 and $NH_4H_2PO_4$, conductivities of doped crystals, charged carrier mobility 4−63941
- $Na_4(AlSiO_4)_3Cl$, sodalite, elec. dipole centres, props. 4−61105
- $NaClO_3$, phonon behaviour and disorder mechanism, dielectric constant anal. 4−67012
- NaI, permittivity, dielectric loss, freq. and temp. depend. 4−57451
- $PbBr_2$, elec. dipole centres, props. 4−61105
- $PbCl_2$, elec. dipole centres, props. 4−61105
- $PbCl_2(Br_2)$, localised dipoles, dielec. relax. losses 4−67526
- $Pb(Zr,Ti)O_3$, ferroelec. ceramic, field depend. 4−70267
- cis-1,3,5-trimethylcyclohexane, vapour phase dielec. relax. spectra, dipole moment determ. 4−81782

dielectric resonance
- *see also dielectric relaxation*
- paraelectric resonance spectroscopy, use of large rectangular cavity 4−42839
- two-multiplex tunnelling model, paraelectric transitions 4−82649
- vibrating ceramic spheres, resonance splitting *(German)* 4−64321
- KCl-OH^- system, annealing induced effect on paraelectric reson. spectrum 4−49283
- KI:OH^-, obs. of temp. depend. of X- and Q-band paraelec. reson. 4−48944
- $K_2Pt(CN)_4Br_{0.3}.3H_2O$, e.m. dielectric reson. obs., 8-11 GHz, dielectric const. determ. 4−67505
- SiO_2:Al, smoky quartz, phonon bottleneck, saturation behaviour 4−64320

dielectric strength *see electric strength*

dielectric triodes *see space-charge limited devices*

dielectrics *see dielectric materials*

diesel engines *see internal combustion engines*

difference amplifiers *see differential amplifiers*

difference equations
- Adams-Nickerson colour difference formula, computerless calc. tables 4−54893
- asymptotic solns. for Bessel functions 4−55195
- bending of clamped plate, variational justification for successive approx. method applic. *(French)* 4−47075
- Bessel functions of complex argument and integer order, computer program for soln. by backward recursion 4−43015
- Bessel functon of real argument and integer order, computer program for soln. by backward recursion 4−43017
- boundary layer on spinning sharp body at angle of attack 4−81885
- Cauchy-Riemann equations, nonhomogeneous, fast direct numerical soln. 4−60198
- colour-difference eqn. performance tested by perceptibility data 4−58530
- combinatorial recurrence in eqn. soln. 4−51271
- creep, hereditary, finite-difference method for nonlinear integral eqn. soln. *(Russian)* 4−51375
- diamond for discrete-ordinate neutron transport eqns. equivalent to P_l approx. in x-y geometry 4−51857
- differential, containing advance and retardation reln. to electrodynamics 4−47035
- diffusion equations with concentration dependent coefficients, solution with Gauss elimination method 4−77356
- discrete S_n transport theory, consistency conditions 4−78151
- dyehouse shade sorting applic. of Adams-Nickerson colour difference eqn. 4−54892
- e.m. finite difference eqns., fast direct soln. methods 4−74458
- exponential stability of nonlinearizable eqns. 4−77344
- finite difference discretisation procedures, elasticity applic. 4−59184
- finite difference method for second order functional differential equations 4−47040
- finite difference Newton-Raphson soln. for atomic Hartree-Fock problem 4−63321
- finite difference unequal interval formulation, dynamic characteristics of orthotropic plates 4−77482
- finite-difference Euler method for numerical soln. of Vlasov eqn., recurrence of initial state 4−60271
- finite-difference methods, modified eqn. approach to stability and accuracy analysis 4−47033
- finite-difference solution of nonlinear hydrodynamical eqns. for tides and surges in Thames Estuary 4−46009
- fluid dynamics, soln. of elliptic eqns. 4−81828
- fusion reactor cladding, theory of He-induced voids 4−55938
- generalised axisymmetrical potential, numerical-analytical soln. of boundary problem *(Russian)* 4−55214
- heat transfer agent dynamics in circulating system, computer calcs. *(Russian)* 4−52398
- ingot/mould system, elec. modelling of solns. of solidification problems *(Russian)* 4−53653
- irregular mesh finite difference approximation, plate buckling problem applic. 4−59202
- membrane of revolution, inflatable, large deform. theory 4−81153
- Navier-Stokes eqn. numerical proof of existence of Hopf's weak soln. *(Russian)* 4−52343
- neuron model, response characteristics to a periodic input 4−71094
- neutral type differential-difference eqns., stability of solns. 4−74246
- neutron diffusion, multigroup theory, coarse mesh correction for finite difference method 4−78207
- neutron transport equation, soln. by weighted central difference scheme 4−78144
- ocean, response to large-scale surface heat and momentum flux 4−64854
- ordinary, stability of system with respect to manifolds 4−51276

difference equations continued
- oscillating wake of blunt-based body, numerical and exptl. obs. 4−48298
- partial differential equations, finite difference method, mixed derivatives *(French)* 4−74212
- partial nonlinear equations with mixed derivatives and Neumann type boundary conditions, finite difference method *(French)* 4−77351
- periodic solutions, nonlinear system, numerical analytic methods *(Russian)* 4−55198
- Poisson's, for electric and magnetic fields, numerical method 4−47266
- semi-infinite random system, spectral measure singularity 4−51305
- semiconductor, impurity redistrib. during thermal oxidation, numerical calc. 4−45474
- shell equations, general, finite difference formulation 4−43060
- shock wave interaction with cylinder in supersonic flow, numerical soln. 4−66614
- slow flow, MAC code, numerical expts. 4−78568
- supersonic flow calc. using shock capturing numerical method 4−81901
- supersonic separated flows, sweep effects, numerical analysis 4−56402
- three-dimensional blunt-body flow, time-split finite-volume method 4−48259
- tubes, thin-walled curved, lateral bending and twisting, numerical soln. 4−55254
- variational-difference method, one-dimensional initial functions and reinforced fundamental relns. *(Russian)* 4−51293
- viscoelastic solid, finite linear, periodic excitations, computer programs for finite difference eqns. soln. 4−81200

differential amplifiers
- current pulse preamplifier, for fission counters 4−46872
- instrumentation, remote low level signals, requirements, isolation amplifiers 4−58862
- self-compensating differential electrometer 4−80946

differential calculus *see differentiation*

differential equations
- *see also Boltzmann equation; boundary-value problems; difference equations; Green's function methods; integro-differential equations; linear differential equations; Navier-Stokes equations; nonlinear differential equations; partial differential equations; wave equations*
- atom, hyperspherical coordinate formulation, exact soln. of coupled diff. eqn. set 4−51949
- blunt body in supersonic flow, method of integral relations improvement 4−48260
- boundary problem for system with implicit terms in variable argument, approximate solution *(Russian)* 4−51284
- boundary-value problem in ordinary differential eqns., field method of integration 4−77433
- boundary-value problems, sensitive, two-point type, shooting-splitting method 4−60153
- Brownian motion, limitations of Langevin, equation based on hydrodynamic models 4−43176
- Cauchy problem, Petrovskii well posed, estimates from $W_{p,\alpha}$ to $W_{q,\beta}$ 4−51291
- Cauchy problem, stability of Dzyadyk method *(Russian)* 4−77354
- Cauchy problem soln. by R-network analysis using Laplace transform *(Russian)* 4−51489
- Cauchy problems, second order eqn. in t, optimal soln. *(French)* 4−47030
- celestial mechanics, three-body problem, convergence of expansions of differential equations 4−58200
- chemical reaction-diffusion equations, plane wave solns. 4−61609
- circular cylindrical shells, thin-walled, Morley-Koiter eqns., eval. procedure, boundary conditions 4−43070
- circular cylindrical shells, thin-walled, Morley-Koiter eqns., line loaded case, boundary conditions 4−43071
- conical shell, elastic response to oblique impact 4−43115
- conical shell, hydrostatically loaded, buckling analysis by collocation method 4−47069
- continuum mechanics, improvement on Galerkin's variational method 4−59106
- creep of metals, structural parameters changes and set of differential eqns. *(Russian)* 4−49759
- damped oscillation equation, solution technique for teaching 4−62377
- delay-differential equations for two body in electrodynamics and special relativity 4−65982
- difference eqns., containing advance and retardation reln. to electrodynamics 4−47035
- diffusive processes in shells with coverings *(Russian)* 4−74429
- distillation column, parametric study, boundary-value problem, GPM method 4−48344
- dynamical system trajectories near singular point in critical case *(French)* 4−74250
- eigenvalues, analytic study, energy-level crossing 4−68920
- elastic string, nonlinear dynamic eqns., class of general solns. 4−43118
- elliptic pseudo differential eqns. with small param. in principal operat. asympt. soln. 4−81126
- elliptically restricted problem, differential eqns. soln. for motion around equilateral points *(Spanish)* 4−65046
- first order, integral surface method for characteristics in three-dimensional space 4−77376
- first order, transform. from integral eqns. for pressure difference across cochlear partition 4−80713
- Floquet theory and Newton's method 4−43125
- flow, least squares finite element analysis of laminar boundary layer flow 4−81830
- functional, completeness and independence of exponential solns. 4−55223
- galaxy, Lyapunov's stability of oscillations 4−58422
- generalised axisymmetrical potential, numerical-analytical soln. of boundary problem *(Russian)* 4−55214
- Gibbs equation derivation for class of rheological bodies 4−68977
- globally stable dynamical systems, trajectories 4−77394
- granular material layer on vibrating plane, movement eqns. soln. including air pressure effects 4−77513
- gyrostat, moment of momentum modulus constancy *(Russian)* 4−47055

differential equations continued
gyrostat motion in Newtonian field of force, linear invariant relations *(Russian)* 4−47060
gyrostat motion in Newtonian field of force, linear invariant relations in eqns. of motion *(Russian)* 4−47061
gyrostat with fixed point, eqns. of motion soln. *(Russian)* 4−47054
heat conduction, free boundary value problem, global convergence of implicit difference method *(German)* 4−74440
heat transfer agent dynamics in circulating system, computer calcs. *(Russian)* 4−52398
hyperbolic operator, decomposition into wave multipliers, analogue of multipoint problem *(Russian)* 4−55219
incompressible heterogeneous spheres, nonradial oscillations *(French)* 4−70858
integral scales, semiempirical theory of turbulent flow anisotropy *(Russian)* 4−75077
integration, multi-step, multi-off-grid methods 4−59085
integration of second order autonomous equation containing multiterm power series *(Russian)* 4−55200
invariant relations, applic. to rigid body dynamics *(Russian)* 4−47056
linear dynamic systems, random parameters, appl. of majorant process *(Russian)* 4−74368
liquid nonuniform free motion, criterial eqns. *(Russian)* 4−43919
Lyapunov theorem, applied to asymptotic stability 4−65621
macroscopic body equations of motion in general relativity 4−47186
magnetic induction eqn. in spectral form 4−72339
Mathieu equation, stabilisation by oscillation 4−74334
MGD, unsteady isoentropic, class of solns. *(Italian)* 4−78680
motion of mechanisms with vibrating base method of two small parameters *(Russian)* 4−74354
multidimensional system with single resonance condition, invariants for classification *(Russian)* 4−55291
multifrequency oscillations, external excitations, mixed second and third rank reson. 4−81208
N-body problem, numerical computations, doubly individual step method 4−59090
N-body problem, numerical integration, by separating force into near and far components 4−59091
N-body problems, gravitational numerical solution difficulties 4−59088
N-body problems, macroscopic properties, effect of integration errors 4−59093
N-body problems, numerical integration, explicit Taylor series applic. 4−59094
N-body problems star clusters, numerical integration 4−61982
N-doby problem, numerical integration, variable order method 4−59089
neutral type, Krylov-Bogoliubov-Mitropolski asymptotic methods *(Russian)* 4−74255
neutral type, with small time lag, critical cases 4−74244
nonlinear vibration frequency *(German)* 4−51298
nonselfadjoint equations of even order, comparison theorem for focal pts. 4−77347
nontrivial soln. of $\Delta u + pu = 0$ where p is Holder continuously differentiable function *(German)* 4−68869
numerical integration, time transformation *(German)* 4−51301
one dimensional continua, Ritz method, iteration method combination *(German)* 4−81151
orbit integration, multirevolution methods 4−59095
orbital calculations, numerical integration techniques, comparison 4−59086
ordinary, for flow of abstract liquid, specific volume *(Russian)* 4−78569
ordinary, with small parameter, averaging method for two-point boundary problem *(Russian)* 4−74253
ordinary differential equations; conf. Austin, Tex., USA, 19-20 Oct. 1972 4−59084
oscillating systems, new numerical integration methods *(Russian)* 4−77364
parabolic equation, second order, covariant props. and symm. *(Russian)* 4−59044
parameter estimation, Lobatto quadrature-collocation anal. 4−68864
periodic process, boundedness of motions 4−77345
periodical vibrations of one degree of freedom mechanical systems, dependence on initial conditions 4−74349
plasma, hot unsteady, irrotational motion 4−44326
polywave equation, boundary value problem, numerical soln. 4−81135
pseudodifferential operators, class of subelliptic systems *(Russian)* 4−59058
quasi-linear, asymptotic stability of fixed point, applic. to nuclear reactor dynamics 4−78226
random excitation, Green function soln. *(Russian)* 4−77378
rate equation, generalized, for crystn. and precip., derivation and use 4−47041
rectangular sandwich plates, large deflection, derivation using complementary energy 4−45765
rigid body with fixed point, eqns. of motion, algebraically invariant relations *(Russian)* 4−47057
rigid body with fixed point, integrability of motion problems, mass distrib. conditions *(Russian)* 4−47062
rigid body with fixed point, linear invariant relation for eqns. of motion *(Russian)* 4−47058
Runge-Kutta-Nystrom methods, dynamical astronomy 4−58195
satellite orbit prediction, numerical averaging procedure 4−50432
satellite orbits with nonsingular elements, variation of parameter formulation 4−59087
satellite solar perturbations, computation with Poisson series 4−61981
second order, arising in problem of rotational excitation of rigid rotor, iterative solns. 4−66519
second-order, with non-negative characteristic form, Liouville theorem and asymptotic behaviour of eigenfunctions 4−51296
second-order, with periodic coeff. stability of solns. *(Russian)* 4−47043
second-order equation with non-disjunctive boundary conditions, inverse problem solution uniqueness 4−51297
sets, integral excitations in stability theory 4−74242

differential equations continued
singular ordinary system with time-lag, existence and approx. of periodic soln. 4−74245
singularly excited periodic solns. and small parameter method 4−77372
singularly perturbed systems near discontinuous ones, periodic solns. 4−74243
solar wind, saturation flux limited eqns., soln. curves 4−70920
spatial field lines computations, numerical method *(German)* 4−59327
spring-mass system, two degree-of-freedom nonlinear, free vibr., periodic solns. 4−47123
stability of systems with known first integrals, comparison method 4−77393
stochastic, soln. depend. on definition of stochastic integral *(German)* 4−68875
stochastic functional, comparison theorem, stability 4−81123
stochastic functional eqns., stability and boundedness conditions from comparison principle 4−59048
strongly elliptical system, Dirikhle and Neiman problems, eigenvalue distrib. anal. *(Russian)* 4−55209
Sturm-Liouville problem, inverse, iterative soln. 4−47037
third and fourth order, periodic solns., existence via coincidence degree 4−47028
third order, periodic solns. 4−77346
third-order eqn. for two-component spinors 4−47010
two-point boundary value problems, Jacobian matrix characterized by large positive eigenvalues 4−74220
Volterra functional second-order, finite difference method 4−47040

differentiating circuits
R.C. differentiating circuit, process of replacement of transient by steady-state waveforms 4−54785
turbulent flow boundary detector using differentiating circuits 4−55170

differentiation
see also differential equations
compressible boundary layer equations, soln. using method of parameter differentiation 4−52424
compressible boundary layer equations, soln. using method of parameter differentiation 4−52425
differentiability concept generalization *(French)* 4−77350
Legendre functions, logarithmic differentials *(Russian)* 4−74228
threshold signal retrieval, dynamic background subtraction by multiple differentiation-integration 4−71200
time, algebraic definition 4−68592

diffraction
see also acoustic wave diffraction; diffraction gratings; diffractometers; electromagnetic wave diffraction; electron diffraction; neutron diffraction
by conducting half-plane, elementary solns. 4−47038
elastic waves by crack, brittle fracture, crack extension 4−55272
flexural waves, by semiinfinite impedance obstacle 4−74337
h.f. torsion waves, by disc-shaped obstacles, stress intensity factors and scatt. coeffs. 4−62706
particle diffraction by thin rigid crystal lattice, formal approach 4−56570
plane wave, on edge, at supersonic velocity with nonregular shock interaction *(Russian)* 4−75144
planetary waves, diffraction by infinite strip, Weiner-Hopf equation 4−45994
plasma wave, diffraction by slit *(Russian)* 4−44224
topography, eqn. for dynamical diffr. in imperfect crysts. derived 4−56565
torsion waves, h.f., by penny-shaped crack 4−77470

diffraction gratings
aberration theory, cylindrical and spherical gratings in Rowland circle 4−62797
asymmetric concave, focal conditions, resolution improvement 4−42779
Bragg nonsinusoidal reflection grating, diffraction efficiency 4−43240
concave, aspherical surfaces with plane of symmetry 4−51040
concave, blaze wavelength change as surface position function 4−62798
echelette grating diffraction of plane waves 4−71476
efficiency evaluator, instrument design, vacuum u.v. 4−51011
finite conductivity, reciprocity theorem use, appl. to Littrow mountings *(French)* 4−81282
holographic finite cond. effects in grating theory *(French)* 4−80921
holographic sinusoidal grating, diffraction anomalies, theory 4−43271
holographically produced gratings, phase correction 4−80924
interferometer, double grating, with variable lateral shear 4−65454
interferometric, holographic recording, phase correction 4−58787
metal, dielectric coating effect on diffr. anomalies 4−58778
metallic film, laser-induced damage, temporal development of optically etched gratings 4−59441
Moire patterns, obs. of focusing errors in collimating lens or mirror 4−59345
monochromator, u.v., vacuum, degree of polarisation obs. 4−80895
multispectral laser beam image recording on monochrome film 4−46732
near field properties, Fourier series treatment of Fresnel diffraction 4−62802
numerical method for scatt. from periodic dielectric structures 4−71490
photoresist thin-film optical waveguides, grating pattern construction *(Japanese)* 4−43324
plane monochromator, spectral image correction, o.t.f. 4−80894
polychromator, three-grating, with extreme rejection of stray light 4−46616
Ronchi, for small linear meas., 0.02-0.20 cm 4−46560
Ronchi ruling, null test for aspherical surfaces 4−71184
spectrograph with diffraction gratings, opt. characts. *(Russian)* 4−46663
strips of alternating colour rel. to solar phenomena 4−54392
superconducting microjunction array form. from laser beam interference on photoresists. 4−57222
X-ray lithographic fabrication 4−46637

diffraction gratings continued
CdS dynamic holographic gratings with characteristic lifetime of 5×10^{-9} sec 4−46683
CdSe, obs. of laser induced phase grating by free carrier generation 4−53547

diffraction instruments *see diffractometers*

diffractometers
attachment for coarse-grained materials 4−65414
neutron, attachment for magnet and cryostat giving independent rotation 4−44444
optical, image analyser for electron microscopes *(Russian)* 4−71240

diffusion
see also acoustic wave diffusion; diffusion in gases; diffusion in liquids; diffusion in solids; electromagnetic wave diffusion; neutron diffusion; osmosis; surface diffusion; thermal diffusion
aerosol particles in sound field *(Russian)* 4−52524
average time taken to attain boundaries, one-dimens. problem 4−51475
bulk diffusion in macroporous media, porosity, tortuosity and constrictivity depend. 4−75189
centre of mass diffusion coefficient, dynamics of long chain polymers, intensity fluctuation spectroscopy 4−78547
chemical reaction model, for coexistence of three phases in different domains 4−75619
chemical reaction-diffusion equations, plane wave solns. 4−61609
cross-transport coeff. critical behaviour 4−51473
diffuser behaviour 4−43926
equations with concentration dependent coefficients, solution with Gauss elimination method 4−77356
flow, turbulent, diffusion, fluid and spherical particles, computer anal. 4−75099
fluctuating fluid, renormalisation of diffusion coeff. 4−69567
fluctuating fluid, renormalization of diffusion coeff. 4−71441
fluids, self-diffusion, nonexistence of super-Burnett coeff. 4−71440
free-boundary problems solution method 4−62761
Green's function asymptotic of Riemannian manifold Ito's stochastic integrals 4−51288
inhomogeneous media, phase separation, generalised diffusion equation calc. *(German)* 4−75634
intracellular diffusion rates, significance of Xe clearance rate from rate liver sections in vitro 4−58495
linear theory for finite media, boundary value problems 4−47241
lung airways, oxygen transport, convection and diffusion of gases 4−46366
n-component system, solution of diffusion equation 4−74431
nonlinear effects in diffusion processes 4−65838
nonlinear reaction-diffusion equations, self-similar solns. 4−44178
North Pacific Ocean station Papa, surface ^{222}Rn meas. 4−50265
parabolic equation, numerical soln. *(Italian)* 4−74428
perfusion, lung fixation pressure control method 4−65567
phase growth with moving boundary, integral soln. for sphere 4−63897
in random velocity field 4−81842
self-diffusion, anomalous behaviour for one-dimensional hard core fluid 4−47240
shear flow, turbulent diffusivities rel. to Lagrangian velocity statistics 4−48208
shells with coverings, diffusive processes *(Russian)* 4−74429
transient diffusion, integral eqn. approach 4−51477
turbulent diffusion with memories and intrinsic shear 4−63536
urania sol-gel, initial-state sintering mech. and rel. to temp. 4−78231
wave equation, Wentzell's boundary condition, rel. semigroup 4−51429
wave phenomena investig. 4−76581
Wiener-Hermite expansion and turbulent diffusion 4−56367

diffusion columns *see isotope separation; thermal diffusion in gases*

diffusion in gases
see also flow of gases; fugacity; thermal diffusion in gases
air pollution turbulent diffusion differential eqns. *(French)* 4−54192
atmosphere, gaseous effluent from tall stack, dispersion model 4−58021
atmosphere, phys. modelling of diffusion over urban heat island 4−61767
atmosphere, von Karman's eddy runs, mesoscale diffusion coeff. *(Russian)* 4−54220
atmospheric boundary layer, Lagrangian similarity theory 4−58016
atmospheric diffusion and turbulence, air pollution, Santa Barbara Conf. 4−80320
atmospheric dispersion, global scale modelling 4−58026
atmospheric mixed layer, non buoyant particle vertical diffusion modelling 4−58020
atmospheric turbulent diffusion study using artificially produced electric space charge 4−80366
chemical reactor processes, Boltzmann transform. appl. to dispersion model with locus-depend. process const. *(German)* 4−60634
coefficients in equation of state near critical point, based on P-V-T-N data *(Russian)* 4−82256
eddy diffusion effects on atmospheric electric current 4−64906
electron diffusion and drift in gases, review of theory and expt., book 4−60151
extinction of spherical diffusion flames, Spalding's theory 4−76577
gas and surface simultaneous diffusion in capillaries 4−72629
gas mixture, diffusion coeff. depend. on composition 4−66551
gas separation, square cascade, accurate kinetics equations, appl. to ^{235}U production 4−78254
gasdynamic and chemical lasers, linear theory, diffusion problems *(Russian)* 4−69051
gaseous ions in electric field, moment expansion solution of Boltzmann equation 4−63512
hard sphere gas, three dimension, calc. of self diffusion coeff. in power of density 4−62752
humidity generator, diffusion of vapour into flowing gases 4−75068
ideal gas with decreasing entropy, constrained diffusion 4−72269
inert gas, of Br_2 and Cl_2, exptl. obs. 4−52333
inhomogeneous straining flow, turbulent diffusion 4−56369
ion diffusion equation, breakdown in uniform elec. field 4−72270
Knudsen gas, irreversible behaviour, invariant diffusion eqn. 4−62730

diffusion in gases continued
liquid-vapour system, vapour phase diffusion, finite slab model 4−56869
Lorentz gas, mol. dynamics computer anal. of diffusion 4−63510
lung disease, obstructive, closed-circuit equilibration curves 4−54672
mass transfer processes, model 4−55389
methane, liq. and high-press. gas, mol. motion neutron scattering obs. 4−63750
mixtures, corrections to Van der Waals model 4−72272
mixtures, influence of diffusion velocity on motion, successive approx. method *(Russian)* 4−56350
moderately dense gas, transport coeff., direct summation procedure 4−66546
molecular diffusion, effect on structure of turbulent density interface 4−56368
multicomponent gaseous mixture, absorpt. in presence of instantaneous reaction 4−53960
pollution dispersion on regional scale estimation, limitations and prospects 4−58024
rarefied gas suspension, turbulent diffusion, Schlieren-diffusion method 4−66664
reflection model, drag and heat transfer for two infinitesimal surface elements in free-molecular flow *(Polish)* 4−72331
self diffusion in dilute gas, persistent velocity correlation effect 4−60148
Stefan tube, radial effects, theoretical analysis *(Japanese)* 4−81823
ternary system, carbon tetrachloride-H_2-N_2, diffusion coeff. meas. *(Japanese)* 4−81822
troposphere, interhemispheric exchange, diffusion model 4−61766
tropospheric global scale diffusion characteristics 4−58023
turbulent, rapidly reacting chem. species 4−60261
turbulent diffusion, eddy struct. vortex model, Eulerian-Lagrangian vel. fields 4−60162
turbulent diffusion in environmental pollution, symposium (Charlottesville, USA, 8-14 April 1973) 4−54201
turbulent diffusion meas., portable laser light scatt. probe 4−46984
turbulent jet, of heavy particle contaminants 4−48375
urban air pollution source orientated mathematical models 4−58018
wind tunnel and atmospheric expts. 4−58014
Ar, liq. and high-press. gas, mol. motion neutron scatt. obs. 4−63750
Ar-Co mixture, positron annihilation, diffusion eqn. soln. 4−72071
Ar-Ne mixture, mutual diffusion coeffs., 296 to 1363K 4−66548
CO_2, (00°1) vibr. level relax. rates meas., diffusion, wall de-excitation investig. 4−52285
H-H_2 system, diff. coeff. and interaction pot. 4−56348
He-Ne-Ar mixture, diffusion in capillaries, Knudsen to mol. diffusion transition 4−56347
He + Ne(Ar)(Kr)(Xe), Ne + Ar systems, diff. coeffs. rel. to conc. determ., pot. parameters calc. 4−48179
Hg, $6^3P_{0,2}$ state decay in afterglow, diffusion coeff. 4−69552
I_2-CO_2 system, high temp. diffusion coeffs. determ. by point-source method 4−78562
N_2-CH_4 system, high temp. diffusion coeffs. determ. by point-source method 4−78562
N_2O, (00°1) vibr. level relax. rates meas., diffusion, wall de-excitation investig. 4−52285
SO_2, pollution diffusion from urban centre 4−61764

diffusion in liquids
see also flow of liquids; thermal diffusion in liquids
alkali halides, conc. aq. solns., struct. investig., viscosity, equiv. cond., self-diffusion meas. *(French)* 4−45941
alkaline earth halides, conc. aq. solns., struct. investig., viscosity, equiv. cond., self-diffusion meas. *(French)* 4−45941
Atlantic Ocean sediments, diffusion of dissolved silica 4−46003
binary diffusion coeffs., mass and size depend., mol. dynamics formulation 4−79172
Brownian particles in two dimens. 4−74418
carbon tetrachloride, mol. motion determ. 4−53333
carbon tetrachloride-methanol (ethanol) systems, relation between self-diffusion and interdiffusion coeffs. investig. 4−83038
chemical reactor processes, Boltzmann transform. appl. to dispersion model with locus-depend. process const. *(German)* 4−60634
classical binary isotopic fluids, excitations, at. transport 4−69929
conformal solutions, interdiffusion and thermal diffusion ratio 4−78876
contact melting process, calculation of unsteady kinetics *(Russian)* 4−70435
contaminant shear dispersion, analytically soluble model 4−68145
diaphragm cell, three-compartment, for meas. at boiling point 4−59022
diffusio-birefringence, macromolecules and colloid particle diffusion in optically isotropic liq. 4−67549
diffusion coefficient evaluation, Rayleigh interferograms 4−79169
electrolyte solutions, associated, ionic self-diffusion coeffs. meas., comparison with cond. data *(French)* 4−45914
ethanol-carbon tetrachloride system, relation between self-diffusion and interdiffusion coeffs. investig. 4−83038
eutectic systems, partial diffusion coeffs. *(Russian)* 4−53650
fluid of asymmetric-top molecules, anisotropic rot. diffusion model 4−69930
fused salts, appl. of mol. dynamics method, self-diffusion 4−82101
glass melt, cation diffusion, elec. cond. temp. depend., free vol. theory *(German)* 4−44910
heat and salt transport across diffusive interface 4−79170
Irish Sea, turbulent diffusion from continuous source 4−57982
isothermal differential diffusion coeffs. determ. using holographic interferometry, computer simulation *(French)* 4−45915
lakes, vertical eddy diffusivities below thermocline 4−68128
liquid crystal, nematic, ion mobility meas., crit. voltage for EHD instability *(French)* 4−44689
liquid-gas interface, longitudinal wave dispersion, thickness effect 4−44744
liquid-vapour system, liquid phase diffusion, semi-infinite slab model 4−56870
macromolecular solutions, intermacromolecular interaction effects, two-component solutions 4−52319
macromolecular solutions, intermacromolecular interaction effects, three-component solutions 4−52320

diffusion in liquids continued

- MBBA, nematic, anisotropy of self-diffusion tensor, temp. depend. obs. by n.m.r. 4-66825
- MBBA, nematic, diffusion anisotropies meas. by use of dyes 4-44466
- methane, liq. and high-press. gas, mol. motion neutron scattering obs. 4-63750
- methanol-carbon tetrachloride system, relation between self-diffusion and interdiffusion coeffs. investig. 4-83038
- mixtures, corrections to Van der Waals model 4-72272
- molecular liquids, orientational single particle correl. functions, J diffusion model theory derived 4-60393
- molecular liquids, translational single particle correl. functions, model hard sphere system 4-60392
- monatomic liquid, atomic and electronic transport props. and molar vol. 4-72581
- multicomponent mixtures, mol. diffusion coeffs. calc. method 4-63935
- nitroethane-iso-octane, critical mixture, Brownian motion of Teflon particles, K-depend. diffusion 4-80147
- nitroethane-isooctane critical mixture, suspended teflon particles, light scatt., Brownian diffusion constant 4-44692
- nonelectrolytes, review 4-52915
- PAA, mol. rot. diffusion, liquid cryst. and liquid states 4-60411
- plasma lipoprotein solutions, translational diffusion, laser self-beat spectroscopy 4-68479
- polarisation interferometry, diffusivity meas. 4-46977
- polybutylisocyanate solutions, coeffs. determ. *(Russian)* 4-52321
- polymer solution, conc. depend. of dipole-segmental and diffusion processes and viscous flow *(Russian)* 4-53901
- polymer solution, diffusion of gases in flowing film 4-60216
- precipitation, periodic spatial, mechanism of chem. instability of autocatalytic reacts. coupled with diffusion 4-61583
- pulsation diffusion, diffusion transport, freq. depend. *(German)* 4-63937
- pulsation diffusion, general theory *(German)* 4-63936
- pyridines, monosubstituted, ^{14}N n.m.r. obs., mol. motion and electronic struct. 4-48080
- self-diffusion in liquids and liquid metals, exptl. technique 4-56895
- self-diffusion theory using dynamical superposition approx. 4-75638
- simultaneous absorption of two gases reacting between themselves in liq. medium 4-53961
- solvated electron, diffusive motion, config. coord. anal. 4-54092
- Southern Bight of North Sea, shear effect and turbulence rel. to diffusion 4-57983
- spectrometer, laser Doppler, for meas. of diffusion and electrophoresis 4-42804
- stratified flow past obstacles, blocking 4-43992
- suspension flow through porous media, random functions theory appl. 4-56453
- suspension flow through porous media, random functions theory appl., mean concentrations determ. 4-56454
- Tetralin, obs. of CO_2 diffusion by double holographic technique 4-60633
- thermal pollution of seawater near electric power plant, diffusion coeff. 4-57987
- translational self diffusion of molecules in organic liquids 4-67057
- tunnel model, diffusion coeff. and velocity correlation function derivation 4-52916
- turbulent diffusion, eddy struct. vortex model, Eulerian-Lagrangian vel. fields 4-60162
- turbulent diffusion of heat and momentum in ocean 4-57985
- water, H bond role in self diffusion 4-72582
- water, restricted self-diffusion in cyl. tubes, n.m.r. 4-72583
- water, self-diff. coeffs. and rot. correl. times, theoret. determ. 4-56896
- water, self-diffusion up to 2100 bar at 25°C 4-79173
- water, viscosity, self-diffusion, and spin-lattice relax., kinetic model 4-67478
- Al, liq., of H_2, coeff. determ. 4-82284
- Al, liquid, electrotransport of 3d transition metal solutes 4-82283
- Al alloys, of hydrogen, penetration rate meas. method *(Russian)* 4-79925
- Ar, liq. and high-press. gas, mol. motion neutron scatt. obs. 4-63750
- Ar, self-diffusion coeff. calc. *(Russian)* 4-56897
- Bi-Cd(Sn) eutectic systems, partial diffusion coeffs. *(Russian)* 4-53650
- Bi-Te melt, of Te, coeff. conc. depend. *(Russian)* 4-60635
- Ca:In, liq., tracer impurity diffusion 4-56899
- $Ca(NO_3)_2 + KNO_3$, molten, diffusion coeffs. of Ag^+, Cl^-, Br^- ions meas., transport props. investig. 4-52920
- Co(II) ion in LiCl-KCl eutectic melt, diffusion coeff. determ. by chronoamperometry *(French)* 4-44690
- $CuSO_4$, electrolyte soln., laminar flow, Hg^{2+} electroreduction, viscosity, diffusion investig. 4-54036
- Fe, impurity diffusion mechanisms *(Russian)* 4-45485
- Fe, of Ti, rotating disc technique, spacing ring method *(Russian)* 4-69928
- Ga, of P, rel. to GaP cryst. growth rate in synthesis, solute diffusion method 4-45469
- Ga:Ag(Sn), liq., tracer impurity diffusion 4-56902
- Ga:Au, liq. tracer impurity diffusion 4-56901
- Ga:Zn(Cd), liq., tracer impurity diffusion 4-56900
- Ge, of Ag, In, Sn, Sb, 930-1250°C, coeffs., activation energy 4-60636
- H_2O, effect of pressure and temp. on self-diffusion coeff. 4-79175
- H_2O, electrolyte soln., self-diffusion conc. depend. eqn. 4-79176
- H_2O, self diffusion coefficient, collective drift component calc. 4-79177
- ^3He, degenerate liquid in bounded geometry, spin diffusion coeff. 4-60668
- Hg-Cd dilute alloys, convection effects during electrotransport 4-44691
- $HgNO_3$, electrolyte soln., laminar flow, Hg^{2+} electroreduction, diffusion investig. rel. to temp. 4-54036
- In:Ga, liq., tracer impurity diffusion 4-56899
- In-Bi(Sn) melts, self-diffusion of indium *(Russian)* 4-45543

diffusion in liquids continued

- In-Zn alloys, conc. depend. of self-diffusion coeffs. *(Russian)* 4-56898
- NH_3, dynamics determ. for cold neutron scatt. 4-72422
- $^{15}N_2$, self-diffusion coeff., n.m.r. spin echo method 4-69931
- Na, liq., freq.-depend. friction const., single particle props. 4-63749
- NaCl, liq., appl. of mol. dynamics method, self-diffusion 4-82101
- O in non-newtonian fluid, mass transfer to rot. disc calc. 4-44149
- Pb, liq., freq.-depend. friction const., single particle props. 4-63749
- $PbO-B_2O_3$ flux, rare earth species, rel. to LPE growth of mag. garnet films 4-72647
- $PbO-SiO_2$, molten glass, interdiffusion *(Japanese)* 4-52923
- RbBr(I) aqueous electrolyte solns., autodiffusion of water mols., hydration of Rb^+, spin echo obs. 4-70621
- Si-Ge, solid soln. epitaxial films, crystallisation mechanism effects on B diffusion 4-82828
- SiO_2-K_2O melts, interdiffusion coeffs. 4-53811

diffusion in plasma *see plasma transport processes*

diffusion in solids

- *see also mechanical permeability; thermal diffusion in solids*
- alkali glasses, self-diffusion and elec. cond. empirical relation 4-52936
- alkaline earth oxides, importance of vacancy pairs from thermodynamic considerations 4-48789
- allene, diffusion in synthetic faujasite powder and pellets 4-69609
- alloy, binary, solid/liquid diffusion couple obs. of peritectic reactions 4-64535
- alloy, cubic, correlated solute diffusion mechanism 4-60638
- alloy, surface impurity conc. changes at high temp. *(Russian)* 4-67694
- alloy, velocity of break during phase transform., effect of diffusion 4-49675
- atoll subsurface permeability from tidal diffusion 4-70678
- b.c.c. lattices, trapping effect in diffusion of interstitial impurity atoms 4-79179
- bicrystal, misfit dislocation climb during diffusion, effect of coherency strain 4-52774
- bimetals, diffusion of C *(Russian)* 4-70432
- binary compound particles, movement of particle and matrix atoms, calc. 4-52939
- binary systems, conc. depend. of diffusion coeffs. *(Russian)* 4-75642
- binary systems, kinetic theory of interdiffusion, vacancy conc. *(Russian)* 4-48785
- borosilicate glass, Pyrex, of He, D, Ne, chemical interaction 4-61535
- β-brass, dezincification rate in vacuum at high temp. *(Japanese)* 4-64579
- α-brass, dezincified, concentration curve determ., comparison of methods 4-69935
- capillary, fine, vapour diffusion, polymol. adsorption and capillary condensation effects 4-64721
- ceramic, crack propagation by diffusion 4-73354
- channelling of light ions, diffusion coeffs. 4-72508
- charged particles, difference eqn. solns. for non-steady-state diffusion 4-64095
- chemical diffusion, anal. and development of atomic theory *(French)* 4-63940
- chemical stress applied to creep and fracture theories, Griffith crack problem 4-60640
- chemical stress applied to creep and fracture theories 4-60639
- correlated diffusion in electric field, theory 4-48794
- corundum, deformational aftereffect arising from diffusional creep *(Russian)* 4-69849
- creep measurement from marker line displacements 4-49774
- crystal lattice defects, matter transport, review 4-52946
- cubic crystal, of interstitials, investigation using Kubo's formula 4-56917
- diffusive creep rel. to viscous flow 4-66966
- dislocation climb, by pipe diffusion mechanism, model 4-48633
- dislocations rel. to transient and reversible diffusional creep, calcs. versus UO_2 results 4-60540
- electromigration-induced surface extrusions, model 4-67140
- f.c.c. crystals, correlated complete path equations for defect in elec. field 4-52937
- ferromagnetic metals and alloys, cubic, self-diffusion coeffs. estimation method *(Russian)* 4-79182
- fibrous eutectic composite, spheroidization at high temps. 4-61513
- finite plating with time-varying surface conc., numerical soln. to diffusion eqn., Fick's law 4-52942
- gas-filled pores, coarsening kinetics 4-49706
- glass, cation diffusion, elec. cond. temp. depend., free vol. theory *(German)* 4-44910
- glass, temp. depend. of gas diffusion 4-60644
- grain boundary diffusion, grain size effect 4-56904
- grain boundary groove growth data analysis for surface and vol. diffusion contribs. 4-45555
- hydrogen embrittlement kinetics, quantitative diffusion model 4-67819
- ice, intermol. proton tunnelling effect, model, soln., mechanism for ionic migration 4-48786
- impurity electrotransport, isotope effect 4-48783
- inert gas diffusion in lunar soil particles and implanted glasses 4-62057
- interstitial diffusion, classical Brownian motion model 4-79184
- interstitial diffusion, quantum Brownian motion model 4-79185
- ionic crystal, elec. cond. and associated processes, vacancy supersaturation 4-72790
- Kirkendall effect, analysis of Darken's equations *(French)* 4-67067
- liquid crystal, nematic, translational self diffusion, anisotropy, order and viscosity effects 4-69721
- low temperature diffusion, by ion collisions *(Korean)* 4-73265
- membrane, controlled, to prepare uniform composition mixture 4-71285
- membranes, lateral diffusion of components, triplet-triplet annihilation and energy transfer 4-65237
- metal, correl. between pre-exponential factors and activation energies of fast diffusing solutes 4-79192

diffusion in solids continued
- metal, cubic, divacancy diffusion, T_1 directional depend. 4−45205
- metal, electrotransport, review 4−63939
- metal, finite element method applic. *(Czech)* 4−79181
- metal, grain boundary migration induced by d.c. *(French)* 4−60642
- metal, hydrogen degassing kinetics *(Russian)* 4−73273
- metal, mag. dipole interaction contrib. to nuclear spin relax. by vacancy-type self-diffusion 4−76180
- metal, of hydrogen, stationary flow method 4−53637
- metal, positron diffusion constant and mobility calc. 4−82384
- metal film, instrument for monitoring longitudinal self-diffusion 4−42922
- metallic hydrides, multilayer H permeation barriers 4−81645
- metals, f.c.c., impurity diffusion, correl. factor calc., model, vacancy migration entropies calc. 4−75651
- meteorites, coarse structured, phosphide growth, anal. 4−62076
- methylacetylene, diffusion in synthetic faujasite powder and pellets 4−69609
- molecular crystal, substitutionally impure exciton transport eqns. 4−53063
- n-type, diffusion thermoelec. power calc., func. of temp. 4−49019
- nonisothermal kinetics, applic. to thermal analysis 4−54095
- nuclear spin relaxation, by translational diffusion in solids 4−79623
- oxides, interdiffusion and diffusional creep, obs. on cation vacancies 4−44697
- oxides, stoichiometry deviations and effects on phys. and chem. props. 4−60490
- β-PdH$_n$, of H_2, high press. investig., relax. method 4−67062
- perovskite type compounds, diffusion paths in ABO_{3+x} structs. 4−56907
- plastic, antistatic agents diffusion to surface from water contact angle meas. 4−80137
- polycrystals, jump diffusion dimensionality effect on Mossbauer line broadening 4−79654
- polymer, of solid low mol. wt. substances *(Russian)* 4−50018
- polymer film, gas transfer coeffs. determ. by chromatography *(Russian)* 4−57888
- polymers, use of dye molecules as probes to study crystallisation process 4−60423
- polystyrene, of nitrogen and helium, temp. depend., 100-410K *(Russian)* 4−52944
- porosity control by extreme Kirkendall effect 4−80051
- powder forging, fast diffusion alloying using liquid phase 4−67893
- pushed out diffused transistor, base profile shape, radiotracer method 4−67718
- quantum diffusion of light interstitials 4−72585
- self diffusion, effect of surface curvature on determ. 4−48804
- self-diffusion, activation energy, correl. with heat of melting, binding energy and thermal expansion *(Russian)* 4−67070
- self-diffusion, isotope effect, correction factor calc. 4−44706
- self-diffusion coeffs. of oxygen meas., using isotope exchanges *(Czech)* 4−77245
- semiconductor, book 4−79885
- semiconductor, impurity concentration profile in irrad. enhanced diffusion expts. 4−79183
- semiconductor, impurity-atom distrib., narrow slit, const. source 4−67738
- semiconductor, impurity-atom distrib., slit in masking film 4−67737
- semiconductor, of metal ion, spontaneous diffusion 4−45454
- semiconductor device materials exposed to ionizing radiation, diffusion enhancement effects 4−66931
- semiconductor impurities, investigation of complex form. effect 4−44696
- sintering, shrinkage rate during initial stages 4−80052
- sintering, stress induced diffusional transport, material continuity requirements 4−67894
- sintering, stress induced diffusional transport, material continuity requirements 4−67895
- steady-state diffusion flux of point defects, influence of elastic field of dislocation 4−56916
- steel, austenite, electrotransport of carbon, Z* factor constancy 4−48799
- steel, austenite decomposition by diffusion processes *(French)* 4−49637
- steel, austenitic stainless, tracer diffusion of ^{59}Fe and ^{51}Cr 4−48798
- steel, cavity formation, exposure to liquid Na formation mech. anal. 4−76517
- steel, Cr-Mo ferritic, decarburization kinetics, design criteria of LMFBR steam generator 4−81657
- steel, Cr-Mo ferritic, for LMFBR steam generator, decarburization behaviour 4−81658
- steel, floccule sensitivity, optimum Mg additions *(Russian)* 4−61370
- steel, hardenability and diffusional growth limitation 4−45669
- steel, intergranular self-diffusion and corrosion *(French)* 4−53690
- steel, of hydrogen, microvoid effects, model 4−79188
- steel, of hydrogen, microvoid effects, model 4−79189
- steel, stainless, ^{2}H permeation through samples with oxide layers 4−81644
- steel, stainless, diff. of ^{3}H, surface effects 4−81643
- stress gradients and Kirkendall shifts due to neutron damage 4−70516
- substrate for vacuum condensates, effect of diffusion current on condensate texture 4−44495
- tectonic folding, stress-induced diffusion 4−61701
- ternary systems, coeffs. eval. without positioning of Matano interface 4−79193
- ternary systems, diffusion composition path patterns 4−82289
- thermodiffusion, dynamical problems 4−74433
- transition metal, b.c.c., laws of carbon diffusion *(Russian)* 4−60643
- two-phase system, binary, nonparabolic interface motion due to diffusion 4−79190
- two-phase system, finite, interface motion due to atomic diffusion 4−79191
- void and loop growth, diffusion model for applied stress effect 4−44570
- zeolite, heteroionic, kinetics of ion diffusion at high temp. 4−73447
- Zircaloy, β-phase, oxygen diffusion during steam oxidation 4−43641

diffusion in solids continued
- Zircaloy-2, of ^{3}H, surface effects 4−81643
- Zircaloy-2, tritium diffusion, −78 to 204°C 4−66262
- Ag, electromigration and permeation of H_2 and D_2 4−82287
- Ag, single crystal and slightly deformed crystals, self-diffusion measurements, 350-580°C 4−63943
- Ag film, diffusion coeff. and electromigration velocity of Cu 4−60710
- Ag-Zn, β' phase, disordering kinetics 4−67769
- AgAuPd multilayered thin film microcouples 4−60641
- Ag_3Sn-Hg, X-ray anal. of Hg diffusion 4−60647
- Al, of ^{100}Ag, near surface effect 4−52945
- Al, of ^{28}Mg, meas. of activation energy and diffusion coeffs. 4−48802
- Al, of Cu, film, grain boundary solute electromigration 4−82334
- Al, point defects, diffusion kinetics *(Rumanian)* 4−44694
- Al, positron diffusion constant and mobility calc. 4−82384
- Al, under neutron irradiation, interstitial diffusion mechanism of Au and Cu *(French)* 4−81637
- Al of Ga at grain boundaries, atomic ionolum. microanalysis obs. *(French)* 4−45564
- Al/steel composite, microprobe analysis of transition zone 4−61524
- Al-Cu-Si alloy film, electromigration effects 4−57186
- Al-$CuAl_2$ aligned lamellar eutectic, Zn diffusion and transform. processes 4−45517
- Al-Cu(4 wt.%) film, microprobe technique for nondestructive determ. of Si conc. profile 4−77305
- Al-Fe alloy, dil., of Fe, activation energy, resist. obs. 4−67068
- Al_2O:^{18}O, matrix-isolated, i.r. spectra, isotope effects, diffusion anal., dimerisation investig. 4−69487
- Al_2O_3, mass transport equation for diffusional creep, 1200-1600 degrees C 4−49884
- Al_2O_3, sintering kinetics, effect of iron oxide 4−45744
- β-Al_2O_3 electrolyte nucl. mag. relax. of ^{23}Na meas., 120 to 800K 4−79625
- Ar, of O_2, at 33K, phosphorescence obs. 4−52930
- Au, diffusion of slow positrons 4−64069
- Au, rolled single crystals, high elec. d.c. densities influence on grain boundary migration 4−49722
- Au, self-diffusion along isolated dislocations, theory 4−75646
- Au film, evaporated, grain boundary self-diffusion, 117-177°C 4−48879
- Au film, of Pt, from underlying film, resist., X-ray and electron microscope obs. 4−48878
- Au-Al couples, diffusion form. of intermetallic cpds. using evap. Al films *(Japanese)* 4−45502
- Au-Fe solid solns., discontinuous precip. controlled by vol. diffusion *(German)* 4−70458
- Aul, heterodiffusion of A and Cu at infinite dilution, neutron irrad. effect *(French)* 4−44699
- B_2O_3, vitreous, of He, D, Ne, thermal history change effects 4−67066
- BaO, cation diffusion and defect struct. 4−48787
- Be, n.m.r., spin-lattice relax. and translational diffusion 4−45199
- Be:Cu, diffusion coeff. rel. to Cu introduction investig., ion backscatt. technique 4−63944
- CaF_2, single crystals, pure and YF_3 doped, Ca diffusion meas. 4−44708
- $CaMoO_4$, diffusion mass transfer in solid-state synthesis 4−45898
- Cd, rel. to low stress creep, 267-309K 4−53760
- $CdGeAs_2$, glassy, impurity diffusion, temps. near onset of crystn. 4−56914
- $Cd_xHg_{1-x}Te$, of Cu and Au, p-n junction displacement obs. 4−48806
- CdS, diffusion constants of Cd vacancies and In-Cd vacancy pairs 4−79186
- CdS film, of Cu, effect on thermoelec. and photothermoelec. effects 4−53161
- CdTe, diffusion constants of Cd vacancies and In-Cd vacancy pairs 4−79186
- $CdTe_xSe_{(1-x)}$, semicond., interdiffusion coeffs. of chalcogens meas. rel. to conc., temp. *(German)* 4−56921
- δCe, under press., self-diffusion *(French)* 4−72587
- Co, fine-grained powder, diffusion const. and surface states of positrons 4−75939
- Co, of hydrogen, f.c.c. and h.c.p. forms comparison 4−52941
- Co-Fe alloy, diffusional growth of (Fe,Co)O scales 4−44790
- $CoFe_2O_4$, form. from $Co(OH)_2 + Fe(OOH)_2$ by ionic surface diffusion 4−44496
- $Co_xFe_yO_z$, oxide scales on binary alloys, metal diffusion props. 4−48866
- CoO, final-stage densification during press.-sintering diffusion model 4−45742
- CoO, initial stage sintering kinetics 4−64602
- CoO, intermediate stage sintering kinetics 4−64603
- Cr_2O_3 scales formed during Cr oxidation, 900-1000°C, effect of S on Cr transport 4−48864
- CsBr, V_k-centres, autolocalized holes in luminescing cryst. *(Russian)* 4−73204
- CsBr(I)/Xe, degassing in neutron irrad. crysts., gas reaction with defects *(German)* 4−79195
- CsI, self diffusion of ^{131}Cs and ^{137}Cs, 470-600°C 4−48801
- Cu, obs. of tracer ^{67}Cu in thin sections 4−56908
- Cu, of Ni along dislocations *(Russian)* 4−75641
- Cu, of Sn, temp. depend. *(Russian)* 4−67064
- Cu, volume and surface self-diffusion 4−44702
- Cu alloys, Cu volume and surface self-diffusion 4−44702
- Cu alloys, internal oxidation kinetics, 750-1020°C *(Russian)* 4−79926
- Cu and Cu alloys, review 4−82288
- Cu fibrous crystals, of Zn, 600-700°C *(Russian)* 4−49701
- Cu-Fe system, interdiffusion coeffs. and phase interface moving rates for reaction-diffusion *(Japanese)* 4−67760
- Cu-Ga alloy, diffusion layers, concn. profiles, 500 to 700°C *(German)* 4−48807
- Cu-In system, vol. diffusion coeffs. in β-phase region 4−53661
- Cu-Zn, β' phase, disordering kinetics 4−67769
- $Cu_{2-x}Te$, film growth, cond., reactive diffusion of Cu 4−45443
- Fe, Armco, electrolytic hydrogen charging, 0-300°C *(French)* 4−45587

diffusion in solids continued
- Fe, fine-grained powder, diffusion const. and surface states of positrons 4−75939
- Fe, of hydrogen, microvoid effects, model 4−79188
- Fe, of hydrogen, microvoid effects, model 4−79189
- Fe, of hydrogen, resist. recovery at low temps. 4−76446
- γ-Fe, of O_2, coeff. *(Russian)* 4−70450
- Fe alloys, of hydrogen, volume and boundary components, Cr influence *(Russian)* 4−45600
- Fe/Fe-Ni binary diffusion couples, nonplanar interphase interfaces 4−67765
- Fe-Al alloys, hydrogen diffusion parameters *(Russian)* 4−53719
- Fe-C alloy, eutectoid decomp., Zn additions influence *(German)* 4−61356
- α-Fe-Cr alloys, bulk and intercryst. diffusion of Fe, rel. to $\alpha \rightleftharpoons (\alpha+\gamma)$ transforms. *(French)* 4−49667
- Fe-Cr solid solns., b.c.c., Zener relax. rel. to solute diffusion 4−53691
- Fe-Ni-C austenite, anelastic phenomena related to carbon diffusion *(French)* 4−49749
- Fe-Ni-P system, ternary diffusion in α and γ phases 4−45524
- α-Fe-Sn solid soln., mutual diffusion coeffs. determ. *(French)* 4−44695
- Fe-Sn system, diffusion couple method for binary equil. diagram determ. *(French)* 4−49672
- $Fe_xMn_yO_z$, oxide scales on binary alloys, metal diffusion props. 4−48866
- $Fe_{1-x}O$, wustite, cation self-diffusion and isotope effect 4−48796
- $Fe_{1-\delta}S$, site exclusion models, Monte Carlo method 4−44704
- n-GaAs, heavily doped, luminesc. centre diffusion 4−72590
- GaAs, of Cu, epitaxial and bulk samples, carrier conc. 4−60645
- GaAs, of Sn, acceleration by preliminary ion bombardment 4−75649
- GaAs, of Zn, conc. depend., numerical calc. 4−60646
- GaAs native oxide, mask for Zn diffusion 4−61315
- GaAs:(Se,Si), epitaxial layer, transfer of dopant from $AsCl_3$, carrier conc. 4−44555
- GaAs:Cd, impurity ion capture by vacancies in implanted layers 4−75648
- GaAs:Zn,Sn, lateral diffusion when using phosphosilicate glass masks 4−57697
- p-GaP:Zn, diffuse layers prep. with low surface conc. *(Czech)* 4−61295
- $GdGeAs_2$, glassy and cryst., impurity diffusion, temp. depend. and activation energy 4−56913
- Ge, electron-hole plasma generation, ambipolar diffusivity, picosec. ellipsometry meas. 4−53067
- Ge, self-diffusion mechanism, theory 4−82291
- H isotopes permeation through structural metals and oxidised metals at low pressures 4−51895
- ^3He-^4He isotopic solns., ^3He diffusion in b.c.c. and h.c.p. phases *(Russian)* 4−67089
- ^4He, quantum diffusion of impurities *(Russian)* 4−79223
- Hf, electrotransport of C, N and O, degree of purification prediction 4−44703
- $HfSi_x$, diffusion layer form., 1150-1300°C, kinetics, microstruct. and microhardness 4−44784
- InP, of Zn, at 700°C, p-n junction formation 4−49623
- K halides, Ar interstitial migration, anharmonic lattice statics calcs. 4−60648
- KCl, Tl^{2+}, In^{2+}, Ga^{2+} centres, migration with charge transfer *(Russian)* 4−82286
- KCl/Ar, degassing in neutron irrad. crysts., gas reaction with defects *(German)* 4−79195
- KN_3 cation diffusion 4−75645
- $LaNi_{5.3}H_6$, p.m.r., structure and diffusion 4−76171
- Li, positron diffusion constant and mobility calc. 4−82384
- Mg, of Li, in propylene carbonate 4−61619
- $MgMn_2O_4$, dilatation obs. of cation redistrib. 4−56909
- MgO, mass transport equation for diffusional creep, 1200-1600 degrees C 4−49884
- MgO-$Cr_2O_3(Al_2O_3)$, obs. on aliovalent cation diffusion 4−48788
- $MgO.nAl_2O_3$, (n=1, 1.2, 2.2), O_2 self-diffusion coeff. 4−75643
- Mo-Ni-C system, carbon influence on interdiffusion of Mo and Ni 4−45518
- Mo-Ni(Fe)(Co) systems, interdiffusion and layer growth 4−79180
- N_2, of matrix isolated Sn, Sn_2 and higher polymers, Mossbauer obs. 4−61078
- NH_4ClO_4 crystals, cond. proton mobility rel. to charge transfer, thermal decomposition 4−72588
- Na_2-B_2O_3-SiO_2, ion exchange, iterative deconvolution technique applic. 4−69821
- NaBr, e.s.r. determ. of diffusion and distrib. coeffs. of Mn^{2+} 4−70205
- NaBr, of ^{22}Na, temp. depend. of diffusion coeff. and isotopic effect 4−56920
- NaCl, elastic-diffusion interaction of liquid inclusions 4−52943
- NaCl, obs. on Cl ions of activation energy, subgrain size creep rate relations 4−44591
- NaCl, of Zn, 723-1053K, comparison with numerical simulation predictions 4−75652
- $NaCl:Ba^{2+}+(Ca^{2+})(Sr^{2+})$, cryst., jump freq. of cations, ionic radius effect 4−69933
- $Na_xFe_7O_{11-y}$, chem. diffusion of Na, electrochem. obs. 4−48793
- Na_2O-$3SiO_2$ glass, Na diffusion, anomalous effects of water 4−53813
- Na_2O-B_2O_3-SiO_2, sodium borosilicate glasses, ion exchange 4−72481
- $Na_xV_2O_5$, chem. diffusion of Na, electrochem. obs. 4−48793
- Na_xWO_3, chem. diffusion of Na, electrochem. obs. 4−48793
- Nb, coeff. determ. for H and D by resist. meas. 4−52940
- Nb, of ^3H, surface effects 4−81643
- Nb, surface self-diffusion, effects of elec. fields and gas adsorpt. 4−81641
- Nb, tritium release rates 4−63292
- Nb of ^6Li, damage and range profiles 4−81647
- Nb of He, diffusion coeff. meas. surface blistering anal. 4−79074
- Nb/Al, duplex layer, long range migration of Nb during anodic oxidation 4−67122
- Nb/Ta, duplex layer, long range migration of Nb during anodic oxidation 4−67122

diffusion in solids continued
- Ni, chemical diffusion of Zn, 896-1100°C 4−60649
- Ni, fine-grained powder, diffusion const. and surface states of positrons 4−75939
- Ni, of hydrogen, isotope effects 4−67069
- Ni alloys, pack aluminiding, interdiffusion, rel. to coating mechanisms 4−49769
- Ni-Cr alloy, Cr ion effective charge and diffusion coeff., temp. depend. *(Russian)* 4−73298
- Ni-Fe(30 at.%) alloy, low vacancy conc. obs. using mag. anisotropy method *(French)* 4−53670
- NiAl coatings, effects of diffusion on Al depletion and degradation 4−61418
- Ni_3Al-Ni_3Nb eutectic, structural defects and Ni diffusion *(Russian)* 4−49640
- $Ni_xCo_yO_z$, oxide scales on binary alloys, metal diffusion props. 4−48866
- NiFe ferrite, of ^{63}Ni, 1160-1320°C *(French)* 4−44709
- $Ni_xFe_yO_z$, oxide scales on binary alloys, metal diffusion props. 4−48866
- NiO-$Cr_2O_3(Al_2O_3)$, obs. on aliovalent cation diffusion 4−48788
- NiO-MgO solid solns., comp. depend. of ^{63}Ni diffusion 4−44701
- Pb, Zn diffusion, investig. rel. to temp. by radioactive tracer techniques 4−63945
- PbSe, alloying with Cu by diffusion from electrodeposited Cu surface layer *(Russian)* 4−72591
- Pd, initial sintering, powder compacts, diffusion coeffs. 4−82953
- Pd, of H, proton spin-lattice relax. in rotating frame obs., 170 to 300K 4−56912
- Pd:H, critical point behaviour, diffusional relaxation process and specific heat 4−45541
- Pd-H system, stability, plastic deform. influence, resist. meas. *(Russian)* 4−53677
- Pt-Fe, diffusion, evaporation, thermodynamic properties 4−70470
- Rb halides, Kr interstitial migration, anharmonic lattice statics calcs. 4−60648
- α-S, self-diffusion, serial sectioning technique obs. 4−48800
- SF_6, triple point region, molecular motion, n.m.r. obs. *(Russian)* 4−67485
- Sb_2Te_3, Sn impurity behaviour and effects on elec. props. 4−67065
- Si, diffusion from doped SiO_2, elec. parameters of diffusion structures 4−61299
- Si, diffusion of Ga through SiO_2 film, h.f. capacitance and inversion voltage obs. 4−53621
- Si, diffusion of P, excess vacancy generation mechanism 4−61305
- Si, E-centres, calc. for group III and V element 4−48953
- Si, Ge anomalous diffusion, dislocation model 4−79194
- Si, ion-implanted, defect generation, role of sequential annealing, oxidation and diffusion 4−61308
- Si, of Al, plastic deform. effect, thread like model *(Russian)* 4−75650
- Si, of Au, influence of dislocations 4−79187
- Si, of P, doped oxide source diffusion, theory 4−82824
- Si, of P, precipitates obs. by transmission electron microscopy 4−56918
- Si, of P, production of two types of dislocation network 4−75533
- Si, oxidation, formation of stacking faults and enhanced diffusion 4−61306
- Si, P diffused, He beam induced impurity displacement during channelling meas. 4−49620
- Si, self-diffusion mechanism, theory 4−82291
- Si, Sn diffusion parameters in doped oxide method, backscattering and channelling anal. 4−82819
- Si gate technology, SiO_2 layer impurity diffusion effects on flatband voltage, obs. 4−49075
- Si:B, anomalous B diffusion from Bn planar source 4−57704
- Si:B, diffusion from gas, B surf. conc. control by elec. field 4−44556
- Si:B, diffusion from glasses, controlled conc. *(Russian)* 4−76402
- Si:B, interstitial props. from internal friction meas. after implantation 4−66909
- Si:B, lattice location and diffusion of B after implantation 4−67740
- Si:B, profile redistrib. during P diffusion, ion microprobe meas. 4−49593
- Si:B,P, modified relation for plastic deform. diffusion enhancement factor 4−61321
- Si:C and diffused ^{18}O, electron irrad., i.r. absorption meas. of local vibr. modes of defects 4−82203
- Si:Cr, diffusion and solid solubility 4−73266
- Si:P, B, As, interstitial-induced diffusion enhancement obs. 4−49592
- Si:P, depth distrib. of implanted ions in misaligned crysts. 4−73267
- Si:P, of ^{14}C and ^{35}S, successive-layer radiometric analysis 4−56915
- Si:P, Sb, simultaneous diffusion, doping profile 4−82826
- Si:Sb,As ion implantation and drive-in diffusion effects 4−49609
- Si-Ge, of ^{77}Ge, meas. of diffusion parameters by Arrhenius plot 4−52938
- Si-Ge, solid soln. epitaxial films, crystallisation mechanism effects on B diffusion 4−82828
- Si-SiO_2 system, B diffusion under oxidising conditions, after implantation at 80 keV 4−57703
- SiO films, vacuum deposition on Al, rates of diffusion phenomena *(Russian)* 4−53593
- SiO_2, of P, film, crystallization catalysis 4−75730
- SiO_2, of P, partially crystallized film, anomalous rapid mode 4−75644
- SiO_2, vitreous, obs. of mass and charge transport at high temps. 4−48792
- SiO_2 gel, macroporous, absorpt. of polystyrene, temp. effects on kinetics and equil. *(Russian)* 4−53923
- $SmCo_5$, internal oxidation, microstruct. and growth kinetics of fibrous composite subscale 4−82855
- $SmCo_5$, solid-phase sintering, kinetics, mechanism and effects 4−64576
- Sn-Cd, eutectic, coarsening during solidification, interphase boundary diffusion 4−45549
- $SrMoO_4$, diffusion mass transfer in solid-state synthesis 4−45898
- SrO, cation diffusion and defect struct. 4−48787
- $SrTiO_3$, O chem. diffusion coeffs., determ. by capacitance manometry 4−48790

diffusion in solids continued
Ta, of H, neutron quasi-elastic scatt. 4−72589
Ta, of H isotopes *(Russian)* 4−67063
Ta, surface self-diffusion, effects of elec. fields and gas adsorpt. 4−81641
Ta-Au thin film couples, interdiffusion and cpd. formation obs. 4−60711
$TaSi_2$ layer form. on Ta, form. kinetics and struct. 4−44785
Th-V system, impurity controlled diffusion reaction 4−82290
TiH_{2-x}, of H_2, proton mag. relax. spectroscopic investig. *(German)* 4−67476
UC, of U, effect of impurities, Fe, Ni, W 4−69934
UC_x, hyperstoichiometric, carbon self-diffusion mechanism 4−63277
UO_2, dislocations rel. to transient and reversible diffusional creep 4−60540
V, obs. of self diffusion of ^{48}V using microsectioning technique 4−44705
V-H(D) systems, isotope effect on H(D) mobility 4−75647
W, fine-grained powder, diffusion const. and surface states of positrons 4−75939
W, of Pt, surface defect form. 4−79225
W, of S and P, diffusion to surface, Auger effect obs. of internal adsorption 4−56919
W, surface self-diffusion, effects of elec. fields and gas adsorpt. 4−81641
WC-TiC system, volume diffusion and mixed carbide form. *(German)* 4−70552
Y_2O_3, doped, obs. on sintering process and rate of diffusion 4−49885
Yb, h.c.p.α, b.c.c.γ, self-diffusion *(French)* 4−72586
$ZnTe_xSe_{(1-x)}$, semicond., interdiffusion coeffs. of chalcogens meas. rel to conc., temp. *(German)* 4−56921
Zr, electromigration of H at 300°C, obs. *(Japanese)* 4−44698
Zr, of oxygen, 1100°C *(French)* 4−48784
α-Zr single crysts., tracer diffusion coeffs. and mechanisms 4−52928
Zr:^3H, temp. depend. of diffusion and mobility 4−56906
Zr-Ti system, interdiffusion, Kirkendall effect *(German)* 4−79196
$ZrN_{0.93}$, obs. of N diffusion using gas solid exchange technique, 1000-1200°C 4−48791

diffusion length *see diffusion*

diffusion pumps
electron beam floating zone furnace, very high vacuum 4−57690
high vacuum valve with programmed opening rate 4−74028

diffusivity, thermal *see thermal diffusivity*

digital-analog convertors *see digital-analogue conversion*

digital-analogue conversion
see also analogue-digital conversion
logarithmic method, for varying parameters in Camac devices 4−68820

digital communication systems
fascimile, laser wirephoto transceiver, design and development 4−55540
pulse-width jitter, counter/calculator system application 4−77232
retina model for applic. of digital data processing network theory 4−58522
TV colour boundary threshold sharpness rel. to coding for digital transmission 4−54908

digital computer applications *see computer applications*

digital computers
see also digital systems; minicomputers; special purpose computers
eigenvalues, eigenvectors determ., vibr. quartz plates by finite element method 4−80806

digital control
see also control engineering applications of computers; direct digital control; numerical control
ESO spectrum scanner, three channels with digital computer control 4−73864
mass spectrometer, quadrupole, appls. and performance limits 4−55106
radiation therapy, control and data handling systems using modules, computers and computer peripherals 4−46450
Raman spectrophotometer, programmed sample carrier 4−58967
time optimal digital control for nuclear reactors 4−69281

digital differential analysers
Euler-Poisson kinematic eqns., errors in orientation determ. *(Russian)* 4−81137

digital filters
see also signal processing
complex Weiner filter for seismic data processing 4−61886
formulation and methodology of digital filtering and power spectrum analysis 4−65647
n.m.r. sensitivity enhancement applic. 4−68754
radiosource digital dispersion spectroscopy for sources rapid variability 4−62229
seismic recordings, digital inverse and correcting filters *(Russian)* 4−57943

digital instrumentation
see also digital readout; digital voltmeters
calculator based measurement instrumentation package 4−74096
correlators, weak light beams intensity correlation 4−71199
counter, freq. and time meas. applic. 4−77228
dielectric effects, nonlinear, meas. 4−46738
distorted a.c. voltage/current/power, multirange meter *(German)* 4−46758
dual-beam, digital-incremental spectrophotometers, automatic scale reference system 4−54900
gas chromatograph 4−65587
LCR meter, 1 MHz automatic 4−42832
photographic, image restoration and enhancement, Fourier transform technique 4−68717
piezoelectric resonators elastic moduli and internal friction, digital meas. techniques 4−46577
plasma density determining device, microwave cavity 4−72395
proportional chamber with readout into large core memory for X-ray crystallography of protein 4−55125

digital instrumentation continued
psychophysical research, sensing magnitude matching, successive approximation method 4−65557
radiation therapy, supervoltage equipment, instrument for rapid check of output, energy and field flatness 4−46449
recorder for solar spectrum on magnetic tape *(Russian)* 4−80466
seismic exploration instrument, channel switch using f.e.t.'s *(Russian)* 4−54314
seismogram digitiser *(German)* 4−54282
temperature integrator for 40 to 110°F 4−68637
tension peak value digital metering and storage in atomic absorption meas. *(German)* 4−65006
velocity transducer for underground nuclear explosions 4−46102
Pt resistance thermometer, digital, dual range linear analogue output 4−71169

digital instruments *see digital instrumentation*

digital integrated circuits
analyser-counter-ratemeter and positioner for gas proportional scintillation counter spectra 4−46875
multiwire proportional chambers, modular multiword readout system 4−46859
scaler, fast, with dynamic indication 4−51163
scaling counter, with 100 MHz decoder, quinary binary technique 4−42909
scintillation detectors with ECL for space vehicle application 4−71076

digital readout
see also digital instrumentation
bubble chamber pictures, vidicon read-out system 4−77227
charge meter, integrating, for radiographic units 4−46448
electrical resistivity temp. depend., apparatus for simultaneous graphical and digital recording *(Czech)* 4−80944
multiwire proportional chamber readout system with CAMAC interface 4−46860
multiwire proportional chambers, modular multiword readout system 4−46859
proportional wire chamber readout and geometrical reconstruction system with CAMAC module 4−46861
secondary beam line, digital monitoring and data acquisition CAMAC system 4−46862

digital signals
i.r. scanning spectrometer, noise reduction 4−71198

digital storage
see also cryotrons; optical stores; random-access storage; read-only storage; semiconductor storage systems
gravimetric data input, automated system *(Russian)* 4−54311
scratch-pad memory for buffering multiwire data 4−55096
tension peak value digital metering and storage in atomic absorption meas. *(German)* 4−65006
As_2S_3, photoelectret and photomemory props. 4−61095

digital systems
see also digital computers; multi-access systems; multiprocessing systems; parallel processing; real-time systems; sampled data systems
image processing, digital, rotating drum scanner display system 4−55121
rock complex specific impedance meas. digital phase-sensitive unit *(Russian)* 4−54299

digital to analogue convertors *see digital-analogue conversion*

digital voltmeters
distorted a.c. voltage/current/power, multirange meter *(German)* 4−46758
dosimeter applic., plug in module for Radocon 555, to improve linearity 4−46482
integrating digital voltmeter for pulsed n.m.r. signals 4−65502
mass spectrometer peak ionic current meas. *(Russian)* 4−81027
multimeter, industrial measuring instrument *(German)* 4−46755

digitisers *see analogue-digital conversion*

dilatometers *see extensometers*

dilute alloys
see also impurity electron states and effects; Kondo effect; magnetic properties of dilute systems
alkali metal, electrical and thermal resistivity calc. 4−82385
binary, solute-vacancy binding energies, theory 4−52751
Cu-Ni(Co)(Fe), disordered, virtual bound states, theory 4−79267
cubic, correlated solute diffusion mechanism 4−60638
diffusion thermopower, Nielsen-Taylor effect 4−82394
electrical conductivity, low temp., Umklapp process and phonon drag effect 4−53077
electronic properties of alloy models in dilute limit, hopping-disorder impurity potential 4−60758
f.c.c., phonon self-energy in high symm. directions 4−79127
impurity states and t-matrix pole, appl. of Horwitz and Jacobi theory to Anderson model 4−60757
magnetic, low temp. behaviour of spin susceptibility 4−57263
magnetic, resistance minimum in absence of impurity moments 4−48960
magnetic neutron scattering, mag. struct. 4−57286
noble metal:transition metal alloy, magnetic properties, review *(French)* 4−53213
noble metal, electronic struct, charge oscill., Knight shift, pair interaction 4−79275
superconducting, conc. effects in crit. temp., functional integral calcs. 4−60906
transition impurities, transition or noble base, magnetic susceptibility, specific heat, resistivity 4−64200
transition metal, electronic struct., charge oscill., Knight shift, pair interaction 4−79275
AL-Fe, Fe diffusion, activation energy, resist. obs. 4−67068
Ag-Au(Sn), backscattering coefficients calc. 4−60756
Ag-based, anisotropic de Haas-van Alphen lifetimes, calc. 4−53031
(Ag-Pd)-Yb, enhancement of Kondo scatt., elec. resist. 4−75838
AgPd, optical props. exam. in terms of Anderson model 4−82712
Al, electric field gradient, non transition metal impurities in dilute alloy single crystals 4−73046
Al-3d metal, low temp. thermoelec. power, calc. in LSF approx. of Anderson model 4−53084
Al-Cu, solute-vacancy binding energies, theory 4−52751
Al-Mg, solute-vacancy binding energies, theory 4−52751

dilute alloys continued
Al-Si, clustering processes, elec. resist. obs. 4−67800
AlMg, impurity screening, one electron model *(French)* 4−44864
AlMg. AlMn, dilute resistivity between 0 and 100°C, generalised model approach 4−82388
Au-based, anisotropic de Haas-van Alphen lifetimes, calc. 4−53031
Au-Mn, nuclear orientation of ^{54}Mn, local d-spin interaction effect 4−57259
AuMn, thermoelectric power, interacting spin pair description 4−60783
AuNi, optical props. exam. in terms of Anderson model 4−82712
Be-Fe-C, impurity interactions, Mossbauer obs. 4−71994
Bi-Sb alloys, nonlinear band parameters investig. using Shubnikov-de Haas oscill. meas. 4−64015
Co-Al(Sn), core and cond. electron polarization fields at impurity ^{57}Fe nucleus, Mossbauer obs. 4−64286
Co-Fe, cryst. struct. and phase transform. exam., double h.c.p. phase 4−76416
Cr-Y(Gd)(Sm), dil., deformed, annealing, struct. changes *(Russian)* 4−67773
Cu, electric field gradient, dilute alloy single crystals, non transition metal impurities 4−73046
Cu:Ni(Ge)(Au), conduction electron scattering, de Haas-van Alphen 4−64058
Cu-3d transition metal, electron spin density determ. near impurity atoms, n.m.r. 4−64275
Cu-Ag, asymptotic region of charge density oscillation around impurities 4−67465
Cu-Au-Fe(Cr), magnetoresist., validity of calc. using field-depend. infinite-U Anderson model 4−53083
Cu-Based, charge density oscill. around impurities, asymptotic and pre-asymptotic regions 4−48925
Cu-Co, n.m.r. meas., 1.4 to 290K, diamag. deviation of Knight shift due to mag. impurities 4−82625
Cu-Cr, ^{63}Cu nuclear spin relax. obs., 0.32-20K 4−61054
Cu-Cr, magnetoresist., validity of calc. using field-depend. infinite-U Anderson model 4−53083
Cu-Cr, transport props. in mag. field 4−53082
Cu-Fe, n.m.r. meas., 1.4 to 290K, diamag. deviation of Knight shift due to mag. impurities 4−82625
Cu-Ga, asymptotic region of charge density oscillation around impurities 4−67465
Cu-Ge, asymptotic region of charge density oscillation around impurities 4−67465
Cu-Mn, ^{63}Cu nuclear spin relax. obs., 0.32-20K 4−61054
Cu-Mn, n.m.r. meas., 1.4 to 290K, diamag. deviation of Knight shift due to mag. impurities 4−82625
Cu-Ni, elec. field gradients, zero-field n.q.r. meas. 4−64283
CuMn, polarisation anal. of neutron mag. scatt. 4−67380
CuMn, thermoelectric power, interacting spin pair description 4−60783
CuNi, optical props. exam. in terms of Anderson model 4−82712
$(Cu_{0.83}Pd_{0.17})_{1-c}X_c$, X=Mn, Fe, Co, Ni, Gd, paramag. Curie temp., influence of order-disorder transitions 4−45115
Fe-Co(Ni)(Rh)(Pd), moment distribs. and hyperfine fields at solute atoms 4−53224
Fe-Ni(8wt%) alloy, controlled solidification 4−70440
Fe-Ni(8wt.%) alloy, controlled solidification 4−67754
FeIr, ferromag. dilute alloy, nuclear electric quadrupole interaction exam. 4−82633
Hg-Cd, liq., convection effects during electrotransport 4−44691
In-Cd, band-struct. effects on supercond. 4−64156
In-Sn(0.01-0.09 at.%Sn), supercond., longit. u.s. absorpt. meas., energy gap parameters 4−57215
LaSb:Gd, single crystal, resolved e.s.r. spectra, cubic crystalline field parameter meas. 4−82611
Mo, precip. of α-MoC$_{1-x}$ *(Russian)* 4−76440
Mo-Mn(Fe)(Co), s-d exchange interaction, resist. obs. 4−45093
Ni-^{57}Fe dil. system, force constant ratio calcs. 4−82247
Ni-Al(Sn), core and cond. electron polarization fields at impurity ^{57}Fe nucleus, Mossbauer obs. 4−64286
Ni-transition metal, sp. ht. meas., conc. depend. 4−45114
NiCr:rare-earth, X-ray spectra, strong reson. in SXAPS due to rare earth 4f states 4−64447
NiIr, ferromag. dilute alloy, nuclear electric quadrupole interaction exam. 4−82633
Pb-In, solute-vacancy binding energies, theory 4−52751
Pd-Dy, sp. ht. meas. in temp. range 0.5 to 6K 4−53235
Pd-H-Mn, e.p.r. g-shifts, linewidths, exchange interaction info. 4−53306
Pd-Mn, e.p.r. g-shifts, linewidths, exchange interaction info. 4−53306
Pd-Ni, high press. mag. behaviour obs. 4−76121
PdEr, e.s.r. obs. of Γ_6 excited state Er^{3+} reson. 4−53308
Ti-C, flow stress, thermal and athermal components at low temps., 77-700 K *(Japanese)* 4−45634
Ti-O, flow stress, thermal and athermal components at low temps., 77-700 K *(Japanese)* 4−45634
Zn-Cd, dilute supersaturated alloy, electronic struct. changes with room temp. ageing 4−53030
Zn-Cu (up to 2.0 wt.%) alloy, heat treatment, ageing, microstruct., creep resist. 4−70494
Zn-Mn, e.s.r., example of Hasegawa's phenomenological theory extension to anisotropic alloys 4−45184
Zn-Mn, Kondo resistance anomaly obs. 4−72751
Zn-Sn-Pb dil. soln., high Pb conc., thermodynamic props. *(Polish)* 4−67771
ZnMn, excess sp.ht. due to mag. interactions 4−64215

dimensions
No entries

dimers *see molecules*

dineutrons *see neutrons*

diode lasers *see semiconductor lasers*

diode tubes *see diodes*

diodes
see also plasma diodes; rectifier tubes; rectifiers; semiconductor diodes
cold cathode, correlated IV relationship for prebreakdown region 4−44414

diodes continued
magnetically insulated, intense ion beams for thermonuclear microexplosions 4−74797
preflashover and electron-stimulated desorption in high electric fields 4−56985
relativistic planar diode with space-charge neutralization, limiting currents 4−65950

dipole antennas
electric, horizontal, laid on the surface of a two layer medium, e.m. fields 4−68987
electron plasma wave, transmitting and receiving patterns 4−69618
magnetoplasma, e.m. field radiated by alternating electric dipole antenna 4−48400
plasma, e.m. field meas. 4−60324
in plasma, radiation fields, electron temp., and density estimation 4−44389
on quarter plane, radiation patterns, exact soln. 4−43235
rocket borne dipole antenna, impedance in ionospheric plasma 4−64955
Stokes parameters of radiation field in spherical cloud of turbulent air *(Russian)* 4−65867
supply for geophysical prospecting, half-wave sinusoidal pulse generator *(Russian)* 4−50381
u.l.f. generation by horizontal electric dipole 4−80383

dipole moment, electric *see electric moments*

dipole moments, magnetic *see magnetic moments*

diquarks *see quarks*

Dirac electron theory *see Dirac equation; electron theory*

Dirac equation
see also electron theory
bound-state problems, field quantisation on surface x^2=constant 4−59487
classical field, Redmond configuration, electron interaction *(Russian)* 4−65984
constant uniform crossed elec. and mag. fields *(Russian)* 4−65986
derivation in unified quantum and relativistic world picture 4−68916
electron, exotic at. phenomena, high Z-elements, quantum electrodynamics 4−78385
electron beam spatial splitting after multiple reflections from potential barrier 4−71383
electron diffraction crystallography, rel. to relativistic Green's function theory 4−44451
electron interacting with parallel aligned classical and quantized plane waves *(Russian)* 4−71621
electron moving in mag. field, synchrotron radiation, Compton scatt. 4−77827
Fock quantisation of neutrinos in flat space-time 4−47428
gravitation field source, quantization 4−74400
Hamiltonian representations, unitary transforms. defn. *(French)* 4−74365
Hertz tensor props., connection with Dirac eqn. *(Russian)* 4−71622
Landau electron, free, relativistic problem *(French)* 4−55320
lattice space-time, Dirac algebra represents. 4−51667
lattice space-time, quantisation of coords. and degrees of freedom 4−51668
Lorentz-Dirac equation of motion derivation for classical electrodynamics 4−59221
massless, strength calc., comparison with other eqns. of physics 4−47039
multiple scattering by Dirac comb 4−73944
new, generalization to arbitrary spin 4−77745
periodical field, properties of exact solutions, relation to quasiclassical approach *(Russian)* 4−47448
photon propagation in const. parallel e.m. fields *(Russian)* 4−62718
plane wave field propagating perpenduclar to E and H *(Russian)* 4−65986
positive-energy, extension to include internal variables corresponding to $Sp_{4n,r}$ 4−43389
positive-energy, position operator and e.m. interactions 4−65742
quantized field of plane wave, electron interaction *(Russian)* 4−65984
quantum mechanics of free spin 1/2 particles in expanding universe 4−68941
quasi-molecule formation in heavy-ion collisions, relativistic calc. of interlevel-excitation probability 4−59941
radiation reaction problem solution for uniform magnetic field 4−71351
relativistic theory of nucleon in laser fields 4−65732
spin and localization for elementary systems 4−69116
spinor field, quantum theory, invariant box method, de Sitter spherical universe example 4−59501
spinor field quantization in spherical universe 4−74575
stationary with periodic potential and uniform mag. field, solution 4−59299
tachyons, free quantized spin-1/2 theory development 4−59260
wave functions for electron in field of plane quantized e.m. wave 4−55576

direct coupled amplifiers *see d.c. amplifiers*

direct current amplifiers *see d.c. amplifiers*

direct current generators *see d.c. generators*

direct current motors *see d.c. motors*

direct digital control
see also control engineering applications of computers; control systems
chart recorder, potentiometric, with digital automatic attenuator 4−51105
film meas. machines, servo control by minicomputer 4−58968
plasma, cusp position stability 4−60307
Princeton Plasma Physics Lab. digital control system 4−59077

direct energy conversion
see also cells (electric); magnetohydrodynamic conversion; plasma diodes; thermionic conversion; thermoelectric conversion
electrostatic convertors for fusion reactors, surface requirements 4−78283
fusion reactor direct collection unit h.v. breakdown expts. 4−55958

direct energy conversion continued
fusion reactor direct conversion systems, space charge limitations 4−43686
fusion reactor direct energy conversion test facility 4−55957
ion beams, rel. to injection efficiency for fusion reactor plasma 4−74802
ionised gas flow, nonmagnetic kinetic energy-electricity conversion, theory and appl. 4−44408
pellet fusion reactor, prospects for MHD and direct energy conversion 4−69356
solar energy, collection by photosynthesis 4−70898
Tokamak confinement, heating and impurity control expts. 4−74810
'venetian blind' direct energy convertor for fusion reactors 4−63287
direct nuclear reactions and scattering
see also pick-up reactions; stripping reactions
break-up reactions, semiclassical anal. 4−55812
fission of U, Th, Cm and Pu isotopes in p, ^{3}H, and ^{3}He induced reactions 4−63225
knock out reactions, theory of mean removal energies 4−43508
knockout, fast fragments, 0.2-1.0 GeV protons, A(p, pX), X=d, ^{3}H, ^{3}He, ^{4}He *(Russian)* 4−78045
single-nucleon knock-out reactions, centre-of-mass effects 4−78030
three body dynamics and channel distortions 4−81483
transfer reactions, one-nucleon, config. mixing effects *(Russian)* 4−78029
unified model, interactions between neutrons and nuclei *(Russian)* 4−66207
(d,d′) reactions on ^{58}Ni, ^{64}Ni and ^{124}Sn at 12 to 17 MeV, comparison with (p,p′) reactions 4−55837
(p,p′) reactions on ^{58}Ni, ^{64}Ni and ^{124}Sn at 12 to 17 MeV, comparison with (d,d′) reactions 4−55837
^{12}C(e,e'p), coincidence cross-section calc. using shell model description *(Russian)* 4−66182
^{12}C(π^+, π^+p)^{11}B, 130 MeV, anal. using modified DWIA 4−47731
^{2}H(π^-,π^-p)n, 1.05 GeV/c, reaction mechanism study *(Russian)* 4−66237
^{3}H, d-n coupling consts., peripheral model calcs. 4−77970
^{4}He, ^{3}He-n coupling consts. peripheral model calcs. 4−77970
^{6}Li(e,e'p), coincidence cross-section calc. using shell model description *(Russian)* 4−66182
^{7}Li(α,2α)^{3}H, 55 MeV, PWIA anal. of core knock-out process 4−63191
^{14}N($\pi^\pm$,πN)^{13}N, 50-90 MeV, knockout reactions, cross-section meas. 4−78121
directional antennas *see directive antennas*
directional couplers
broadband coupler for microwave-microwave double reson. 4−46765
directional patterns *see antenna radiation patterns*
directive antennas
see also loop antennas
aperture, geometric diffraction theory, finite ground planes 4−43233
plasma antenna system, multiple narrow beam, calcs. 4−63639
slot antenna, moving magnetoplasma layer, radiation patterns 4−44186
discharge lamps
see also arc lamps; flash lamps; fluorescent lamps; metal vapour lamps
colour-rendering props., dual index determ. 4−54902
electrodeless thallium discharge lamps for atomic fluoresc. 4−59004
Grimm type, use in spectrochem. analysis of liqs., electrode configs. *(German)* 4−62626
high-power impulse, for u.v. spectral region *(Russian)* 4−46756
hollow cathode, spectral atlas *(Russian)* 4−65434
hollow cathode, spectral line broadening rel. to mag. field and temp. *(French)* 4−62647
hollow cathode lamp for atomic fluoresc., signal/noise ratio improvement 4−59003
plasma, Si impurity conc. determ. *(Russian)* 4−60327
spark spectroscopy, nanosecond range, synchronisation device 4−54934
spectral emission analysis with glow discharge source and fluoresc. detection 4−62627
stroboscopic spark light source, short flash duration, low time jitter 4−46626
thermostated electrodeless lamps as sources for atomic absorpt. and fluoresc. spectrometry 4−62608
Ag, sputtering in glow discharge lamp. burnt-spots anal., investig. 4−55156
^{86}Kr, meter standard *(German)* 4−58735
W-Dy$_2$O$_3$ pressed cathodes, thermionic electron emission and evaporation rate obs. 4−53568
Xe impulse lamps, reversible opacity of quartz tubes *(Russian)* 4−77086
discharge tubes *see gas discharge tubes*
discharges (electric)
see also arcs (electric); electric breakdown; flashover; glow discharges; high-frequency discharges; lightning; plasma; positive column; sparks; surface discharges; Townsend discharge
air, ambient pressure, turbulence effects 4−48461
air, discharge development near atm. press. 4−75362
air, plasma sheath equivalent circuit, pulse meas. 4−75299
air, pulse rate behaviour at moderate pressure under d.c. excitation 4−82050
air gap, breakdown voltage, corona form control 4−75393
air gap, long, 1973 results *(French, English)* 4−82048
air streamer propagation, radn. duration meas. 4−75372
alkaline earths, metastable state prod. by discharge in heat pipe, absorpt. spectra 4−59911
atmosphere simulation for primitive Earth, dicarboxylic acids prod. 4−76708
atmospheric air, primary streamers, electron mean energy 4−82075
autoemission and ion fields effect *(Russian)* 4−60368
barrier discharge with ceramic condenser *(Russian)* 4−52649
breakdown of long gaps under switching impulses, conference, Calif. (July 1974) 4−82078
discharges (electric) continued
cathode sheaths, anomalous, electron scattering, current driven instabilities 4−52550
chamber, for spark discharge excitation of spectra 4−65524
coaxial plasma shells, dynamics and emission in air 4−75335
cold-cathode, effect of metastable atoms on current *(German)* 4−48454
combined, spectroscopic props. *(Russian)* 4−42963
compressed gases in ball-plane system of electrodes *(Russian)* 4−56550
conducting fluid, electrode material influence on acoustic characts. of discharges *(Russian)* 4−52636
conference, gas discharges, London, (Sept. 1974) 4−75343
corona discharge of wire electrode, pulsating negative voltage effect 4−75389
corona discharges, positive point-to-plane, Hermstein glow 4−75391
dark-sheath plasmoids at r.f., effects of ethanol, acetone and H$_2$O vapour 4−60346
d.c., ion acoustic and electron free streaming waves, simultaneous propagation *(German)* 4−60282
duoplasmatron ion source, emissive props. 4−46787
duoplasmatron ion source one dimensional static theory of discharge 4−46786
electrode erosion in dischargers for commutating high pulse currents *(Russian)* 4−52635
electrohydrodynamic capillary source of ions and charged droplets 4−55023
electron beam excited, ionis. and recomb. coeffs. meas. method 4−78853
electron beam formation dynamics, linear discharge *(Russian)* 4−78855
electron beam irradiated for pulsed chemical laser initiation 4−59394
electron beam preionisation of discharge pumped gas lasers 4−43301
exploding conductor in discharge duct, energy conversion process *(Russian)* 4−44423
fast electron excitation, field distrib. 4−78849
flowing gases, prebreakdown corona 4−75400
gas, radiation in vacuum u.v. range 4−75353
gas discharge with heated cathode, theory 4−75368
gas dynamic process in low press. discharge devices *(Russian)* 4−66790
hexachloroethane + Ar, C$_2$ Swan band system, spectral intensity meas. 4−56198
h.f., intrinsic stationary electric fields effect 4−44421
h.f., nonisothermal in wave field, electrodynamic structure 4−63731
high current discharge formation in pulsed arcs 4−75350
high voltage, exploding wire, unduloid appearance 4−56555
hollow cathode, magnetic field effects *(German)* 4−62619
in hollow cathode, metal-coated graphite, discharge excitation characts. investig. 4−56561
hollow cathode, spectral generation conditions for Ga and In during elec. charging *(Russian)* 4−59010
hollow cathode discharge, cathode material influence, operating voltage reduction 4−75399
hot cathode discharge characts. in crossed fields *(Russian)* 4−66773
hot cathode discharge Osaka tube, current and microwave detection characts. 4−69681
hot hollow cathode, metal vapour exit processes and spectra excitation conditions 4−62618
hot hollow cathode, spectral excitation parameters 4−62617
impulse discharge channel movement in mag. field from three-dimens. split cathode at different pot. *(Russian)* 4−52648
inception voltage, effect of gas config. 4−78858
inert gas discharge, positive column dynamic behaviour, linear theory derivation *(German)* 4−63714
inert gas discharge, positive column dynamic behaviour, linear theory appl. to low and medium press. *(German)*, 4−63715
insulating oil, partial discharge detection, soln. *(Russian)* 4−55140
intense current dischare in crossed fields, formation of H$^-$ ions 4−78846
JFT-2 Tokamak device, discharge cleaning 4−52625
long spark discharge, leader channel elec. gradient 4−75373
low perveance ion beam extraction from electron bombardment discharge 4−47408
low pressure, two- and three-electron group models 4−60345
low-inductance, transition to spark regime 4−75366
l.p., heterogeneous medium, theory 4−52642
magnetoplasma, bounded, reson. microwave radiation temp. meas., effect of increasing electron density 4−78821
magnetron geometry type device, low press. discharge in transverse mag. field 4−60356
metallographic specimens, gas inclusions near surface, obs. method using effect of discharge *(German)* 4−73308
microwave, coaxial, parametric backscatter phenomena obs. 4−75252
microwave, in diffusion regime, stability and stationary fields 4−60357
microwave discharge, secondary emission from enclosing walls 4−52643
microwave discharge chamber, uniform field, as high-energy particle-track device 4−55077
negative corona discharge, energy transfer to anode surface 4−75384
negative electrode sheath with ionising collisions 4−75396
oscillations excitation under two-beam operating conditions *(Russian)* 4−63722
overvolted parallel plane gaps, spatiotemporal development, calc. 4−60349
partial, meas. apparatus, use of automatic level scanning device, computer-aided *(Italian)* 4−80943
Penning discharge system, secondary electron emission *(Bulgarian)* 4−52632
Penning discharge theory 4−52641
Penning mixtures, characteristics *(Russian)* 4−44415
photolytic impulse light source based on pinch effect discharge *(Russian)* 4−77289
plasma oscillation due to primary electrons 4−56482
platinum metals electrode crater and discharge zone processes in spectral determ. carrier effects *(Russian)* 4−68848

discharges (electric) continued
- point-discharge current, rel. to sea-breeze 4−46018
- polyethylene laminate:supercritical He, butt gap discharges 4−75412
- propane-air mixture, ignition conditions non-metal electrodes 4−82054
- pulsed, channel diameter meas. from radiation decomposed into spectrum *(Russian)* 4−66793
- pulsed, deposition of sputtered Cu film 4−75395
- rectification obs. 4−82051
- resistive surface, long discharge development 4−60372
- s.h.f. jet at atmospheric pressure, thermophysical properties *(Russian)* 4−44424
- shock tube model, high speed shock waves production 4−72322
- space charge excitation in h.p. gas by electron beam *(Russian)* 4−60369
- stratification wave interaction 4−75282
- streamer, nonuniform fields, avalanche processes 4−82057
- striation frequency spectra, microwave ionisation wave interaction 4−75321
- threshold corona field strengths rel. to linear dischargers in thunderclouds *(Russian)* 4−46023
- transcendental equation system, computer-aided numerical soln. 4−78836
- vacuum, time correlated stages with long gap 4−44414
- vacuum insulated gap breakdown, metallic particle obs. and identification 4−60351
- volume discharge excited by 10^{-5} sec electron beam *(Russian)* 4−82060
- water, electrohydrodynamic sonoluminescence 4−75173
- water, switching characts., self-breakdown 4−79675
- Zeeman effect for 10-20 MHz freqs. 4−60339
- Ar, a.f. induction-coupled discharge furnace 4−75382
- Ar, enhancement of light emission by addition of CO 4−60352
- Ar, hollow cathode, axial changes in characts. *(Russian)* 4−63720
- Ar, laser transitions, transient gain detection 4−74079
- Ar, low pressure, two- and three-electron group models 4−60345
- Ar, pulsed corona discharge, afterglow due to H_2O and N_2 impurities *(German)* 4−52646
- Ar II, spectral lines from hollow cathode discharge, interferometric anal. 4−44416
- CO_2, c.w. and TEA laser discharges, mass spectroscopy of plasma 4−59398
- CO_2, pulsed laser, double discharge method excitation 4−51574
- CO_2, u.v. preionised laser discharge, optical homogeneity, holographic interferometry obs. 4−74484
- CO_2 laser discharge, formative time lags, meas. 4−71524
- CO_2 mixture, ionisation instability of non-self-sustained discharge 4−75250
- CO_2-N_2-H_2, electron beam controlled, laser pulse amplification 4−65893
- CO_2-N_2-He low press. discharge, mass spectroscopy study chem. reactions *(German)* 4−80175
- CO_2-N_2-He(H_2), continuous due to plasma injection, laser action 4−62832
- Cs-Ar, low pressure, two- and three-electron group models 4−60345
- Cu exploding wire, design relations between diameter and length, and discharge circuit parameters *(Russian)* 4−44422
- D_2, ion-ion hybrid reson. *(German)* 4−52584
- H stratified discharge, Hα and Hβ spectral line excitation in positive column 4−66294
- H_2, d.c. impulse discharge, leakage time constant variation 4−48456
- H_2, ion-ion hybrid reson. *(German)* 4−52584
- H_2, obs. of H velocity distrib. from cooled discharge source 4−59972
- H_2 breakdown in electric discharge, cathode surface effect 4−75355
- H_2-He gas mixture, discharge from annular arc accelerator shock tube driver 4−71302
- He, hollow cathode, axial changes in characts. *(Russian)* 4−63720
- He, magnetometer excitation, use of ultrashort wave oscillator *(Russian)* 4−51124
- He, modulated, plasma parameters meas. 4−60361
- He, pulsed, in hollow cathode, spectral lines excitation *(Russian)* 4−63725
- He, pulsed, plasma form. inside hollow cylindrical cathode *(Russian)* 4−63723
- He, threshold for striations, cathode emission effect 4−75339
- He pulsed discharge, continuous spectrum 4−66771
- He-Ne, hollow cathode discharge, electron energy and excitation distribs. 4−78848
- Hg-Ar, a.c. fluoresc. lamp, Hg 2537Å radiation intensity, electron de-excitation effect 4−78835
- ^{5,6}Li II, hollow cathode discharge, h.f.s. and isotope and Lamb shifts 4−78331
- N_2, discharge development near atm. press. 4−75362
- N_2, dissociation in d.c. h.f. discharge 4−75028
- N_2, gas-discharge gap, ionis. by fast electrons 4−78852
- N_2, obs. of N velocity distrib. from cooled discharge source 4−59972
- N_2, stationary microwave, electron energy distrib. 4−60355
- N_2-CO_2, discharge laser without helium *(Russian)* 4−43309
- N_2-He mixture, superradiance of nitrogen bands in discharge at high pressures *(Russian)* 4−71541
- N_2-He pulse discharge, electrical characteristics 4−63716
- NH_3, glow and h.f. discharges, electrical characteristics comparison 4−52645
- N_2O and mixtures, fund. collision processes leading to breakdown at h.v. 4−75070
- Na h.p. vapour discharge, resonance radiation 4−75352
- Ne, low press., high current, radiation emission characts. 4−69683
- Ne, positive column dynamic behaviour, linear theory derivation *(German)* 4−63714
- Ne, positive column dynamic behaviour, linear theory appl. to low and medium press. *(German)* 4−63715
- Ne II, spectral lines from hollow cathode discharge, interferometric anal. 4−44416
- Ne + Br_2, discharge atomic state population of Ne metastables 4−56026
- O_2, discharge development near atm. press. 4−75362
- OH i.r. pulse laser produced by electrical discharge in O_3-H_2 mixture 4−59399

discharges (electric) continued
- SF_6 insulated apparatus, breakdown from stable partial discharges *(German)* 4−56552
- SnCl u.v. emission, $C' \to X^2\pi_{1/2}$ in $SnCl_4$ discharge 4−78445
- TiO, emission spectra in He-O-$TiCl_4$ microwave discharge, rot. anal. 4−52132
- Xe, refractive index var. at 1.15 μ, Ne laser tuning appl. *(Japanese)* 4−43333
- Xe*, XE_2*, decay in afterglow of pulsed discharge 4−47871

disclinations
- hexagonal crystal, elastic field calcs. from equivalence rels. 4−44540
- MBBA in capillary tube, threads and disclinations obs. *(French)* 4−63755

discontinuous control systems *see sampled data systems*

discrete time systems
- *see also sampled data systems*
- continuous, ingot cooling cycle determ., min. shell deform. *(Russian)* 4−76519

discriminators
- frequency, beat detector, for cyclotron control, error sources *(Italian)* 4−42854
- pattern unit with fast discriminator inputs for radiation detectors 4−77234
- snap-off constant fraction training discriminators 4−81015
- triple const. fraction, for Ge(Li) detectors 4−74141
- ^{87}Rb pair quantum frequency standard, frequency characteristics *(Russian)* 4−68606

disinclinations *see disclinations*

disintegration (radioactive) *see radioactivity*

disintegration energies *see radioactivity*

dislocations
- *see also disclinations*
- absorption spectra of F-centres in dislocation field 4−76288
- acoustic emission during annihilation of prismatic dislocation loops and kinks in line dislocations *(Russian)* 4−72476
- alkali halide, photoplastic effect, obs. and mechanism 4−56801
- alkali halide, rel. to solid soln. hardening by small additions of alkaline earth ions, theory 4−53748
- alkali halides, dislocation break-away kinetics, obs. 4−69815
- alkali halides, dislocation velocity effect on nuclear spin relax. 4−76182
- alkalu halide single crysts. of various orientations, dynamic compression effects of microhardness and dislocation density *(Russian)* 4−69846
- alloy, deformed, dislocations influence on solubility and phase transform. curves *(Russian)* 4−73275
- alloy, $L1_2$ superstructure, yield props. 4−49820
- alloy, ordered with small domains, motion 4−61392
- anharmonic crystal, nonlinear wave propag., weak dislocation potential effects, infinite set of conservation laws 4−72535
- anharmonic crystal, weak dislocation potential effect on nonlinear wave propag. 4−60562
- anisotropic media, 3-dimens. dislocation problems 4−52769
- anisotropic media, straight dislocation theory, Radon's transform. 4−56748
- austenite/martensite interfacial energy, dislocation model approach 4−79916
- b.c.c. model cryst., anomalous slip in computer simulation of screw dislocation motion 4−79048
- b.c.c. model lattice, screw dislocation motion, computer simulation, orientation depend. of slip 4−44542
- b.c.c. system, mechanism of passage of cryst. dislocations through tilt boundaries 4−52764
- bicrystal, misfit dislocation climb during diffusion, effect of coherency strain 4−52774
- Borrmann's theory of dislocation contrast, diffr. mechanism *(Russian)* 4−48473
- α-brass, Portevin-Le Chatelier effect, structural aspects 4−67802
- α-brass, quenched, annealing of secondary defects 4−73299
- α-brass, slip band dislocations, influence of athermal frictional stress 4−57748
- α-brass, strain hardening, slip band generation at dislocation pile up 4−57750
- brittle crystalline solid, crack propag., climb motion 4−56804
- cellular structures, three-dimens., lattice graphs 4−60495
- characterisation in thin foil crystals, electron microscope image contrast method 4−44543
- circular loop, shear components of elastic stress field with arbitrary Burgers vector *(Russian)* 4−82182
- climb, by pipe diffusion mechanism, model 4−48633
- corundum, deformational aftereffect arising from diffusional creep *(Russian)* 4−69849
- crack stability and motion under stress waves, dislocation dynamics influence 4−48681
- creep, steady-state, eqn. development 4−61402
- cubic crystal, mechanism of passage of cryst. dislocations through tilt boundaries 4−52764
- cubic crystals, anisotropic, displacement field of a dislocation loop 4−63832
- cubic crystals, Burgers vectors of grain boundary dislocations 4−82175
- cubic crystals, Burgers vectors of grain boundary dislocations, a correction 4−82176
- cubic metal grain boundaries, dislocation Burger's vectors 4−82177
- damping, vibrating string model, soln. by Heaviside method 4−52761
- damping equation, strain amplitude independent 4−82173
- damping in shock stress field 4−60496
- Debye theory, splitting of dislocations 4−69812
- dechannelling, fast ions at dislocations 4−72504
- diamond, natural and synthetic, linearly polarised luminescence from linear defects 4−79804
- diffusional creep, transient and reversible, rel. to dislocation links 4−60540
- discrete dislocations in micropolar elasticity 4−59111
- dispersion strengthened SAP alloys, dislocation emission and sink phenomena as deform. characts. 4−45656
- dissociative vaporisation, terrace-ledge-kink model 4−75624

dislocations continued
distributed glide force between nonspherical defect and dislocation 4−75525
drag, flutter mechanism 4−66923
Duralumin, quenched, serrated flow 4−76516
dynamical theory of scattering by imperfect crysts. effect of local absorpt. coeff. *(Russian)* 4−44441
edge, extended dislocation, image contrast theory *(Russian)* 4−71252
electron microscope image, diffraction conditions and cryst. thickness depend. *(Russian)* 4−66926
electron microscope mapping technique for defect density of thin foils 4−48489
electron microscopy, dislocation contrast in weak-beam images, beam divergence effects 4−44452
ferromagnetic crystal, spin waves, linear defects, microscopic exam. *(Bulgarian)* 4−57295
ferromagnetic materials, magnetic cold-work peak theory 4−76104
ferromagnets, internal stresses due to wall junction 4−60977
fracture stress behaviour in partial scale yielding range, dislocation theory applic. *(German)* 4−61405
free surface, stress field of an angular dislocation segment 4−82179
generation of spherical second phase particles, critical misfit 4−66920
grain boundary dislocations, Moire patterns and diffr. effects, relationship 4−44544
grain boundary dislocations and associated faults, models 4−76435
graphite, neutron irrad. creep, dislocation pinning-unpinning model 4−74791
h.v. electron microscopy, appl. of many beam systematic diffraction contrast to partial dislocations 4−78874
hydrostatic pressure influence, nonlinear elasticity theory 4−79051
ice, cryst. imperfection studies using divergent X-ray technique *(Japanese)* 4−66922
ice, etch pit growth and etch channel movement on basal plane *(Japanese)* 4−67116
interface dislocations effect on mobile solute distrib. 4−82174
internal friction, amplitude dependent, under torsion, modified Granato-Lucke expression 4−76452
intersecting pile-ups in nonuniform stress field, equil. dislocation distrib. *(Russian)* 4−60498
irradiated materials, viscoplasticity theory 4−60537
isotropic medium with parallel edge dislocations, shear acoustic harmonics excitation by transverse waves *(Russian)* 4−60554
$KTa_xNb_{1-x}O_3$, kinetics of cryst. growth from melt, spiral dislocation growth 4−66843
Lang's ordinator method, simulation of fixed position topographs, influence of Burgers vector *(French)* 4−56579
layers, moving crack problem 4−66971
linear chain model, breakdown phenomena in high-speed dislocations 4−52765
link length distrib. meas. in dislocation structures 4−82847
liquid crystal, smectic A, linear theory of dislocations 4−63756
liquid crystal, smectic-A, stress-strain fields around edge dislocations, calc. 4−60403
liquid crystals, cholesteric, models of χ dislocations with continuous core *(French)* 4−82107
liquid crystals, smectic A, interaction between parallel edge dislocation lines 4−52685
loop, elliptical, interaction with interstitial atom in anisotropic medium 4−48637
loop growth, diffusion model for applied stress effect 4−44570
loop nature, determ. by residual contrast at g.b=0 and s=0 4−69816
low-angle grain boundary, limiting configuration *(Spanish)* 4−52758
metal, b.c.c., anomalous {100} slip on low temp. deform 4−52772
metal, b.c.c., anomalous {100} slip on low temp. deform. 4−52773
metal, b.c.c., cleavage fracture due to twin passing through free surface, dislocation model 4−76499
metal, b.c.c., dislocation core structure theory, review 4−57732
metal, close-packed, Shockley partial dislocations, stacking-fault energy, core structure effect 4−82183
metal, containing parallel screw dislocations, transport phenomena *(Russian)* 4−72742
metal, creep, low temp., thermal fluctuation analysis *(Russian)* 4−49758
metal, diffusion effect on metal melt, embrittlement mechanism 4−61449
metal, dislocation friction parallel to mag. field, electron component variation *(Russian)* 4−72740
metal, dislocation glide by dispersed local obstacles, activation vol. stress depend. 4−63831
metal, electrocond. changes in crystals on ageing *(Russian)* 4−44892
metal, glide systems, Peierls stresses, reply to comment 4−75527
metal, h.c.p., sessile splittings of screw dislocations 4−72470
metal, hexagonal, choice of various twin modes 4−72478
metal, irradiation-induced plastic set 4−69829
metal, plastically deformed, anharmonic effects of dislocation energy on volumetric expansion *(French)* 4−48716
metal glide systems Peierls stresses, comment 4−75526
metal systems, Hall-Petch relation, pile-up model 4−64570
metals, de Haas-van Alphen effect dephasing calcs. 4−79274
metals and alloys, dislocation loops analysis w.r.t. slip, twinning and phase transforms. 4−79923
meteorite, Cape York, TEM, obs. of microstruct. features 4−50238
misfit dislocations in screw orientation, theory 4−44541
mobile dislocation density model 4−52757
mobility in presence of stress field, influence of point obstacles 4−72473
model of elastoplastic medium with plastic deform. dislocation dynamics *(Russian)* 4−82217
molecular crystal, local and quasilocal exciton states, effect of linear defects 4−64042
moving dislocation-obstacle interaction, point-obstacle representation 4−52766
moving in hydrostatically compressed medium, forces calc. *(Russian)* 4−60497

dislocations continued
multiaxial plasticity theory based on integral dislocation dynamics 4−60536
Nimonic 80A, prestrain, cavitation, creep ductility 4−82933
noble metal alloy, cold-worked, rel. to lattice thermal cond., 0.5-4K 4−44640
non-fissile material, steady-state irradiation creep, dislocation climb model 4−56803
nonlinear medium with dislocations, interaction of transverse and longit sonic harmonics *(Russian)* 4−48708
nonuniform distribution of defects around dislocations in acoustic wave field *(Russian)* 4−66915
nylon, phonon scatt., lattice thermal cond., 0.2-5K 4−75608
one dimensional model, crack tip phenomena 4−66973
parallel screw type, effective wave eqn. for electron *(Russian)* 4−67182
Peierls Nabarro model, microscopic crack theory, Griffith criterion 4−60545
Permalloy film, interaction energy of dislocations with magnetostriction, anisotropy explanation 4−53267
phase transformation, diffusionless, mechanism 4−63921
phenanthrene single cryst., dislocation etching and plastic deform. 4−57685
pile-up against viscous obstacle, dynamic form. and release 4−61444
pile-up of screw dislocations inside circular inclusion 4−66917
pile-up of screw dislocations inside circular inclusion 4−66918
pinning effects on dislocation motion 4−69818
PMMA, molecular model for yield and stress, Burger's vector calc. 4−82978
polaron localisation at edge dislocation emergence points 4−82382
polyethylene, model for yield, critical resolved shear stress 4−80116
polyethylene, phonon scatt., lattice thermal cond., 0.2-5K 4−75608
polygonal loop parallel to free surface, stress field calc. in isotropic medium 4−56747
positron annihilation, trapping model 4−72485
quartz, dislocation images and Burgers vectors, electron diffr. contrast obs. 4−60506
quartz, rel. to model of hydrolytic weakening 4−52808
reactor fuel cladding material, irradiation-induced primary creep model, creep rate calcs. 4−81629
scanning electron microscope obs. 4−78875
screw, in anisotropic two-phase medium, resultant force 4−60499
screw, interaction with conc. defects in infinite elastic medium with regular symmetry 4−51316
screw, Peierls stress and energy theory 4−48630
screw type in superlattice, mutual cross slip, antiphase boundary energy depend. 4−66921
screw-dislocation mechanism, polygonised calc., crystal growth 4−75468
semiconductor, electrocond. changes in crystals on ageing *(Russian)* 4−44892
serrated yielding and strain depend. of vacancy conc. and mobile dislocation density 4−76508
slip band dynamic behaviour, dislocation description 4−79053
solid solution alloy, creep, transition from dislocation climb to viscous glide 4−61401
static strain field, lattice phonon scatt. 4−56829
steady-state diffusion flux of point defects, influence of elastic field of dislocation 4−56916
steel, austenitic Fe-(20%)Cr-(25%)Ni, splat-quenching, thin foil electron microscopy obs. 4−79927
steel, austenitic stainless, high-angle grain boundaries, annealing of dislocations 4−82862
steel, bainitic, warm rolling influence on fracture toughness, substruct. obs. 4−45653
steel, cementite dissolution, role of dislocation movements and vacancy flow 4−79922
steel, dynamic yielding and flow, dislocation pile-up model 4−61445
steel, Mo spheroidized, creep mechanisms during high temperature deformation 4−73323
steel, noncorroding, austenite surface layer struct. changes due to grinding *(Russian)* 4−79942
steel, stainless, austenitic, dislocations in coherent twin and coincident site boundaries 4−61390
steel, stainless, stress-induced $\gamma \to \alpha'$ martensitic transform., defect behaviour 4−45521
steel, stainless, Type 316, irrad. effect on microstruct. and creep rupture props. 4−43671
steel, stainless, Types 304 and 316, 4 MeV Ni^+ irrad., void swelling behaviour 4−43665
steel, work hardening effect by deform. induced phase transform. 4−67858
steel, yielding as localized successive stochastic processes 4−49808
under stress reversals, continuum model 4−56744
stress sensitivity, deform. kinetics interpretation 4−69848
superconductor, effect on energy gap 4−72901
superconductor, quasiparticle scatt., rel. to thermal cond. 4−60921
superconductors, type I, interaction between s-n domain walls and crystal dislocations 4−49126
superplastic aggregates, activated state obs. *(Russian)* 4−53676
surface cracks, dislocation approach rel. to internal holes 4−66975
surface layer residual deformations determ. by interference and microstruct. methods 4−63964
surface stress distribution due to array of 60° dislocations on oblique glide plane, theory 4−52763
surface stress distribution due to group of edge dislocations on oblique glide plane, theory 4−52762
surface-reactive metals, thin-film bicrystals, grain boundaries obs. 4−82864
symmetric tilt boundary under shear, dislocation behaviour 4−79049
thermal impedance, meas. using metal and superconducting foils below 1K 4−82309
thermally activated glide, computer simulation 4−60504
thermally activated motion across random network of obstacles, modelling 4−56749
thermally activated motion through random array of short range barriers, barrier strength effects 4−69814
thermally activated unpinning from point obstacles, nonequilib. transition state theory 4−69811

dislocations continued
thick crystal, interference absorption coeff. of X-rays, depend. on dislocation density 4−56750
thick crystal, scattered intensity calc. for Bragg symmetry and any dislocation density, Zachariasen's eqn. 4−52662
thin foils, line defect, rapid method for top and bottom intersections determ. 4−63743
topaz, Brazilian, growth and cleavage dislocations, X-ray obs. *(French)* 4−75530
triglycine sulphate, cryst. growth from soln., effect of mag. field on cryst. quality *(German)* 4−57678
twinning, perfect dislocation pole model, f.c.c. and b.c.c. lattice 4−44553
two-phase materials, image effects on screw dislocation pile-up near circular interface 4−67793
two-phase system, locked screw dislocation effect on pile-up, applic. to fracture 4−49702
two-phase systems, pile-up of screw of dislocations 4−48629
Udimet 520, ageing effects 4−45704
unpinning of dislocations, vibrating string model 4−75532
vacancy sink of dislocation line, increased efficiency when oscillates 4−72471
wurtzite structure crystals, piezoelec. fields around dislocations, calcs. 4−79050
X-ray camera for topographic detection of total dislocation density in perfect monocrysts. 4−60378
X-ray diffraction, sensitivity enhancement, asymm. Bragg case 4−44439
X-ray image of packing defect perpendicular to cryst. surface, general theory 4−75535
X-ray image of packing defect perpendicular to cryst. surface, appl. of theory 4−75536
YAG single crystal, dislocations, effect of growth factors 4−48631
Zircaloy-2, neutron irrad., damage alignment 4−59851
Ag, structural state, creep characts. *(Russian)* 4−66965
AgBr, flat crystal bounded by (100) faces, untwinned *(French)* 4−82124
AgCl, dislocation mobility, stress relaxation test 4−63830
Al, amplitude-time dependent internal friction mechanism 4−56807
Al, anelasticity during plastic deformation of single crysts. *(German)* 4−73333
Al, block boundaries formed in creep, stability *(Russian)* 4−76438
Al, dislocation struct. rel. to linear magnetoresist. at 4.2K 4−60781
Al, dislocation structure form. during deform. *(German)* 4−53694
Al, electron bombarded, multi-faulted dislocation loops, helium preinjection influence 4−53679
Al, elongated and annealed, mutual annihilation of dislocations, obs. *(Japanese)* 4−49692
Al, faulted loop shrinkage mechanism, diffusion eqn. 4−49690
Al, hot compressed, zonal inhomogeneity of primary recrystallization *(Russian)* 4−70449
Al, internal friction change during creep, model of screw dislocation lateral glide *(Russian)* 4−79987
Al, internal friction meas., fatigue and neutron irrad. effects 4−64574
Al, neutron irrad., alignment of dislocation loops in presence of voids 4−66943
Al, neutron irradiated and cold worked, two types of pinning points *(French)* 4−52770
Al, nucleation and growth during quenching and annealing 4−56754
Al, point defects, diffusion kinetics *(Rumanian)* 4−44694
Al, polycryst. u.s. obs. of memory effect in reln. to point defect-dislocation interactions *(French)* 4−67784
Al, positron-edge dislocation binding energy determ. 4−71229
Al, real structure characterisation by dislocation density, reln. to surface resistance 4−72875
Al, spall fracture of monocrysts., void growth 4−49851
Al, superconducting foils and rods, thermal phonons reson. scatt. by dislocations 4−64164
Al, superplasticity and dislocation structure 4−79976
Al, X-ray topographic study of isothermally and thermal cyclic annealed specimens 4−67785
Al alloy, precipitation hardened, neutron irrad. damage 4−43661
Al alloys, locking by solute configurations, annealing characteristics 4−73324
Al-Cu alloy, eutectic, superplastically deformed, quantitative texture meas. 4−61362
Al-Li, radiation generated prismatic loops around gas bubbles 4−69826
Al-Mg, high-angle grain boundaries, annealing of dislocations 4−82862
Al-Mg alloys, high temp. steady-state creep, activation parameters 4−64585
Al-Mg-Si alloy, serrated yielding, strain effect on ageing time 4−53703
Al-Mg(5.5 at.%) solid soln., effective stress in steady state creep 4−53702
Al-Mg(5.83 wt.%) alloy, discrete creep during repeated static loading 4−49830
AlCu(4 wt.%) alloy, repeated θ' precip. at prismatic dislocation loops 4−49695
$Al_xGa_{1-x}As$/GaAs double heterostructure laser material, rel. to dark-line degradation sites 4−51606
β-Al_2O_3, alumina electrolyte material, dislocation behaviour 4−61492
Al_2O_3, corundum, high temp. creep, pure bending 4−57761
Au, self-diffusion along isolated dislocations, theory 4−75646
Au, thermally activated tensile deform. of single crysts. 4−45655
Au thin films, variance of X-ray diffr. maxima obs. 4−64000
Au-Cu-Zn, thermoelastic martensite, pseudoelasticity rel. to half-dislocations and lattice defects 4−82936
Au(001)/NaCl(001), film recrystn. into Au(111)/NaCl(001) 4−60712
$BaTiO_3$, dislocation distribution investigation by means of etch pits 4−56752
$BaWO_4$, by flux evaporation, morphology, cleavage, perfection, growth of crystals 4−76385
Be, deform. of monocrysts. under laser irrad. *(Russian)* 4−79924
Bi, elastic energy of dislocations calc. 4−69809

dislocations continued
Bi, etching of (111) cleavage plane, Cl, Br, HCl and fuming HNO_3 etchants 4−60692
$CaCO_3$, calcite crystals, temp. dependence of growth of twinning layer 4−52778
$CaCO_3$, calcite single crystals, TEM obs. 4−52759
CaF_2, Nd doping effect on motion, stressing and etching 4−66919
CaF_2, single cryst., selective etching parameters 4−56997
$Ca_3(PO_4)_2CaX_2$ (X=halogen) based commercial luminophors, struct. characts. and optical props. *(Russian)* 4−73150
$CaWO_4$, dislocation etching on cleaved {001} and {100} planes 4−63993
CdI_2, polytypes, occurrence of Zhdanov numbers >3, Cd/I glide considerations 4−56656
CdI_2 polytypes, growth by dislocation controlled phase transformation 4−52711
Cd_3Mg based nonstoichiometric alloys, deform. and strength characts. 4−76451
CdS, hot-pressed, investigation of thermal and ultrasonic props. 4−63877
CdS, luminescence of dislocation in single crystals *(German)* 4−76322
CdTe, $Cd_xHg_{1-x}Te$, rel. to creep *(Russian)* 4−44593
CdTe, compressed, dislocation effects on dark cond. and photocond. 4−60826
CdTe, real struct., transmission microscopy 4−60507
Co-Fe alloy, dilute, exam. of double h.c.p. phase 4−76416
Co-Ni-Ti, effect on yield point, temp. depend. *(Russian)* 4−61415
Cu, (111) dislocation etch pits *(Japanese)* 4−79056
Cu, (a/2)⟨110⟩ edge dislocation interaction with vacancies and interstitials, computer simulation 4−56732
Cu, anelasticity during plastic deformation of single crysts. *(German)* 4−73333
Cu, deformed in tension and torsion, dislocation struct. at small strains 4−79938
Cu, diffusion of Ni along dislocations *(Russian)* 4−75641
Cu, explosive loading, effect on Young's modulus, internal friction 4−82934
Cu, fast neutron irrad., dislocation pinning point density, temp. and time depend. 4−60523
Cu, forest dislocations, rel. to slip line blocking 4−45568
Cu, neutron irrad., mobile dislocations within slip bands, vel., local density, high speed cinematography 4−69830
Cu, neutron irrad. single crysts., slip band development, cinematographic obs. 4−52786
Cu, plastically deformed, anharmonic effects of dislocation energy on volumetric expansion *(French)* 4−48716
Cu, plastically deformed, positron trapping 4−75542
Cu, polycryst., dislocation-dragging effects after quenching and electron irradiation 4−63840
Cu, positron trapping at dislocations 4−48649
Cu, recovery process, one-dimens. and cyclic deform., modulus and elec. resist. meas. *(German)* 4−70514
Cu, structural state, creep characts. *(Russian)* 4−66965
Cu, whiskers, anisotropy of internal friction 4−79252
Cu alloys, neutron irrad. induced deform. behaviour 4−52787
Cu film, evaporated, positron trapping at defects 4−79060
Cu single crysts. containing alumina particles, fatigue deform. and dislocation distrib. 4−53671
Cu whisker, deformed, slip geometry effect on dislocation recovery phenomenon *(Russian)* 4−60714
Cu whiskers, polygonization process, influence of slip geometry *(Russian)* 4−69808
Cu-Al(10 at.%), partial dislocation structs., electron microscope obs. 4−82878
Cu-Al(3 wt.%) single crysts., friction stress on individual dislocations 4−49728
Cu-B alloy, neutron irrad., small angle grain boundaries 4−70500
Cu-Co alloys, particle size and spacing effect on steady state creep 4−64586
Cu-Cr and Cu-Ni-Cr alloys, Cr precip. mechanism 4−45561
Cu-Ni-Fe alloys, spinodally decomposed, loss of coherency 4−61359
Cu-Si, constricted dissociated dislocation lines, electron weak beam obs. 4−57738
Cu-Si(5 at%), dissociated Frank loop corners, electron microscopy obs. 4−70471
Cu_3Au, ordered, discontinuous yielding mechanism and dislocation locking 4−79974
Cu_3Au, ordered, strain ageing yield drops 4−79975
Cu_2MnAl, rel. to effect of antiphase boundaries on mag. props. of Heusler alloys 4−45142
Fe, atomic processes of thermally activated deformation 4−73327
α-Fe, creep props., rapid thermal cycling effects 4−45642
Fe, dislocation structure after cyclic loading at 77K *(Russian)* 4−49683
Fe, Luder's band propagation 4−82898
Fe, microplastic deformation resistance *(Russian)* 4−49760
Fe, plastic flow rate meas., mechanism, sintered sample 4−61417
Fe, single crystals, mag. obs. at 295K 4−57731
α-Fe, substructural development during strain cycling, dislocation loops obs. 4−82861
α-Fe, X-ray dislocation substructure obs. and strengthening mechanisms, 123 to 196K 4−67841
Fe crystals, breaking away of dislocations from located positions *(Russian)* 4−70483
Fe foil crystal, dislocation motion at low temp., elec. microscope obs. 4−52768
Fe-3% Si, glide band form., shear strain conc. 4−61448
Fe-C alloys, cold rolling effect on Mossbauer spectra 4−49716
Fe-Cr and Fe-Cr-Co alloys, phase decomp. and 475°C embrittlement *(Japanese)* 4−45501
Fe-Ni alloy, 36NChTYu, rel. to precipitation and ageing *(Russian)* 4−61374
Fe-Ni and Fe-Ni-C alloys, martensite obs. using internal friction method *(French)* 4−49712
Fe-Ni-Al alloy, tensile fracture rel. to microstruct. 4−45571
Fe-Ni-C martensite, carbon-dislocation interactions *(French)* 4−49713

dislocations continued
Fe-Ni-Cr, 36 NKhTYu alloy, precip. of γ' and η phases, mech. props. *(Russian)* 4—73318
Fe-P, Fe-P-Ti alloys, elastic interactions, kink formation 4—73329
Fe-Pt alloy, substruct. of austenite formed by partial reverse martensitic transform. 4—45510
Fe-Si, improved etching technique for obs. of dislocation sites 4—75717
Fe-Si alloy, deformed single crystal dislocation wall struct. *(Russian)* 4—73294
Fe-Si(3%), vel. of screw dislocations as func. of stress, obs. of glide band form 4—53681
Fe-Ti solid solns., Portevin-Le Chatelier phenomenon *(French)* 4—53709
FeCo, ordered and disordered, slip deform., effects of strain, temp. and atomic order 4—82912
FeO-Fe_2O_3-TiO_2 system, aggregated and isolated faults, electron microscope obs. 4—56759
GaAlAsP, heteroepitaxial layers, elimination by controlled interfacial misfit dislocations 4—45436
GaAlAsP heteroepitaxial layer on GaAs substrate, dislocation elimination by controlled interfacial misfits 4—49602
GaAs, (111) As plane, new etching agent 4—67114
GaAs, bulk, chemical etching of structural defects 4—82324
GaAs, crystal degradation by abrasion and subsequent heat treatment 4—49605
n^+ GaAs, faulted defects and prismatic loops 4—79043
GaAs, interference absorption coeff. of X-rays, depend. on dislocation density 4—56750
GaAs, lattice defects, annealing effects, etch pit obs. *(Japanese)* 4—75531
GaAs, single crystal, produced by device fabrication 4—61320
GaAs, ultrasonic attenuation and velocity, effect of dislocations 4—60557
GaAs:Ge, LPE, electrolum., photolum. and minority carrier diffusion length, dislocation effects 4—53008
GaAs:Se, epitaxial layer, Frank loops, strain depend. 4—82329
GaAs:Te, electron microscope obs. 4—79054
GaAs:Te, thermal cond., dislocation-phonon interaction investigation *(French)* 4—75654
GaAs-GaAlAs double heterostruct. cryst., dark line growth from cryst. defects 4—72467
$GaAs_{1-x}P_x$, epitaxial, chemical etching of structural defects 4—82324
p-GaP, anomalous defects, etching obs., doping depend. 4—75528
GaP, epitaxial layers, dislocation density 4—60702
GaP, formed during vapour phase epitaxy, effect on l.e.d. performance 4—57710
GdGa garnet, contrast of crystal defects under polarised light, calc. for isotropic material 4—56746
$Gd_3Ga_5O_{12}$, helical growth defects, prismatic interstitial type dislocations, X-ray topographic obs. 4—44498
$Gd_2(MoO_4)_2$, domain boundaries, antiphase boundaries, dislocations 4—82678
Ge, comparative Hall coeff. meas. for effects of dislocations introduced by deformation at 350°C and 600°C 4—49005
Ge, deformed, rel. to thermal cond. below 1K 4—79456
Ge, effect on X-ray scatt. polarisation 4—60383
Ge, hexagonal loop slip obs. 4—48638
Ge, high-purity, trapping effects, state of art reln. to radiation detector fabrication 4—53607
Ge, interference absorption coeff. of X-rays, depend. on dislocation density 4—56750
Ge, movement kinetics under stress, time and temp. depend. *(Russian)* 4—66916
Ge, multiplication, loading duration depend. 4—75534
Ge, n- and p-types, trapping model for positron lifetime obs. 4—56771
Ge, plastic deform. at room temp., uniaxial compression meas. *(Russian)* 4—79091
Ge, shaped crysts. with low dislocation density, Bridgman method 4—49628
Ge, single crystal, effect of preliminary thermocyclic treatment *(Russian)* 4—44545
Ge, twisted specimens, screw dislocations, electronic states, carrier density and Hall mobility obs. *(German)* 4—69991
Ge:Sb(Ga), dislocation motion, surmounting of local obstacles *(Russian)* 4—79042
HIO_3, cryst. growth from soln., effect of mag. field on cryst. quality *(German)* 4—57678
HgTe, $Cd_xHg_{1-x}Te$, rel. to creep *(Russian)* 4—44593
HgTe, ultrasonic attenuation and velocity, effect of dislocations 4—60557
InSb, plastically deformed, neutron-irrad. defects, annealing 4—56781
KCl, γ-irrad., dislocation motion, hardening 4—82181
KCl, healing of isolated pore under hydrostatic press., dislocation mechanism 4—72474
KCl, relax. of deforming stress, mobile dislocation lifetime and density, theory 4—72472
KD_2PO_4 single crystal, soln.-grown, X-ray microscopy 4—60503
KH_2PO_4, cryst. grown from soln., X-ray topographic investigation *(German)* 4—56745
KH_2PO_4:Cr^{3+}, relax. internal friction, obs. and defect model 4—82222
$KMgF_3$ crystals, etching anal. 4—52776
LiCl, single crysts. and bicrysts., plastic deform. transmission through boundary *(Russian)* 4—52805
LiF, charged dislocation mobility, high temperature, Debye-Huckel cloud 4—72468
LiF, density change during annealing under load 4—60508
LiF, dislocation glide mobility, high temperatures, point defect velocity limitation 4—72469
LiF, dislocation struct. and yield pt. changes during multiple loading 4—48670
LiF, electron irrad., 250 MeV, dislocation initial stresses, etch pattern obs. *(Russian)* 4—72475
LiF, low-temp. deformation and dislocation mobility 4—79045
LiF, single crystals containing cavities, slip generation by pressurization 4—60539
LiF, sinks for H-centres, internal friction meas. 4—44600

dislocations continued
LiF granules, on LiF single cryst. surface, dislocations formed during sintering 4—49907
LiF monocrysts., dislocation mobility meas. during impact loading 4—66924
LiF thin crystals, defect formations caused by electron irrad. 4—60517
LiF:Mg, low-temp. deformation and dislocation mobility 4—79045
$LiFe_5O_8$, rel. to stacking fault obs. 4—66927
Mg, choice of various twin modes 4—72478
Mg, deformed, helical dislocations obs. by transmission electron microscopy 4—56751
Mg, dislocation interactions during shear *(Russian)* 4—73248
Mg, hardening by lattice defects 4—61361
$MgAl_2O_4$, stoichiometric spinel, dislocation dissociation, weak beam electron microscope obs. 4—60505
$MgAl_2O_4$ stoichiometric spinel single crysts., X-ray topographic obs. of stacking faults and dislocations 4—79057
MgF_2, hot-pressed, investigation of thermal and ultrasonic props. 4—63877
MgO, as-grown, subgrain boundaries 4—53805
MgO, neutron irradiated, X-ray diffr. profiles, interstitial dislocation loop attribution 4—82205
MgO, polycryst., strain hardening and recovery during compressive creep 4—61491
MgO, pressurization effects on microstruct. and mech. props. 4—61498
MgO, single cryst., $Fe^{3+(2+)}$ impurity, dislocation dynamics 4—56741
MgO, transient and steady state creep 4—61496
MgO:Fe^{3+}, single cryst., dislocation dynamics 4—56742
$MgZn_2$, grown-in and fresh dislocations, velocities, comparison 4—73302
$MgZn_2$, mobility of grown-in dislocations during prismatic slip 4—79957
Mn-Sn single crysts., DO_{19} type, orientation and temp. depend. of strength 4—53700
Mo, accelerator and reactor irradiated, high temp. damage structs. 4—43662
Mo, deformed, anomalous slip, HVEM obs. 4—53687
Mo, deformed annealed single crysts., substruct. obs. *(Russian)* 4—79943
Mo, dislocation relaxation peaks in single crysts. 4—61360
Mo, ductile fracture due to fragmentation of structure *(Russian)* 4—49763
Mo, elec. resist. of single crysts., plastic deform. effect 4—48962
Mo, influence of orientation strain hardening 4—45570
Mo, neutron irrad., radiation effects on yield stress and dislocation channelling 4—82902
Mo, neutron irradiated, point defect clusters 4—69831
Mo, three-fold symmetric dissociation of $1/2\,a<111>$ screw dislocations, FIM obs. 4—79040
Mo-Re alloys, temp. and conc. depend. of mech. props., correl. with dislocation struct. *(Russian)* 4—76460
MoS_2, non-basal dislocation etching on (0001) faces 4—79240
$MoTe_2$, cold worked, X-ray diffr. line broadening obs. 4—60511
$NH_4H_2PO_4$, whisker cryst., mech. props., dislocation struct. influence *(Russian)* 4—72664
NaCl, divalent impurity doped, evidence of charged dislocations from light scatt. meas. 4—52767
NaCl, film, appearance of dislocations in strong elec. field 4—79052
NaCl, γ-irrad., dislocation motion, hardening 4—82181
NaCl, healing of isolated pore under hydrostatic press., dislocation mechanism 4—72474
NaCl, low temp. dislocation drag. rad.-damping model 4—69813
NaCl, mobility in electric field, line charge *(Russian)* 4—66925
NaCl, polygonization phenomenon after electron bombard. and illumination, temp. influence 4—66913
NaCl cleavage faces, evap. of edge dislocations in vacuum, model, 350-500°C 4—48748
NaCl crystal, mobility as affected by growth density *(Russian)* 4—82172
NaCl crystal, point defect interaction with dislocations, internal friction study 4—44532
NaCl crystals, kinetics of etching and polishing 4—53002
NaCl:Ca, electrostatic interaction with Ca/vacancy dipoles, explanation of high slip strain 4—44588
NaCl:Ca slowly cooled at room temp. flow stress, nature of Ca obstacles 4—72521
NaCl:NaOH, hardening and near u.v. absorption, flow stress from deformation meas. 4—79047
NaCl:S^{2-}, charge on dislocations, elec. cond. obs., 100-550°C 4—52775
NaF, single crystal, internal friction and charged dislocations 4—82220
Nb, mechanical properties, effect of added O and N, temp. depend. 4—82943
Ni, dislocation arrangements anisotropy in single-slip deformed single crysts. 4—67807
Ni, high-angle grain boundaries, annealing of dislocations 4—82862
Ni, neutron irrad., alignment of dislocation loops in presence of voids 4—66943
Ni, positron annihilation in neutron-irrad. f.c.c. crysts. 4—69828
Ni, rel. to electron microscopical test of domain wall motion theories 4—67402
Ni crystals, selective etching at dislocations 4—53003
Ni hardening under shock waves, softening during subsequent annealing *(Russian)* 4—76459
Ni:C, etch pitting of fresh dislocations 4—60500
Ni-Al, high-angle grain boundaries, annealing of dislocations, hot-stage electron microscopy meas. 4—82862
Ni-Al(6.38 wt.%) alloy, ageing effects 4—45704
Ni-Co (25%) alloy, ordering in deform. and annealing, transform. characts. *(Russian)* 4—79904
Ni-Co alloy, effect of mag. transform. on stacking fault energies *(Russian)* 4—79947
Ni-Cr, stacking fault energies and deformation mechanisms, electron microscope and tensile deformation meas. *(French)* 4—82863
Ni-Cr alloys, f.c.c., plastic deform. mechanism *(French)* 4—49751

dislocations continued

Ni-Cr(20 wt.%)(−Co(35 wt.%))-Al(4 wt.%) alloy, containing γ' particles, rel. to high temp. steady state creep, mech. *(Japanese)* 4−45627
Ni-Fe(17%) alloy, rel. to electron microscopical test of domain wall motion theories 4−67402
Pb, electrocrystallization on Cu faces, mech. of growth 4−44796
Pb, thermal cond., 0.04-1.5K, phonon scatt. by dislocations 4−79455
PbS, air-annealing change in dislocation distribution and hardness 4−79041
PbSe-PbTe, heteroepitaxy, misfit dislocation form. 4−44799
$Pb_{1-x}Sn_xTe$, vapour grown crysts., defect sources and their elimination 4−48625
Re, internal friction, after torsional deform., liq. N_2 temp. 4−70513
Ru, deform. in compression of single crysts. 4−53699
α-S, dislocation etching, plastic deform. and X-ray transmission topography 4−48635
α-S, dislocation families, theoretical analysis 4−48634
Sb single crystals, (III) layer, chemical etching 4−69810
Se, metallic crystals, dislocation struct. rel. to spherulite form. *(Russian)* 4−72466
Si, behaviour during high temp. heat treatment 4−67729
Si, change in dislocation struct. produced by 40 keV Ar^+ ion irradiation 4−56753
Si, circular stacking faults rel. to Frank dislocations, TEM obs. 4−44546
Si, deformed single crystals, stresses produced by Lomer dislocation network *(Russian)* 4−52760
Si, diffusion of Al, plastic deform. effect, thread like model *(Russian)* 4−75650
Si, electrically active rod defects, TEM obs. 4−44552
n-Si, electron scatt. due to plastic deformation *(Russian)* 4−72780
Si, Ge anomalous diffusion, dislocation model 4−79194
Si, influence on diffusion of Au 4−79187
Si, interference absorption coeff. of X-rays, depend. on dislocation density 4−56750
Si, internal friction, amplitude depend. with deform., dislocation model 4−56809
Si, ion implanted, interstitial and vacancy type dislocation loop identification 4−56743
Si, mechanical behaviour, scanning X-ray diffr. topography 4−44538
Si, p-n junctions based on dislocation, V-I characteristics *(Russian)* 4−82479
Si, single cryst., O impurity influence 4−79055
Si, surface layer of scratch deformed single crysts. *(Japanese)* 4−44539
Si, two types of dislocation network initiated by diffusion of P 4−75533
Si dislocation-free single cryst., defect struct., vacancy supersaturation *(German)* 4−48628
Si single cryst., generation of dislocations during dislocation free growth *(German)* 4−48632
Si wafer heat cycling, thermal stress relaxation obs. 4−49603
Si:P, dislocation interactions, X-ray topography and electron microscopy obs. 4−82180
Si:P, He^+ irradiated, pits, dislocations obs., transmission electron microscopy meas. 4−82822
SiC, struct. families, growth mechanism 4−72452
α-SiC single crysts., deform. struct. 4−49910
$Sr_xBa_{1-x}Nb_2O_6$, dislocation etch pits, use of hydrofluoric acid etchant 4−52771
$SrWO_4$ by flux evaporaton, morphology, cleavage, perfection, growth of crystals 4−76385
Ta, thermal cond., 0.04-1.5K, phonon scatt. by dislocations 4−79455
Te, crystal, a-edge-dislocated, hole mobility 4−64084
Te, rel. to thermally activated deform. of single crysts. 4−66962
Ti foil, electron irradiation damage, dislocation loops 4−72489
α-Ti wire, low temp. deform. kinetics using stress relax. 4−49785
Ti-Mo alloys, hardened by ω-particle precip., microscopic deform. behaviour 4−79977
TiAl, ordered, deform. substruct. 4−79937
UO_2, dislocations rel. to transient and reversible diffusional creep 4−60540
V_6C_5, strain field interactions with axial domains 4−79046
V_2O_5, single cryst. prep. and struct. props. 4−82800
W, edge-screw, and etching anisotropy 4−79044
W, internal friction amplitude depend. on temp. and rhenium impurities *(Russian)* 4−80018
W_nO_{3n-2}, rel. to shear plane growth mechanism, electron microscope obs. 4−44554
WSe_2, occlusions, microstruct. obs. 4−63821
Zn, single crystal, kinking and buckling, h.v. electron microscopy meas. 4−82178
Zn, slip band structure and form. mechanism in single crysts. *(Russian)* 4−49681
Zn, viscous retardation coeff., temp. depend. *(Russian)* 4−76437
Zn bulk crystals, dislocation annealing and oxidation, X-ray topographic obs. 4−70467
$ZnIn_2S_4$, $Zn_3In_2S_6$, vapour grown, lattice defects, X-ray and electron microscopic obs. 4−44537
ZnS, deform. stimulated luminesc., dislocations role *(Russian)* 4−79775
ZnS, doping during growth effect, u.v. spectra *(Russian)* 4−67603
ZnS, faulted, Franz-Keldysh effect and internal fields 4−79703
ZnS:Cu, electroluminescent comets, field distribution effect, partial dislocations explanation 4−67661
ZnTe, real struct., transmission microscopy 4−60507
ZnTe, rel. to creep *(Russian)* 4−44593
Zr, and alloys, neutron radiation damage 4−72495
Zr, cold worked, low temp. relax. processes 4−45622
α-Zr, polycryst., transition between thermally activated and athermal flow 4−53757
Zr-H(D) alloy, rel. to internal friction peak 4−70499
Zr-O alloys, pinning point dislocation interaction energy depend. on dislocation struct. 4−49729
Zr-Ti alloys, martensitic transform., morphology and substruct. 4−45505

disordered systems, vibrational states *see vibrational states in disordered systems*

disperse systems
see also aerosols; Brownian motion; colloids; dust; emulsions; foams; fog; gels; powders; smoke; sols; suspensions
adsorbed polymers, effect on dispersion stability, review 4−80140
coagulating particles in polydisperse condensates, model approach to two-phase flow *(Russian)* 4−69608
conducting spheres in electrolyte solns., electrochem. polarisation 4−64711
copolymer particles in polystyrene soln., rheological props. at long time scales *(Japanese)* 4−78705
curvature dispersion, boundary surface of spherical particles 4−46562
detonation wave in gas, fine-particle dispersion effect *(Russian)* 4−52520
differential microcalorimeter, for interactions in disperse systems 4−65396
Dow latexes, EP-1358-38, size, size distribution and refractive index by Mie scattering method 4−82989
drops of conducting liquids, dispersion and charges in dielec. medium during recharging on electrodes 4−45846
elastic properties investig. by nucl. γ reson. technique *(Russian)* 4−70243
electrophoretic light scattering, review 4−53910
electrorheological, in constant electric field, effect of dielectric axisymmetric rotation *(Russian)* 4−45856
electrorheological effect, behaviour of Pt and silica gel spheres in electric field *(Russian)* 4−45855
ferroliquid, prep. and saturation magnetis. 4−82990
gas-fluid dispersion, size, distrib. investig. in acid/alcohol system by photographic technique *(German)* 4−44123
hard sphere fluid, mol. dynamics calcs. of Brownian motion onset, binary collision rates calc. 4−51464
light beam reflection, scattering *(Russian)* 4−55446
light scattering, particle size depend. 4−51521
liquid-liquid dispersion, drop size measurement 4−51240
macromolecular polydispersity in intensity correlation spectroscopy, cumulant expansion evaluation 4−52312
mass transfer between solid particle and liq. in field of oscillations excited by spark discharge 4−45849
mesoporous medium, vapour-solid change of state possibility *(French)* 4−48747
metal-dielectric system, tunnelling currents calc., I-V characts. 4−72858
MHD, motion of nonconducting particle in liq. conductor *(Russian)* 4−81951
microparticles in solid dispersed systems, stable size distrib., theory *(Russian)* 4−73387
moisture content of dispersed solids, equil. humidity at various temps. 4−45848
nitroethane-iso-octane, critical mixture, Brownian motion, autocorrel. spectroscopy 4−80147
nonlinear media with disperse phase, wave stability *(Russian)* 4−51627
particle size analysis, sampling and disperging *(German)* 4−57787
phospholipid dispersions, mol. motional correl. times calc. from n.m.r. linewidths, particle size effect 4−54628
plastic, wall effect in isothermal flow 4−81965
polyatomic, nonhomogeneous gas, forces on small particles 4−75186
polydisperse, light transmission 4−53906
polydisperse polymer solution, surface tension 4−80141
polydisperse ultrafine fibre filters, gas flow 4−64646
polydispersed particles, constrained sedimentation in centrifugal field 4−45850
polymer, impregnation of glass fibre, advancing contact angle determ. 4−82993
polymer, two-phase amorphous, low-temp. thermal cond. meas. 4−82294
polymer containing dispersed particles, thermophysical properties 4−79204
polymer solution, critical concentration determ. and Flory-Huggins theory 4−68032
polymer/ferromagnetic filler system, mag. field effect on vol. elec. resist. 4−82991
polystyrene latex spheres mixture, intensity correlation 4−56335
polystyrene particle formation in bead polymerisation *(Russian)* 4−53909
population balance, similarity soln. 4−45840
porous disperse structure strength under various stress conditions 4−73383
powder solids, remission spectra, theoret. basis for their evaluation *(German)* 4−45869
Rebinder effect mechanism in presence of mechanically destructible polymers 4−80092
silica, disperse, density, and effect of gas saturation on quartz glass 4−53798
solid, nondiffusional coagulation of microparticles *(Russian)* 4−57733
specific surface measurement, thermal desorption method 4−46563
spectral turbidimetry of conc. disperse systems 4−47309
spherical cells with elastic membrane, complex viscosity 4−54634
spherical particle stream, axially symmetric high temp., heat losses due to radiation 4−63529
spherical shell structures, dilute dispersions, bulk modulus and rigidity *(Japanese)* 4−80146
spheroid/liquid, rot. friction coeffs. of spheroids in viscous fluid with slip 4−66554
spheroids, Rayleigh-Gans-Stevenson function, appl. to mol. wt. and shape determ. 4−59357
turbulent flow, power-law liquid in straight tubes, solute axial dispersion 4−44143
two-phase mixtures, permittivity calcs. 4−64323
two-phase systems, thermal, electrical cond. determ. using elastic moduli theory 4−45764
vapour phase nucleation ionic impurity effects 4−76554
vibration-compressed disperse medium, discrete model 4−73382
water, liquid-phase particulate contaminants 4−45844
weak turbulence in gas-particle mixtures *(Russian)* 4−52362

disperse systems continued

- $NiCl_2$ highly disperse crystals, adsorption isotherms for Xe 4−72628

dispersion (wave)

see also acoustic dispersion; optical dispersion

- anharmonic lattices, Korteweg-de Vries eqn. use in limit of long waves 4−52842
- asymptotic method, nonlinear dispersive and weakly dissipative wave equations 4−77357
- dielectric film, e.m. surface waves, dispersion props., phenomenological method *(Russian)* 4−67681
- elastic surface wave on $LiNbO_3$ with Ag or Pd layer *(Korean)* 4−48826
- elastic waves, axisymmetric, propagation in initially stressed layer *(Russian)* 4−77492
- electron-ion magnetoplasma, anisotropic pressure, coupled wave eqn. and dispersion relation 4−63647
- e.m. transmission and scatt. by low temp dielectric 4−59341
- ferromagnetics, uniaxial, dispersion relns. for bound ferroelectric, spin, elastic and e.m. waves *(Russian)* 4−53247
- hyperbolic operator, decomposition into wave multipliers, analogue of multipoint problem *(Russian)* 4−55219
- liquid-gas interface, effect of layer thickness 4−44744
- long wave dispersion and interaction 4−77367
- Love wave leaking mode dispersion curves for one layer crust-mantle model 4−68048
- magnetic film, wave propagation along domain walls 4−57332
- metal film, e.m. surface waves, dispersion props., phenomenological method *(Russian)* 4−67681
- nonlinear interactions in dispersive media *(Russian)* 4−51630
- plasma, cold, automation of derivation of dispersion relations 4−63651
- plasma, isotropic, nonlinear and ion-acoustic waves 4−75270
- plasma wave, microwave scattering obs. 4−63697
- Rayleigh wave group velocity dispersion in N. Atlantic region 4−68060
- Rayleigh wave half space propagation, couple stress theory 4−62692
- seismic, coeff. detn. *(Russian)* 4−57946
- seismic wave SH overtone dispersion data using phase correlation method 4−68049
- semiconductor film, e.m. surface waves, dispersion props., phenomenological method *(Russian)* 4−67681
- slow wave structure, comb type, for travelling-wave maser 4−55458
- warm current plasma, high freq. surface wave 4−81998
- whistler dispersion measurement method *(Japanese)* 4−61935
- He II, liq. phonon curve, semi-phenomenological fit 4−82297
- $LiFe_5O_8$, magnetostatic waves, dispersion relations and propagation losses derived 4−45157
- YIG, magnetostatic waves, disersion relations and propagation losses derived 4−45157

dispersion hardening

- alkali halide crystals, solid soln. hardening by small additions of alkaline earth ions, theory 4−53748
- atomized powders, internal oxidation as oxide dispersion introduction method 4−49869
- creep strength improvement methods *(German)* 4−45698
- hard alloys, feasibility of dispersion hardening of binder 4−80044
- interstitial solid solutions, concentrated, strengthening coeff. *(Russian)* 4−49761
- microparticle nondiffusional coagulation *(Russian)* 4−57733
- nichrome, thoria dispersed, interfacial energetics 4−79929
- SAP alloys, dislocation emission and sink phenomena as deform. characts. 4−45656
- steel, creep-resisting 12% Cr, precip. processes, 500 and 600°C *(German)* 4−53674
- steel, low-alloy Fe-V-C type, strengthening by carbide precip. during cooling from austenite 4−49783
- steel, low-C normalised, manganese and dispersoids influence on mech. props. *(French)* 4−80024
- steel, maraging, struct. and phase comp. of weld seams 4−45728
- steel, mild, vanadium influence on heat affected zone props. 4−82931
- steel, Mo spheroidized, creep mechanisms during high temperature deformation 4−73323
- steel, precip. hardened, doping influence on struct. and plastic props. *(Russian)* 4−45712
- steel, stainless, austenitic, containing titanium, nitride hardening 4−80034
- steel, tempered martensite, field-ion microscopy 4−82860
- thermomechanical strengthening using substructural strengthening 4−45685
- Ag, MgO particle strengthened, stability and elec. cond. *(Russian)* 4−49782
- Ag alloys, internal oxidation, elec. contact characts. 4−80049
- AgMg alloys, internally oxidized, oxide phase conc. depend. *(Russian)* 4−49780
- Al, by nitriding in h.p. autoclave *(German)* 4−49781
- Al alloy, precipitation hardened, neutron irrad. damage 4−43661
- Al-Mg_2Si(1.35 at.%) alloy, reversion treatments effect on precip. mechanisms 4−45563
- Al-Mg-Si alloys, weakly precip. hardeningm low temp. thermomech. treatment 4−61440
- Al-Si-Cu-Mg-Ni piston alloy, copper influence on microstruct. and mech. characts. *(German)* 4−61398
- Al-Zn-Mg alloy, precip. hardening high-strength, extended ductility 4−49770
- Co-Ni-Cr-Nb alloys, niobium phases precip. 4−79952
- Cr-TaB(TaC) dispersion strengthened alloys, comp. and thermomech. condition effects on mech. props. 4−80010
- Cu, with Al_2O_3, strengthening behaviour 4−53755
- Cu alloys, internal oxidation kinetics, 750-1020°C *(Russian)* 4−79926
- Cu single crysts. containing alumina particles, fatigue deform. and dislocation distrib. 4−53671
- Cu-Co alloys, particle size and spacing effect on steady state creep 4−64586
- Fe alloys, solid solution hardening effect between 77 and 773K 4−73329
- Fe-Cu alloys, tempering behaviour after quenching from liq. state *(German)* 4−53706

dispersion hardening continued

- Fe-Cu(1 wt.%) alloy, age-hardening, grain size and precip. hardening contribs. to mech. props. 4−61423
- Fe-Ni-Co-Ta alloys, precip. in austenite influence on martensite morphology 4−49726
- Fe-Ni-Cr, 36 NKhTYu alloy, precip. of γ' and η phases, mech. props. *(Russian)* 4−73318
- Fe-Ni-Cr alloy, deformed, precip. of excess phases 4−61387
- Fe-Si-Ti alloys, precip. hardened, strength and ductility characts. 4−49802
- Mg-Nd (2.8wt.%)-Zn (1.3 wt.%), precipitation hardening 4−61472
- Mg-Nd alloy, precipitation hardening, effect of additions 4−61472
- Mg-Th alloy, precipitation hardening, effect of additions 4−61472
- MgO-Al_2O_3-SiO_2 system, disperse hardening phase of metals *(Russian)* 4−80064
- MgO.3.5 Al_2O_3 spinel, nonstoichiometric, precip. strengthening and effects 4−73356
- Mo, hardness temp. depend., 20-1500°C 4−70518
- Mo-Re alloys, electron beam melted, rhenium effect on mech. props. 4−45651
- Nb alloys, binary, solute interaction effects on creep strength 4−45674
- Nb alloys, binary, solutes effect on creep strength 4−45673
- Nb alloys, nitrided, mech. charactiz. 4−76488
- Ni, thoria dispersed, interfacial energetics 4−79929
- Ni, with HfO_2 dispersion, pressing behaviour of powder mixtures with Cr 4−70532
- Ni alloy, dispersion strengthened with thoria, stress depend. of steady state creep 4−80035
- Ni superalloy, γ' coarsening and elevated temp. hardness, effect of Mo 4−45647
- Ni-Al(Si)(Ti) alloys, with modulated struct., aged, recovery in hardness *(Russian)* 4−80017
- Ni-Cr(20 wt.%) single-phase and precip. hardened alloys, high temp. ductility 4−80033
- Ni-Fe-V-C alloy, strengthening effect of matrix-dot precip. 4−45684
- Ni-NbC(ZrC), 0-20 wt.% MC 4−67753
- Pb, recrystallised, with 1 wt.% PbO, room temp. creep 4−80039
- Ta-W-Hf alloy, internally oxidized, struct. and mech. props. 4−45644
- α-Ti, dispersed barrier hardening, thermally activated deformation 4−82897
- β-Ti alloys, slip mode role in ductility 4−45650
- Ti-Mo alloys, hardened by ω-particle precip., microscopic deform. behaviour 4−79977
- V-Zr-C alloy, hardening phase comp. and struct., carbide precip. *(Russian)* 4−45575
- WC-ZrC system, precip. obs. 4−67907
- Zn containing ZnO particles, high temp. texture strengthening 4−53763

dispersion power, rotatory *see optical rotation*

dispersion relations

see also Mandelstam representation; N/D method; S-matrix theory

- analytic nonlocal potentials, S-matrix study 4−71373
- anomalous magnetic moments in gauge theories, dispersion relation approach 4−47493
- Backlund transformation for solution of Korteweg-de Vries equation 4−62665
- Compton scatt. forward, dispersion inequalities 4−71679
- damping function inclusion 4−55585
- Delbruck scattering 4−78031
- fixed-t, determ. of vector exchange contribs. to $\pi N \rightarrow \pi N$ 4−55684
- Friedrich's model dispersion relations, numerical investigation 4−77359
- gravitational radiation in Schwarzschild background 4−65788
- hypercharge-exchange reactions $\pi N \rightarrow K\Lambda$ and $KN \rightarrow \pi\Lambda$, amplitude anal. 4−59625
- improper problems related to analytic continuation 4−66013
- inequalities, high-energy physics, unification in self-reproducing kernel theory 4−66008
- Landau, reln. to bound states of two-roton Schrodinger eqn. 4−65733
- nuclear electron scattering, longitudinal transverse dispersion corrections 4−74745
- optimally weighted, proof of uniqueness 4−66010
- partial wave, general solution, new method 4−81397
- plasma wave, microwave scattering obs. 4−63697
- QED in Bogolyubov's axiomatic approach, low-energy theorems and dispersion relations 4−59510
- Regge trajectories, flat, models, using dispersion relns. 4−47556
- renormalisation group eqn. derivation 4−62889
- scattering, forward amplitude, integral relns. between real and imaginary parts from analyticity and crossing symmetry 4−55586
- scattering amplitude phase ambiguity reduction by linear constraints 4−59512
- sideways with Regge behaviour, calc. of nucleon anomalous magnetic moments 4−74599
- sixth order magnetic moment calc. by dispersive technique 4−69136
- static models in dispersion approach, review of results 4−77786
- Ward identities, on-shell, for πN scatt., model independent tests 4−59608
- KN elastic scattering amplitudes, t=0, determination of real parts 4−55676
- Kp elastic scatt., forward dispersion reln. investigation of real part assuming rising total cross section 4−77906
- $K^{\pm}p$, 1-3 GeV/c, dispersion reln. anal. of forward scatt. amp., $N\Lambda K$ coupling const. determ. 4−59618
- $K\pi$ scattering, dispersion relations and unitarized Veneziano model 4−51731
- μ-e decay spectrum determ. in unified theory of weak and e.m. interactions 4−74587
- N e.m. polarizabilities, dispersive values, contrib. to susceptibility of nuclei and neutron stars 4−47494
- pp, pd, pn, small angle elastic scatt., $\geqslant 1$ GeV *(Russian)* 4−81440
- pp forward scattering amplitudes, real part, 50 to 500 GeV, reln. to total cross sections 4−55675
- pp scattering at t=0 and high energies 4−55678
- π photoproduction amplitudes, high energy, from fixed-t dispersion relations and duality 4−47507
- πN charge exchange amplitudes, Regge residues 4−43436

dispersion relations continued
- πN charge exchange amplitudes, high energies, by weighted dispersion relations 4−63017
- πN diffraction amplitude, real part determ. 4−47585
- πN elastic scattering, low-energy, constraints on $\pi\pi$ isospin 0 S-wave 4−47572
- πN elastic scattering amplitudes, $t=0$, determination of real parts 4−55676
- πN forward dispersion relations, high and low energies, methods of testing 4−63044
- πN scattering, forward elastic, energy weighted sum rules determ. 4−63014
- $\pi\pi \to KK$ partial wave amplitudes from hyperbolic dispersion relations 4−66086
- $\pi\pi$ scattering, crossing constraints and exact integral positivity on S- and P-wave scatt. amplitudes 4−74662
- $\pi^0\pi^0 \to \pi^0\pi^0$, constraints on derivative of G-wave from crossing sum rules 4−55671

dispersions *see disperse systems*

dispersoids *see disperse systems*

displacement measurement
- biomechanical movement, telemetric method, rubber band goniometry 4−81050
- cast alloy, automatic recording of linear settling 4−65370
- coherent light optical method for small amplitude and frequency meas. *(Russian)* 4−42776
- cylindrical shell deformation, holographic interferometry 4−50951
- double-exposure holographic interferometry using reflection holograms 4−51072
- hologram interferometric comparison of object deform., sandwich config. 4−73973
- hologram scanning, double-exposure, three-dimens. displacement meas. 4−58738
- holographic interferograms, electronic processing 4−51070
- holographic interferometry, applic. to shock wave propag. in solids 4−66992
- holographic methods for strain and displacement meas. 4−42719
- holographic recording by spatial filtering 4−73990
- holography, large-displacement, fringe freq. reduction technique 4−80835
- holography and speckle photography applic. to strain and displacement meas. 4−42721
- interference technique for in-plane displacements of opaque surfaces 4−42724
- interferometric method, plotter distortion meas. 4−65368
- laser heterodyne detection from phase modulated signal 4−46568
- mechanical stimulator, with optoelectronic displacement monitor 4−65563
- nuclear reactor, CAGR test rig, noncontacting transducer system development 4−47796
- optical detection from freq. modulation, mech. displacements in angstrom range 4−46567
- optical displacement sensor using two, large diameter fibres 4−46570
- quantitative holographic interferometry extension by fringe control techniques 4−51071
- rigid-body motion and homogeneous deform., hologram interferometry meas. 4−42700
- shell, thick, ultimate load response 4−80836
- spark chamber, e.m. displacement dependence on elec. purifying field and mag. induction, obs. 4−81002
- speckle-shearing interferometry, slopes of structural deflections meas. 4−80834
- speckled image observation, auxiliary diffuser 4−80833
- surface contour meas., laser beam/TV camera system *(Japanese)* 4−43359
- surface displacement derivatives, speckle-shearing interferometer for meas. 4−58821
- symmetrical and anti-symmetrical deform., hologram interferometry meas. 4−58741
- transducers, inductive, error reduction for displacement meas., temperature effects *(German)* 4−73976
- variable parameters of motion, meas. concepts and definitions 4−54823
- vibration of middle ear, guinea pig, Mossbauer technique, broad freq. range 4−76960

display equipment
- *see also computer peripheral equipment*
- liquid crystal application to data display 4−78888
- neural activity obs. 4−46373
- photographic image restoration, digital techniques 4−68717

display instruments
- *see also cathode-ray oscilloscopes*
- contact potential meas., rotating armature method *(German)* 4−46745
- laser pulses meas., time and energy parameters, automated meter 4−51081
- plasma potential meas., contour map display 4−44395

display systems
- *see also cathode-ray tube displays*
- astronomical telescope, electronic control system, position variables display 4−65233
- blue l.e.d.s, potential materials for 4−49466
- bubble chamber film measurements, TV system incorporation into PEPR hardware 4−81012
- bubble chamber picture scanning, half-automatic measuring (HAM) device 4−81011
- data, liquid crystal appl. reviewed 4−78888
- for dielectric breakdown measurement, in m.o.s. struct. 4−60868
- hologram, computer generated for 3-D display 4−77100
- laser scanning, three colour, using single modulator and three colour laser 4−77066
- liquid crystal, 1024 bits page composer for holographic memories 4−58832
- liquid crystal applications, review 4−56606
- liquid crystal devices, review *(Japanese)* 4−72426
- multicoloured laser beam display system 4−51659
- PEPR, new system for bubble chamber picture analysis 4−81010

display systems continued
- phase transitions materials with optically distinguishable states, pot. appl. 4−62871
- remote writing blackboard, for distant study system 4−58728
- rotating drum scanner display system for digital image processing 4−55121
- semiconductor optoelectronics, review 4−43329
- technology, conf., San Francisco, USA (May 1974) 4−45912
- transistor characteristics, circuit for displaying on oscilloscope, educational 4−54796
- TV visual stimulator, applic. in neuron visual receptive fields analysis 4−51199
- two-way video system, for distant study systems 4−58728
- GaP high-brightness yellow and green LED display prod. by vapour phase epitaxy 4−49630
- GaP l.e.d. array, fabrication by laser machining 4−43354
- (Pb,La)(Zr,Ti)O_3 ceramic, elec. controlled secondary phase applic. 4−67540

disruptive voltage *see electric breakdown*

dissipation (heat) *see cooling*

dissociation
- *see also electrolytic dissociation; heat of dissociation; ionisation; molecular dissociation; molecular dissociation energies*
- akermanite, Ni-Co, coloration and partial decomposition 4−57918
- biochemical processes, photodissociation, laser induced 4−46355
- formic acid, decomposition on Ni-2%Cr alloy, magnetocatalytic effects, expt. evidence 4−57883
- Hartree-Fock localised canonical wavefunction, nonexistence effect 4−64005
- photodissociation, laser induced 4−45934
- photodissociation, laser induced chemical effects, review 4−45931
- CO adsorbed on W(100), possible dissociation, electron field emission obs. 4−63986
- LaB_6 powder, compacted at high temp. and pressure, decomposition 4−49862
- N plasma, low-temp., effect of A $^3\Sigma_u{}^+$ metastable level on step-wise excitation processes *(Russian)* 4−43729
- N_2O, decomposition over Ni, magnetocatalytic effects, expt. evidence 4−57883
- $2NO_2 \rightleftharpoons 2NO + O_2$, heat and mass transfer is laminar flow in cooled flat tube *(Russian)* 4−63630

dissolution *see dissolving*

dissolving
- *see also solubility; solutions*
- flow, turbulent, near soluble surface, dissolution roughness 4−81974
- gases in liquids, collapsing bubbles in ultrasonic fields 4−78697
- simultaneous absorption of two gases reacting between themselves in liq. medium 4−53961
- solid, dissolution in own melt, model *(German)* 4−44657
- $[Co(NH_3)_5H_2O]Cl_3$, crysts. containing F-centres, hydrated electron formation on dissolution *(Italian)* 4−50217
- $[Co(NH_3)_6]Cl_3$, crysts. containing F-centres, hydrated electron formation on dissolution *(Italian)* 4−50217
- Al_2O_3, leucosapphire, thermochemical dissolution, anisotropy 4−44500
- $CaCO_3$, dissolution kinetics in sea water, inhibitors 4−64838
- Na_2SeO_3-Na_2CO_3-H_2O, solubility at 30, 60 and 90°C 4−52894
- SiO_2, finely dispersed arc silica, dissolution rate *(German)* 4−49876

distance measurement
- *see also height measurement; length measurement; thickness measurement*
- acoustic surface wave phase meas. with piezoelectric transducers 4−42706
- amplitude photoelectric devices, field of vision analysers, light splitting elements for 4−74035
- bipolar transistor junction depth and base width meas. by electron beam induced current 4−49063
- defect determ. by radiometric method, improvement using two-beam betatron 4−46918
- depth point method, kinematic corrections for refraction *(Russian)* 4−58128
- electro-optical telemeter, visual and distance ranges 4−46110
- EOK 2000 electro-optical telemeter, Antarctic glaciological motion meas. 4−46117
- EOK 2000 telemeter, meas. accuracy 4−46109
- EOK 2000 telemeter, testing on Potsdam base line 4−46107
- geodetic optical distance measuring instrument, field testing 4−76756
- laser rangefinder, Er:glass laser system for ceilometer 4−43362
- laser rangefinder, microwave freq. modulation, freq. conversion in photodetector 4−68611
- laser shift, down to 10^{-5} Å, three mode laser 4−43358
- lunar laser ranging station, operation and performance 4−46343
- microwave, over sea path, geometric proportions of path *(German)* 4−70815
- parabolic reflector deformations by radar technique 4−71067
- particle size, 10 to 120μ diameter, laser interferometer obs. 4−42699
- radiative transfer between closely spaced bodies, radiation proximity effect 4−59313
- rangefinding, error function determ. for electro-optical and radio methods *(Russian)* 4−64986
- sonar system, non-linear fundamental characteristics 4−46130
- tiltable reflector, for electro-optical telemetry 4−46108

distillation
- *see also isotope separation*
- decontamination evaporators, development and current technical status *(German, English)* 4−59889
- distillation column, parametric study, boundary-value problem, GPM method 4−48344
- enstatite chondrites, elemental fractionations 4−62068
- geological systems, fractionation of U, Th, Pu, rel. to early Pu/U abundance in meteorites 4−80258
- heavy water production methods, review *(Italian)* 4−51873
- multicomponent multistage separation numerical anal. 4−60604

distortion *see deformation*

distortion, electric *see electric distortion*

distributed parameter networks
- e.m. wave diffraction in isotropic media 4-43237
- neuron masses, forming feedback loops, steady-state and limit cycle activity, distributed parameter model 4-83304

distributed parameter systems
- autooscillation in systems with diffusive coupling *(Russian)* 4-51631
- autooscillatory, stationary wave models *(Russian)* 4-51629
- confidence intervals for exptl. correlation functions *(Russian)* 4-50944
- continuous, ingot cooling cycle determ., min. shell deform. *(Russian)* 4-76519
- nuclear reactor, power distrib. control, stability of control systems 4-78177

distributions, statistical *see statistics*

diversity reception
- *see also fading*
- radiowave scattering, by atmospheric particles *(Russian)* 4-58051

dividers, voltage *see voltage dividers*

DNA
- calf thymus, effect of temp. on struct., X-ray diffr. 4-83275
- cell content, flow systems for high-speed analysis and sorting 4-54631
- cell cycle and proliferation kinetics, discrete time model, applic. to labelled cohort movement 4-68480
- charge and excitation migration, LCAO model 4-52310
- configuration control, ion bombardment of C films 4-65568
- double spiral flexibility *(Russian)* 4-48162
- electron radiation and u.v. effects on bases and derivatives, i.r. spectra 4-54629
- lesions in T4 and Escherichia coli DNA induced by ionizing radiation 4-80754
- macromolecular structure exploration by X-ray diffraction and electron microscopy 4-68831
- radiation damage, repair process, review 4-58488
- radioprotection by cysteamine rapid mix expt. 4-80764
- single strand breaks, X-ray induced, repair in thymine starved bacteria 4-71082
- single stranded, u.v. damage repair, roles of E. coli u.v.r. and r.e.c. systems in phage 0X174 u.v. reactivation 4-71083
- strand breakage by various radiation qualities 4-80688
- synthesis, cell transition kinetics in regenerating liver 4-83285
- synthesis, during various phases of cell cycle in the uterus of ovariectomised mice, X-ray effects 4-71087
- T4 DNA degradation during infection of Escherichia coli at low multiplicity 4-80686
- u.v. radiation injured, photoreactivation and excision repair, in primary embryonic chick cells 4-73875
- Whole body irradiation DNA synthesis in spleen of mice, expt. 4-80684
- X-irradiation of M. radiodurans, DNA fragment release 4-58479
- xeroderma pigmentosum, human and mouse cells, postreplication repair of u.v. damage 4-80757

document retrieval *see information retrieval*

documentation *see information science*

domain walls
- *see also domains*
- antiferromagnet, sound absorption in spin flop field region, domain wall motion effects *(Russian)* 4-70193
- Bloch line array, energy calc. 4-60972
- bubble domain, dynamic conversion, model 4-61000
- bubble domain system with different numbers of vertical Bloch lines 4-49193
- bubble film, stripe domain wall struct. 4-45134
- bubble garnet film, dynamic response of domain walls to step change in bias field, −10 to 60°C 4-64248
- bubble garnet film, straight and wavelike domain wall motion, high speed photography obs. 4-64249
- ferrimagnetic garnet, compensation wall width and energy, field depend. 4-79535
- ferrimagnets, reln. between orientation and preferred mag. direction 4-53257
- ferroelastic domain wall model 4-75562
- ferroelectric, domain creation with mutually opposite directions of spontaneous polarisation 4-64337
- ferroelectric crystal, screening energy of flat charged domain boundary 4-64339
- ferroics, secondary, symmetry, ferroelastoelectricity, and ferrobielasticity 4-73085
- ferromagnet, internal friction due to charged point defect interactions with domain boundaries *(Russian)* 4-53272
- ferromagnet, magnetoresistive overlayer, force due to current perturbation 4-76114
- ferromagnet, n.m.r. signal enhancement, fast passage effects 4-45166
- ferromagnet, uniaxial, domain wall oscills., theory *(Russian)* 4-67405
- ferromagnet with single domain wall, spin wave spectrum calc. 4-57301
- ferromagnetic cores with square hysteresis loop, magnetisation reversal dynamics *(Russian)* 4-76120
- ferromagnetic film, inhomogeneous width and shape 4-64234
- ferromagnetic metal, prediction of domain-drag effect 4-60983
- ferromagnets, antiferromagnets, coupled oscills. of nuclear spins and domain walls 4-79612
- ferromagnets, internal stresses due to wall junction 4-60977
- film, low velocity bubble domain wall mass calc. 4-60994
- garnet, bubble domain, liq. phase epitaxial, neutron irrad. effects on mag. props. 4-57309
- garnet film, controlled compensation walls and compromise compensation walls, Si annealing technique 4-60995
- garnet film, epitaxial, dynamic conversion effects 4-60999
- garnet film, low-loss, domain wall dynamics 4-60997
- garnet film, transparent, domain wall reson., optical diffr. obs. 4-64250
- magnetic, wall interaction, with electric current 4-45137
- magnetic bubble materials, Bloch line and wall dynamics 4-67396
- magnetic bubble wall motion, dynamic conversion model 4-76116
- magnetic film, domain wall models, review 4-76125

domain walls continued
- magnetic film, wave propagation 4-57332
- magnetic head-on saw-tooth domain walls, Lorentz microscopic obs. 4-79539
- MBBA, nematic, wall velocity and ellipticity giving elastic constants 4-78901
- modulus anomaly with initial susceptibility as response function of statistically pinned elastic line 4-79089
- motion, energy stored in wall deform., solid and tape-wound cores 4-60981
- orthoferrite, coercivity determ., reln. between struct. and defects 4-57321
- Permalloy film, nonlinear velocity and coercive force 4-57334
- Permalloy film, wall motion threshold fields for off-axis applied fields 4-70191
- Permalloy films, coercivity spectrum and cross tie wall deform. 4-45148
- propagation, in ext. mag. field, current perturb. in adjacent Hall effect material 4-45136
- rare earth Co_5, mag. domain wall pinning by regions of weak exchange or anisotropy 4-67400
- rare earth Co_5 permanent magnets, easy domain wall nucleation investigation 4-60984
- rare earth iron garnets, $R_{0.3}Y(Gd)_{2.7}IG$, dynamical mag. characts., spin echo and mag. susceptibility meas. 4-64270
- Rochelle salt, nucleation model for domain wall motion 4-61118
- rocks, magnetic viscosity due to spin fluctuations in wide temp. range 4-68070
- stability in uniaxial film strips, demag. effect on Bloch wall motion 4-45147
- structure of anomalous mag. cylindrical domains 4-57322
- superconductors, type I, interaction between s-n domain walls and crystal dislocations 4-49126
- thin non-uniform films, movement *(Russian)* 4-67393
- triglycine sulphate, switching, forward velocity of domain walls 4-70262
- $BaTiO_3$, $(Ba,Pb)TiO_3$, 90° ferroelec. doamin wall thickness meas. 4-61115
- Co, nonuniform current distrib. in neighbourhood of 180° domain wall, 4.2K 4-60979
- Cu_2MnAl, effect of antiphase boundaries in Heusler alloys 4-45142
- $DyFeO_3$, movement asymmetry, deformed surface layer 4-64242
- EuYbY garnet films, LEP, charact. 4-49202
- Fe, oriented transformer sheets, ferromagnetism for electronic engineers *(German)* 4-67404
- Fe, residual elec. resist., current depend. mechanism 4-57072
- Fe-Si, total power loss, domain wall spacing meas. 4-72992
- Fe-Si single cryst., individual Bloch wall movement at very low velocity 4-57311
- Gd-Ca, amorphous film, static bubble domain props. 4-76113
- $Gd_3Fe_5O_{12}$ film, magnetization processes involving planar compensation walls 4-60996
- $Gd_yY_{3-y}Fe_{5-x}Ga_xO_{12}$, garnet film, dynamic props., high mobility, in plane mag. field 4-70186
- Ni, domain wall motion, electron microscope obs., test of theories 4-67402
- Ni, film, magnetic domain wall response to ultrasound, transmission electron microscope meas. 4-82597
- Ni-Fe, plastically deform. polycryst. wires, coercive field rel. to domain wall mobility 4-72997
- Ni-Fe, thin films, obs. of segment domain walls with alternately directed magnetisation 4-53259
- Ni-Fe(17%) alloy, domain wall motion, electron microscope obs., test of theories 4-67402
- NiFeCo film, domain wall motion, coercive force and easy axis bias effects 4-57335
- NiZnCo ferrite film, energy of stabilisation of domain boundaries 4-70176
- $PbTiO_3$ crystals, domain structure obs. 4-53382
- $Tb_{0.5}Y_{0.5}Ni$, narrow domain wall propag. and metamag. props. 4-45149
- $(Y,Eu,Gd)_3(Ga,Fe)_5O_{12}$, film, bubble velocity, instability, temp. depend. 4-64251
- $(Y,Gd,La)_3(Fe,Al,Ga)_5O_{12}$ garnet magneto-optical memory based on compensation wall domains 4-49197
- $(Y,La)_3(Ga,Fe)_5O_{12}$ film, exchange const. and bubble domain wall energies 4-60973
- $Y_{3-x}Eu_xFe_{5-y}Ga_yO_{12}$ single crystal, mobility, for bubble domain devices 4-57314
- $YFeO_3$, movement asymmetry, deformed surface layer 4-64242

domains
- *see also crystal microstructure; domain walls; electric domains; magnetic domains*
- combined electromagnetic-gravitational radiation, generated by unified field theories, Weiss domain 4-65803
- liquid crystal, struct. and props. 4-82113
- liquid crystals, phase transitions 4-63761
- MgF_2-Nb_2O_5, multiple phases, electron microscope obs. of intergrowths defects, disordered crysts. 4-69819

domestic appliances
- *see also ovens; refrigerators*
- watthour meters, residential, revised standards for increased fault currents 4-46553

doping, semiconductors *see semiconductor doping*

Doppler broadening *see Doppler effect*

Doppler effect
- *see also atomic spectra; red shift; spectral line breadth*
- atomic beam frequency standards, second-order Doppler and cavity phase dependent frequency shifts, calc. 4-65349
- auroral backscatter signals, Doppler shift 4-73565
- bat, echolocation system 4-80815
- biophysics protoplasmic streaming in algae cells, laser Doppler shift obs. 4-71270
- contactless flow rate meas. by laser Doppler velocimeter 4-68859
- dynamic three-dimensional hologram recording, imaging props. of travelling intensity waves 4-74476
- education, horn, expt. allowing obs. of var. in pitch with vel. 4-73952

Doppler effect continued

- fast critical assembly, local flux distortion on effects on Doppler effect of small fissile samples 4−51869
- gamma line shape in Coulomb excitation 4−62510
- gravitation, consideration of criteria for sensitive antennae 4−65807
- interferometer, laser Doppler, analysis for data reduction 4−74060
- laser anemometry, filter bank signal processor application 4−77329
- laser Doppler spectrometer for study of electrokinetic motion of suspensions 4−42804
- laser Doppler velocimeter, coherent detection 4−68858
- laser Doppler velocimeter, gravity wave study in shallow water, design consideration 4−50409
- laser Doppler velocimeter, three-dimens. scalar system with directional ambiguity 4−74194
- laser velocimeter, direction sensitive, Doppler, with polarised beams 4−59015
- laser velocimeter applic., signal processing for 4−46995
- laser-Doppler anemometer, flow rate of fluids meas. 4−51238
- laser-Doppler technique, fluid vel. meas., review 4−77320
- light diffracted by sound waves, freq. shift, Doppler interpretation 4−65871
- macroions in solution, Doppler shifts in light scatt. 4−80143
- metal, noncompensated, doppleron spectrum model using arbitrary dispersion law 4−49028
- metals, Doppler broadening of positron annihilation photons 4−82196
- microscope, laser Doppler type, appl. for flow velocity meas. 4−51053
- microwaves application *(German)* 4−51115
- musical pitch change due to relative motion of sound and listener 4−50921
- nuclear energy level lifetimes meas. by Doppler shift attenuation technique 4−66143
- nuclear reactor feedback, new technique for Doppler coeff. determ. using piezoelectric transducer 4−78212
- optical heterodyne arrangement with two-frequency source for vibration meas. 4−54824
- plasma, wave propag., plasma motion normal to mag. field 4−78734
- poly(dimethyl siloxane), struct. of quasielastic incoherent neutron scatt. 4−72435
- positron annihilation line broadening, coincidence routing of signals 4−71229
- pulsating stars Doppler splitting of spectral lines 4−62122
- radiowave propagation in inhomogeneous magnetoactive ionosphere 4−70785
- relativity time-delay expt. using Mariner spacecraft 4−43162
- reverberation rooms, effect of rotating diffusers and sampling techniques 4−76998
- scatt. meas. for 7 n.m. propag. range, Florida Straits 4−80794
- shock wave velocity measurement, using laser Doppler arrangement plus schlieren system 4−74190
- short gravity-capillary wind waves, microwave c.w. Doppler spectra 4−80312
- slot antenna radiation pattern, moving magnetoplasma layer effects 4−44186
- 'sodar', wind velocity meas. influence of atmospheric acoustic wave refraction *(French)* 4−76758
- solar granular velocities, statistical anal. of Fe I 6302.5 A Doppler shifts 4−80480
- solar photosphere, granular Doppler shifts, height depend. 4−62022
- spectral line formation, in moving stellar atms., isotropic redistrib. function 4−70965
- spectral line shape, combined Doppler and press. broadening, classical theory 4−47836
- stellar chromospheric lines, rapid Doppler width variation effects 4−65142
- superluminal sources, in extended relativity theory 4−47178
- thermal reactor prompt Doppler feedback, sensitivity to power shifts 4−78213
- turbulence intensities meas. by laser velocimetry, removal of Doppler ambiguity 4−81100
- u.s. fish school echoes, Doppler structure 4−77000
- velocity meter, use of laser light source *(German)* 4−46701
- wind measurement, acoustic Doppler shift system 4−50399
- X-ray spectrometer using Doppler effect as dispersive element 4−58966
- Al, Doppler shifted cyclotron resonance study, multiple dopplerons *(Russian)* 4−82357
- Cs atomic beam frequency standards, second-order Doppler shift and cavity phase error corrections 4−65350
- Cu, Doppler shifted cyclotron reson. and e.m. waves *(Russian)* 4−79282
- Cu slab, cyclotron resonance, circularly polarised transmission, new e.m. mode 4−82443
- ^{64}Cu annihilation radiation, automatic corrections for deadtime effects and lineshape changes 4−62515
- H_2, oscillator strength, Lyman and Werner bands 4−43832
- HD, fundamental absorption band 4−78451
- In, Doppler-shifted cyclotron reson., rot. symm. Fermi surface model 4−72692
- Ni-^{57}Fe dil. system, force constant ratio calcs. 4−82247
- ^{30}Si, Doppler shift attenuation method for mean lifetime meas. of negative parity levels 4−81453
- ^{238}U reactor fuel, influence of control rods and channels on Doppler effect 4−78200
- Zn-Cu alloys, Doppler broadening of the energy distrib. of annihilation γ-quanta 4−61067

Doppler shift *see Doppler effect*

dosimeters

- *see also dosimetry*
- 1-hit detector, implications 4−58619
- chemical, for in pile use, international intercomparison 4−58622
- digital voltmeter applic., plug in module for Radocon 555, to improve linearity 4−46482
- ethylene, neutron and photon dose and flux meas. in reactor 4−81679
- exoelectron emission applic. for interface and microdosimetry 4−54731
- exoelectron emission applics. 4−54727

dosimeters continued

- glass plates, radiation detect. at 10^9 rads 4−72010
- implantable packages for small vertebrates resident in fallout field 4−83350
- liquid aromatic solutions, scintillation pulse contours 4−58629
- luminescent systems, characteristics, operation, use in accelerators 4−42878
- Makrofol track detector, mixed field dosimetry 4−80988
- microwave, biological effects of microwaves 4−71125
- m.o.s.f.e.t. dosimeters, advantages 4−46823
- multichannel, optimal construction of information channels 4−77186
- mylar, thin film capacitor, X-ray effects on dielectric conductance, dosimetry 4−68543
- optical systems, characteristics, operation, use in accelerators 4−42878
- optically stimulated exoelectron emission of complex cpds. for dosimeter applic. 4−53582
- organic halogen cpd. type, electronic methods for registration of radiation induced reactions *(German)* 4−64716
- organic halogen cpd. type, pH shapes dose effect curve *(German)* 4−64715
- personnel monitoring systems, intercomparison 4−58626
- perspex, absorption and scattering of u.v. light, implications for radiation dosimetry 4−80987
- photoactivation of ^{115}In, use as γ-dosimeter 4−46856
- pocket ionisation chambers, direct-reading, energy depend. w.r.t. X-rays and beta rays 4−77176
- radiation protection, review of dose and dose rate meters rel. to new specification requirements 4−78295
- radiation therapy, supervoltage equipment, instrument for rapid check of output, energy and field flatness 4−46449
- scintillation spectrometer, for α, β, and γ rays 4−58628
- solid state track recorders, fast neutron personnel dosimetry 4−63311
- solid.state radiation induced thermally activated current devices, high sensitivity dosimetry 4−80768
- sterilisable hand radiation monitor, for heart catheterisation studies and radiopharmaceutical preparations 4−46496
- thermally stimulated conductance radiation dosimeter, single cryst. sapphire, dose response 4−80769
- thermoluminescent, applications for environmental dose meas. in Savannah River Plant vicinity 4−51914
- thermoluminescent, energy dependence for X-ray dose and dose distribution measurements in a mouse phantom 4−58615
- thermoluminescent, for personnel monitoring, effect of ambient humidity 4−58627
- thermoluminescent, meas. of low level environmental γ doses 4−51915
- thermoluminescent comparative investig. of characts. 4−58614
- thin film, using laser based optical densitometer system 4−46826
- $BaSO_4$:Dy, thermoluminescence 4−46481
- BeO, exoelectron dosimeters, activation energies determ. from isothermal fading 4−54730
- BeO, Li_2O treated, fast neutron detection in mixed radiation fields 4−54728
- BeO, photon irrad., energy depend. of exoelectron emission 4−54729
- BeO, thermally stimulated exoelectron emission maximum and exoelectron yield shift during powder treatment 4−49541
- BeO, thermally stimulated exoelectron emission dosimeter 4−50899
- BeO, thermally stimulated exoelectron emission, energy analysis 4−53578
- BeO, thermally stimulated exoelectron emission, counting gases influence 4−57675
- CO_2, neutron and photon dose and flux meas. in reactor 4−81679
- LiF, thermally stimulated exoelectron emission glow curves, description method 4−49547
- LiF cavity, solid, comparison of Burlin and Almond cavity theories for electrons 4−46488
- LiF rods in high energy electron beams, energy dependence with respect to absorbed dose in water 4−46486
- LiF-7 Teflon, thermoluminescent, mixed field dosimetry 4−80988
- MgO, fast neutron dosimetry using F-centres and exoelectron emission 4−54732
- N_2O, neutron and photon dose and flux meas. in reactor 4−81679
- Si, p.i.n. diodes, fast neutron therapy applic. 4−46409
- Si diodes, logarithmic response applic. to monitoring beam symmetry and electron energy 4−58616
- Si diodes, with radiation margin in the Mrad range, for pulsed dosimetry of protons 4−76980
- Si:Li p-i-n direct-reading dosimeter, calibration and applic. to radiation therapy 4−58591
- $SrSO_4$:Dy, thermoluminescence 4−46481
- Ta_2O_5, thin film capacitor, X-ray effects on conductance 4−68543

dosimetry

- *see also dosimeters; radiation monitoring; radioactivity measurement; X-ray detection and measurement*
- 1-hit detector, implications 4−58619
- 4 MV linear accelerator output variation with fixed dose setting, obs. 4−54722
- 4 MV linear accelerator with beam splitter, isodose curves 4−50894
- 6 MV linear accelerator, depth dose data, TAR and TMR obs. 4−54721
- 6 MV linear accelerator build-up region, dose and TMR determ. 4−46491
- 34 MV betatron, X-ray central axis depth dose obs. 4−54723
- 42 MV betatron, automatic depth dose data acquisition 4−50893
- β-emitting isotopes in biological use, in-depth localisation 4−47818
- absorbed dose estimation, implications of cavity considerations 4−58620
- absorbed fraction, multiple scatter corrections, below 0.1 MeV 4−46484
- angiography, radiation protection of operating personnel 4−58594
- beta-ray spectra, max. energy determ. and in depth isotope localisation 4−77166
- biological effects of h.f. fields, intensity meas. and frequency dependence problems 4−65576
- boiling water reactor environment, dose assessment techniques 4−50890
- bremsstrahlung spectra, 25 MeV linear accelerator, 19 MeV betatron expt. and calc. 4−71266

dosimetry continued
cattle, model of gastrointestinal tract, expt. validation 4−62335
central axis depth dose, dependence on field size, for 35, 40 and 45 MeV electrons 4−46487
cervical applicators, dose distrib. correction factors for wall attenuation 4−50897
cervical cancer radiotherapy, ret dosage correl. with selected complications 4−46437
chest wall ^{60}Co tangential irradiation, dose distrib. obs. 4−58593
chromosome aberration yield, dependence on dose 4−68544
chromosome aberrations in human lymphocytes after 3 MeV electron in vitro irrad. 4−58603
cosmic radiation, on board Concorde *(French)* 4−58617
damage tracks in cellulose derivatives, thermally induced registration changes 4−58624
diagnostic X-ray cumulative dose recording by computer 4−58592
distribution around a beta-ray applicator, TLD measurement 4−46475
distribution data, on-line acquisition and reduction system 4−50859
dose equivalent tabulation, source and target organs, various radionuclides 4−83347
dose limitation philosophy for licensing of nuclear power stations 4−55982
dose rate-radiation risk relation *(German)* 4−68533
electron beam energy meas. using rapid process films inside polystyrene phantom 4−74110
electron scattering by collimator, effects on dose for a 45 MeV betatron 4−46412
electron stopping power meas. in C calorimeter at 19.5 GeV 4−65521
electron-capture nuclides, surface contamination measurement 4−77191
energy deposition of 44 MeV protons in bone-soft tissue interfaces, frequency distrib. obs. 4−46494
energy deposition spectra from proportional counters, computation 4−46495
environmental γ doses, low level, meas. with thermoluminescent dosimeters and Geiger counters 4−51915
environmental accuracy and sensibility of various dosimetric methods 4−58613
environmental measurements in nuclear Savannah River Plant vicinity 4−51914
environmental radiation dose criterion and assessment, pathway modelling and surveillance 4−51919
exoelectron emission and dosimetry, conf., Liblice, Czechoslovakia (Oct. 1973) 4−49534
exoelectron emission applic. for interface and microdosimetry 4−54731
exoelectron emission applics. 4−54727
exposure evaluation system, automatic, based on thermoluminescence 4−63309
external beam radiation fields, three-dimensional visualisation by diagonal isodose plots 4−54703
fallout radionuclides, ^{90}Sr, ^{3}H, ^{239}Pu examples 4−83346
field monitoring system, computer compatible, for radiation dose meas. in nuclear reactor vicinity 4−51916
fluoroscopy, personnel exposure, measurement and reduction 4−50833
gamma dose rates through concrete shielding with rectangular ducts 4−81700
gamma-ray response of pararosaniline cyanide dosimeter soln. 4−68792
gas phase, based on N_2 yield from N_2O, reproducibility 4−43699
gynaecological implant doses, computations compared with in vivo TLD obs. 4−46493
human body self shielding data, dose to organs from isotropic radiation field 4−83351
human tissues, photon mass attenuation and mass energy absorption coeff. 4−54726
ICRU recommendations, RBE, Quality Factor, Dose Equivalent *(French)* 4−46479
initial gamma radiation doses in building structures, adjoint Monte Carlo calcs. 4−81694
internal absorbed fractions for small bodies, cube root of mass dependence 4−51927
ionisation chamber, liquid, for dosimetry of electron radiation 4−62517
ionising radiation dosimetry using glass colorant detectors 4−73912
ionization chamber meas., effect of adjacent cavity in phantom 4−76982
isodose distribution calculation, using decrement lines, for fast neutron beams at TAMVEC 4−46408
isodose patterns for sharply-defined beam edges, computer calc. 4−54725
isodose plotter, computer controlled, radiation therapy applic. 4−50860
linear accelerator monitoring systems, errors 4−46489
man-rem concept and theoretical collective damage *(French)* 4−58630
meson, in natural environment 4−46498
microwave, biological effects obs., sampled integral dose rate meas. 4−68545
microwave, use of electrochemical integrating cell 4−50892
microwave dosimeter, biological effects of microwaves 4−71125
microwave hazard standards, USA 4−65282
mouse phantom, protected part, dose from scattered roentgen radiation 4−65280
neutron, health physics applic., problems 4−58625
neutron and photon distribution, from negative pion capture in tissue 4−50837
neutron beam, fast, ion chamber and proportional counter comparison 4−46485
neutron collimator for animal irradiation, design, radiation field prod. 4−77261
neutron contamination, fast, of X-ray therapy beams, from electron accelerators from 19 to 45 MeV 4−46423
neutron energy discrimination using nucl. track method 4−68781
neutron flux near reactor grid plate, calculational analysis of EBR-II tests 4−81692
neutron radiation, in vivo activation analysis *(Dutch)* 4−46477

dosimetry continued
neutron therapy, data acquisition, at the TAMVEC facility, by a computer controlled system 4−46407
neutrons, fast, from a medical cyclotron 4−46405
neutrons absorbed dose meas. in tissue equivalent phantoms at 15 MeV 4−76981
NRPB interim radiation dose record service 4−83352
nuclear accident systems, neutron and gamma measurements 4−78314
nuclear emulsion, heavy ion tracks, energy dose concept 4−71233
nuclear power plant environment exposure control, eval. of population dose *(Polish)* 4−55974
nuclear power plants, local dose-rate meas. *(German)* 4−71124
particle detection and cellular inactivation, unified track structure theory 4−58618
personal exposure monitoring in high dose radiation fields 4−80766
phantoms, plastic, theoretical evaluation 4−46480
plastic phantoms for X-ray and γ-ray calibration, analytical model 4−50896
polymer film, spark counting of neutron-induced recoil particle tracks 4−81005
population dosage from medical sources, review *(Japanese)* 4−46478
radiation, background, near nuclear reactors, precision ionisation chamber applic. 4−46490
radiation protection, conf., Jerusalem, Israel, 5-8 March 1973 4−58547
radiation therapy, computer planning, effect of inhomogeneities 4−50861
during radiation therapy, conservative treatment of retinoblastomas with 4 to 6 MeV electrons 4−71106
radiation therapy, depth dose representation, for all field sizes, using computer generated calibration charts 4−50862
radiation therapy, internal dose distribution, from sealed sources, desk-top calculation 4−50865
radiation therapy, wedge-shaped dose distrib. by computer control 4−46426
radiation therapy dose calculations and measurements, with a 4 MV linear accelerator 4−58583
radiation therapy localisation error detection and evaluation by film technique 4−54698
radiochromic dye systems, applic. 4−58623
radiotherapy dosage calcs. for 8 MV X-rays and ^{60}Co gamma rays 4−80749
radium measurement in man 4−83344
rat liver cells, X-rays from ^{113m}In and ^{198}Au, biological effect rel. to dose rate 4−54708
rectangular beam isodose profiles, photometric analysis for external beam computer programs 4−46492
Roentgen area product, in pediatric radiology 4−50847
SI units *(French)* 4−42693
solid-state, practical use in personnel monitoring 4−59888
therapeutic energy deposition by pions, calc. 4−46441
thermally stimulated exoelectron emission dosimetry in multiscalar and pulse height analyser modes 4−51165
thermoluminescence systems for environmental radiation monitoring, performance criteria 4−50891
thermoluminescent, radiobiological expts. *(Czech)* 4−58601
thermoluminescent dosimetry materials, simultaneous TL and TSEE meas. 4−53588
thermoluminescent personal dosemeter evaluation 4−66273
thermonuclear source in air, transport cross-section sensitivity anal. 4−81680
transuranic elements in human lung, in vivo detection 4−83345
trehalose dihydrate, lyoluminescence 4−49411
trilayered spherical phantom temperature distribution induced at 2.45 GHz 4−65281
units, special and/or SI 4−42695
urinary bladder dose, from radionuclides in urine 4−58574
u.s. applications, prospects 4−58612
vitreous silica, electron dose distribution and range from dilatation determ. photoelastically 4−74125
wide pulse ionisation environments, simulation using pulsed nuclear reactors 4−43698
rel. to X-ray, panoramix-intraoral radiographic unit 4−50834
X-ray beams, low energy, calibration method 4−58579
X-ray dose and distribution measurements 4−58615
X-ray fluorescence from extended sources, anal. of exposure meas. 4−74123
X-ray test cassette, for routine evaluation of kV$_p$ and added filtration 4−50844
X-ray therapy machines, surface dose obs. 4−50895
X-ray weighted f-values of determ. from spectral distribs. 4−80767
X-rays, degraded 4−58621
α-particles in tissue equivalent gases *(Japanese)* 4−80984
γ-ray measurements in ZPPR/FTR-2 reactor assembly 4−81702
π^- beams stopping, tissue equivalence calcs. for Shonka type A-150 plastic 4−58916
π^- capture in tissue, intranuclear cascade model anal. of particle production spectra 4−63312
π^- stopping in Si detectors, pulse height spectrum calc. 4−74112
^{60}Co Brachytron prototype afterloading unit design and application 4−54724
^{60}Co point source, first scatter absorbed dose calc. and comparison with Clarkson method 4−50898
^{60}Co tangential chest wall therapy, skin dose obs. 4−50853
^{129}Cs, further comments 4−46483
^{125}I ingestion risk classification and thyroid burden obs. 4−54696
LiF thermoluminescence dosimeters, estimation of γ-ray exposure in mixed n-γ fields 4−46840
LiF thermoluminescence plaques, use without furnace annealing 4−46497
Pu contaminated wound, assessment and management 4−62333
^{239}Pu metabolism in rats of various ages 4−83348
^{90}Sr-^{90}Y fused clay particle inhalation, dose patterns in Beagle thorax 4−83349
U miners, bioassay system utilising meas. of ^{210}Pb in whiskers 4−62336
^{169}Yb-DTPA cisternography, radiation absorbed dose of brain 4−80744

double refraction *see birefringence*
double refraction, electric *see electro-optical effects*
double refraction, magnetic *see magneto-optical effects*
double resonance, electron nuclear *see ENDOR*
doublet antennas *see dipole antennas*
DPPH, diphenylpicrylhydrazyl *see organic compounds*
drawability *see ductility*
drawing (mechanical) *see forming processes*
drives
  see also clutches; electric drives; propulsion
  instrumentation object positioning by microshift magnetostrictive drive 4−46557
  pneumatic control system, oil mist lubrication, transport behaviour *(German)* 4−44688
  rotating electrode system, 600 to 11000 r.p.m., mech. and elec. design *(German)* 4−46744
drop model (nuclear) *see nuclear liquid drop model*
droplets *see drops*
drops
  accretion on ice, electrification 4−70716
  acetone drops, evaporation into N_2 stream, electric field effects on transfer rates 4−75180
  aerosol formation mechanism, binary homogeneous nucleation 4−53912
  air + water, critical flow slip ratios, holographic technique 4−68852
  atomization of fluid by rot. disc, satellite drop obs. 4−44148
  boundary layer obs., electrification *(German)* 4−80148
  breakage in agitated liquid-liquid dispersions 4−60247
  charged drop in viscous dielectric, EHD oscillations, stability 4−66659
  charged water droplets, collision coeff. and coalescence meas. *(French)* 4−66671
  cloud drop size spectra, differences in condensation growth rate 4−46026
  cloud droplet, condensational growth 4−61785
  cloud droplet collection efficiencies in vertical wind tunnel 4−70728
  cloud droplet collection eqn. for polynomial kernels 4−76695
  cloud droplet growth by condensation and coalescence in strong updraft 4−54238
  clouds, collection kernel eval. for droplet coalescence 4−76696
  clouds, drop freezing processes 4−76706
  coalescence, phase separation, closely packed dispersion bands 4−78689
  coalescence, u.v. induced, photochromic flow visualization 4−44122
  collision with liquid surface, energy transfer and cavity formation 4−52508
  conducting drop of emulsion between electrodes, transmission factor *(Russian)* 4−75179
  conducting liquids, dispersion and charges in dielec. medium during recharging on electrodes 4−45846
  dielectric drop in electrolyte, vel. in crossed electric and mag. fields *(Russian)* 4−44129
  disperse one-component system, charact. function modification 4−62766
  electroconvection of electroconductive drop in elec. field of dielec. liq. *(Russian)* 4−63948
  electrohydrodynamic capillary source of ions and charged droplets 4−55023
  electrostatic dispersion of drops in liquids 4−59328
  emulsion, evaporation in still air 4−53916
  emulsion droplets, disruption, effect of turbulence depression by polymers 4−52500
  evaporation in turbulent air stream in kinetic conditions *(Russian)* 4−56447
  evaporation of saline droplets, theory of real soln., concept of activity 4−72564
  evaporation rate, interfacial conditions, integral eqns. 4−64650
  extinction of spherical diffusion flames, Spalding's theory 4−76577
  fibrous bed, liq.-Liq. dispersion, coalescence of drops 4−60249
  forming drops, heat transfer 4−52507
  glycerine drops in castor oil, circulation patterns, optical records 4−56459
  growing drop visualisation, material element position determ. 4−59018
  growth, and condensation nuclei size, in supersaturated vapour 4−44659
  heat and mass transfer, criterion eqns. 4−56442
  n-hexane, evaporating drops at hot wall, saturated heat transfer 4−69564
  hypersonic shock layer, droplet dynamics 4−48351
  liquid, elongation when migrating through solids 4−78939
  liquid, production at tip of jets, associated electrification investig., appl. to water 4−78694
  liquid drop motion in supersonic shock layer around wedge shaped body 4−66654
  liquid drops in high temp. medium, radiative heat transfer in evaporation 4−69606
  liquid drops in hot gas stream, spray drying, mathematical model 4−48354
  liquid jet drop formation, one-dimensional analysis 4−81926
  liquid sheet disintegration in hot atmosphere 4−56444
  liquid-liquid dispersion, drop size measurement 4−51240
  mass transfer enhancement due to circulation in growing drops 4−56441
  MHD droplet, nonconducting, effect of current on vel. field and dissolution rate in liq. *(Russian)* 4−81962
  multicomponent droplet, evap. model 4−48744
  nucleation theory, Fisher's droplet model and microscopic surface tension 4−82264
  organic condensed vapour, contaminant in water 4−45844
  pendent liquid drop, stability, axial symmetry, variational calculus 4−44126
  n-pentane, evaporating drops at hot wall, saturated heat transfer 4−69564
  production of droplets from solutions by ultrasonic irradiation 4−42923
  rain, charge and size at ground level 4−61796
drops continued
  rain, collision efficiency with micron size particles 4−61781
  rain, effect on sea wave attenuation 4−64841
  rain, meas. of charge and size by disdrometer 4−61929
  rain, removal of $(NH_4)_2SO_4$-graphite air pollution 4−61780
  raindrop interactions and rainfall rates in clouds 4−80352
  raindrop size distrib., estimation using multiple wavelength radar systems 4−54337
  raindrop spectra, intercept of exponential distrib. jumps 4−76698
  sessile, profiles rel. to Searle's eqn. for drop heights 4−67958
  spherical, motion in viscous liq. flow 4−44128
  spray in recirculating air flow, droplet size distribution and trajectories 4−60256
  spread of fluid drops over horizontal plane, theory 4−66596
  stationary motion of fluid particles *(German)* 4−52501
  steam, condensing, high speed flow, nonequilib. expsn. 4−69605
  supercooled water, collision efficiency with ice plates 4−60251
  surface dilatational viscosity meas. 4−69604
  turbulent jet, diffusion of heavy particles 4−48375
  two-phase flow, interaction between drops in liquid 4−48359
  two-phase stream, initial film separation vel. determ. by drop indication method 4−42971
  water, atmospheric, terminal velocity calc. 4−61795
  water, atmospheric small particle motion 4−70699
  water, cloud composition, backscattered polarisation technique 4−65000
  water, heating and vaporisation on monochromatic beam irrad. *(Russian)* 4−63619
  water, irrad. by series of optical radiation pulses, explosion *(Russian)* 4−75181
  water, laser induced explosion mechanism *(Russian)* 4−59444
  water, supercooled, optimal freezing size in atmosphere 4−54200
  water droplet aerosol, above micron range, production and characteristics 4−61928
  water droplet production apparatus for the educational laboratory 4−62387
  H_2O vapour diffusion coeff. in drop growth eqn. 4−70724
  H_2SO_4-H_2O vapour, hydrate formation, free energy surfaces 4−76622
  NaCl, aq. soln., electrification at heated metal 4−44985

drying
  batch drying, mathematical models 4−48207
  diffusion theory, moisture distrib. and drying rate, expt. 4−81840
  dispersed solids, equil. humidity at various temps. 4−45848
  film drying process dielectric materials in s.h.f. field *(Russian)* 4−65865
  green sheet fabrication for multilayer ceramic products, ultrafast-drying binder system 4−45734
  mass conduction of material with cyclic temp. variation 4−77568
  spray drying, mathematical model 4−48354
  spray drying apparatus with heat supply from walls, evap. zone boundary temps. and dimens. determ. 4−43952
  temperature calculation of material drying in fluidized bed under oscillatory conditions *(Russian)* 4−63615

dual resonance model *see duality and dual models*

duality (mathematics)
  algebraic structure of observables and generators in classical and quantum mechanics 4−59027
  coupled pairs of dual integral eqns. with trigonometric kernels, soln. by reduction to single Wiener Hopf eqn. 4−43021
  dual integral eqns. involving H-functions, soln. by Mellin transforms 4−65626
  dual integral equations of two variables, formal soln. 4−43010
  functors between categories of Banach and Waelbroeck spaces *(German)* 4−77339
  rosette spaces, topological dual structures, appl. to quantum theory 4−77333

duality and dual models
  see also Veneziano model
  4-point models fixed angle behaviour, absolutely convergent series of beta functions 4−69174
  absorption model, total cross sections, linearly rising in ln s, diffractive component 4−74703
  absorptive, for π^0 and η photoproduction 4−47503
  absorptive geometrical models, combination of Lee-Veneziano model of pomeron and geometrical multiparticle prod. 4−71708
  absorptive model, for πN backward scattering, N and Δ exchange amplitudes 4−55674
  algebraic duality and Adler's principle 4−71718
  analytic continuation of dual amplitudes with Mandelstam analyticity, pole structure 4−51723
  Bloom Gilman hypothesis in the test of asymptotically free field theories 4−51679
  Bloom-Gilman hypothesis relating asymptotically free field theories to nucleon form factor behaviour 4−51680
  chiral symmetry and the dual resonance model, investigation of soft meson zeros 4−59586
  complex energy plane, asymptotic crossing-even pion-nucleon forward scattering 4−81432
  Compton scattering, gauge invariance in dual models, fermion and boson cases 4−59549
  current-hadron scattering and scaling in a dual relativistic quark model 4−69170
  deep inelastic processes, duality 4−47525
  dual meson and fermion model, single loop calculations, Green's function methods 4−55636
  dual parton model, for repulsive core of nuclear forces 4−77965
  dual peripheral model, Serpukhov energies, s-channel Regge residue behaviour 4−71710
  dual pion model, e.m. interactions, supergauge algebra and photon gauge substitution 4−55642
  dual pion model, zero intercept, nine dimensions 4−71714
  dual quark model consistent with Bethe-Salpeter equations, SU(6) symmetry 4−66052
  dual quark prison, in strong coupling limit of gauge field theories 4−55631
  dual relativistic parastring models, quantum theory 4−74640
  dual resonance exclusive kernel for hadronic correlations 4−71711

duality and dual models continued

- dual resonance model, predicting suppressions in resonance couplings 4−62987
- dual resonance model derivation of statistical bootstrap 4−66061
- dual resonance model with spin, applic. to $\pi^+p\rightarrow\omega\Delta^{++}$, $\pi^-p\rightarrow\omega n$, $\pi^-p\rightarrow\rho^0 n$, $\pi^-p\rightarrow B^-p$ 4−59638
- dual strings in Amati Testa quark imprisonment scheme 4−62972
- dual theories with satellites, conformal algebraic explanation for failure 4−71716
- dual valence plus sea model, rel. to quark-parton model relations in deep inelastic lepton-nucleon scattering 4−47487
- dual vertex, connection between photon constituent and Neumann function forms 4−71707
- dual-resonance amplitudes, calc. of low-energy partial-wave parameters 4−71712
- dual-two-pomeron graph, asymptotic behaviour in missing mass resonance region 4−59588
- exchange degeneracy in $K^+\Lambda$ or Σ^0 photoproduction 4−74605
- factorization of dual loop amplitudes, unitary planar corrections to leading trajectory 4−55640
- factorization of dual loop amplitudes by functional methods 4−55639
- fermion meson dual model, pomeron singularities 4−55637
- finite-width resonances in dual models, $\pi^+\pi^-$ scatt. example *(Russian)* 4−69175
- food and agricultural product colorimetry, dualistic conceptual model 4−54924
- hadron string breaking in parton model 4−66055
- inclusive dual resonance model with physical trajectories 4−62988
- inclusive reactions, dual Regge theory using optical model 4−59662
- interacting string theory and dual resonance model, open and closed strings 4−43420
- Lee dual model, as interpretation of two-component Chew-Pignotti model for one-particle inclusive distribs. 4−55643
- M-hadron models in gauge Lagrangian theory, construction of dual counterparts 4−47543
- massless relativisitc string, methods for association of rest mass 4−47541
- massless relativistic string, longitudinal modes 4−65967
- meson-baryon scatt. minimal Regge model with duality SU(3) and phase-modified absorptive cuts 4−59626
- multipion amplitude, bootstrap and factorisation properties 4−71715
- Neveu Schwarz dual pion model, supergauge algebra and e.m. interaction 4−66065
- Neveu-Schwarz four particle dual amplitude, spin states in meson and fermion channels 4−81427
- Neveu-Schwarz model, multi-Regge limit 4−69172
- Neveu-Schwarz model, relativistic parton interpretation 4−47547
- non-planar orientable dual-loop amplitude, asymptotic behaviour 4−47539
- nonlinear Regge trajectories, duality constraints on slopes 4−59592
- off-mass-shell amplitudes, properties 4−47540
- physical motivation, review 4−51722
- physical state projection operators, use of light-cone Hamiltonian in construction 4−77867
- planar diagram theory for strong interactions, relation to dual models 4−51719
- planar dual models, Regge intercepts and unitarity 4−55638
- q^2 duality relating massive lepton-pair production in pp collisions to $\rho(\omega)$ inclusive production 4−66064
- Regge-behaved dual amplitude with Mandelstam analyticity, generalization to production processes 4−71706
- Regge-Regge cuts, new selection rules and symmetry relations 4−47553
- relativistic quantum dynamical model of composite particles based on classical string 4−47431
- relativistic string in external scalar field, action principle 4−55635
- relativistic string of dual resonance model, as line of quantised magnetic flux 4−51721
- relativistic strings, determ. of three-reggeon vertex 4−62982
- relativistic strings, dimension-selecting duality principle for electrodynamics and hadrodynamics 4−69171
- resonance, for deep inelastic electroproduction, single hadron inclusive cross section 4−47528
- resonance model, 10-dimensional, functions occurring in dual fermion amplitudes 4−47542
- resonance model, Galilean subdynamics 4−47546
- scaling in inclusive reactions, representation of Harari-Freund conjecture 4−59661
- semi-local duality, determ. of minimal meson spectra *(French)* 4−66062
- spontaneous symmetry breakdown and Regge intercepts 4−62985
- strings, classical direct interstring action 4−69173
- strings, Veneziano and Thirring models review 4−71713
- SU(3) symmetric model for meson-baryon scattering based on crossing invariance 4−62983
- two-component duality, rel. to tensor exchange contribution to $\pi N\rightarrow\pi N$ 4−55684
- u(6,6) dualized quark model, low energy $\pi\pi$ and πN scatt. predictions 4−59575
- unified dual model for interacting open and closed strings 4−71709
- Virasoro algebra and the enveloping algebra of E(2) *(Russian)* 4−74208
- Virasoro-Shapiro model, connection with electrodynamics and gravidynamics 4−77866
- Virasoro-Shapiro model, generalised gauge conditions and ghost elimination 4−59584
- virtual Compton scatt. model with Mandelstam analyticity 4−74611
- vortex-line models for dual strings and magnetic monopoles 4−65977
- $\beta\ \omega\pi$ decay and SU(3) breaking, strict duality in meson meson scatt. 4−62989
- $eN\rightarrow$pions in photon fragmentation region, Regge-Mueller description 4−55615
- η-η' mixing angle from duality and quark model 4−62986
- $\nu_{(\nu)}$ inclusive reactions, duality aspects 4−77852
- KN elastic scattering amplitudes, t=0, description based on duality and SU_3 4−55676
- KN interactions in resonance region, duality properties of cross sections, bootstrap implications 4−55673
- K^-p backward elastic scatt., factorizing dual amplitude with Mandelstam analyticity 4−59614
- $K^-p\rightarrow K^0n$, dual absorptive model, phenomenological study 4−47586
- $NN\pi\pi\pi$ system, appl. of four- and five-point dual scatt. amplitudes 4−81428
- $pp\rightarrow\Delta^{++}\Delta^{++}$, 3.6 to 12.0 GeV/c, dual absorptive model calculation 4−66093
- $pp\rightarrow pp$, Pomeron exchange behaviour and ω universality, dual absorptive model 4−43433
- π photoproduction amplitudes, high energy, from fixed-t dispersion relations and duality 4−47507
- πN elastic scattering amplitudes, t=0, description based on duality and SU_3 4−55676
- $\pi N\rightarrow\pi\omega N$, dual resonance model, spin-parity struct. of meson channels, Regge limits and residues 4−59637
- $\pi^-p\rightarrow\pi^-\pi^+n$, dual features of Reggeon particle scatt. ρ and f meson prod. 4−74690
- $\pi\pi$ scatt., dual model, approximately unitarized, peripherality of vector and tensor exchanges from FESR 4−47545
- $\pi\pi$ scattering amplitude, dual structure in terms of finite energy sum rule 4−47578
- $\pi\pi$ scattering amplitudes, dual resonance model ideas supported by behaviour of poles and zeros 4−55670

ductility

- adhesion between various clean surfaces, light loads, influence of ductility 4−70401
- α-brass, tensile ductility at intermediate temp., effect of strain rate *(Japanese)* 4−45628
- α-brass single crystal, tensile ductility at elevated temp., strain rate effects *(Japanese)* 4−45629
- coatings, on heat resistant alloys 4−83006
- damping properties, in plane stressed condition 4−50061
- epoxide resin, low temp. macrodeform. characts. 4−70582
- Hastelloy X, base and weld metals, elevated temp. fracture and fracture surfaces *(Japanese)* 4−70503
- Incoloy 800, irrad. influence on creep/fatigue behaviour at 700°C 4−43678
- metal, ductile fracture strength, Griffith-Irwin-Orowan theory extension 4−50110
- metal, wear sheet formation by delamination, SEM obs. 4−53777
- Nimonic 80A, prestrain, cavitation, creep ductility 4−82933
- polymer, lens formation, uniform impact loading, shape and Poisson's ratio relationship 4−80095
- polymer, mol. mobility and strength relationship at low temp. *(Russian)* 4−53899
- polymer, three-dimens., α, ω-bis(4-methacryloxyethyl-carbamate toluene-2-carbamic acid) esters of oligo (ethylene glycols) *(Russian)* 4−53900
- polysulphone, plane strain fracture 4−67937
- sheet metal formability test with coupon and circular specimens 4−53932
- steel, austenitic Cr-Ni and Cr-Mn, low temp. strength and ductility 4−80030
- steel, austenitic stainless, irrad. influence on creep/fatigue behaviour at 700°C 4−43678
- steel, brittle-ductile transition, temp. depend. of fracture energy and microfractography applic. limits *(Russian)* 4−53715
- steel, cast structural, cold resistance after heat treatment 4−61436
- steel, cold shortness threshold and impact strength *(Russian)* 4−76461
- steel, deep-drawing type, earing 4−82871
- steel, effect of elec. beam remelting and neutron irradiation on high-temp. ductility 4−82938
- steel, failure in impact bending, cooling effect 4−61459
- steel, heat treatment effect on mech. props. 4−82923
- steel, hot rolled rings, toughness and ductility increase 4−80028
- steel, hot workability assessment by hot torsion tests, temp. behaviour influence *(German)* 4−82881
- steel, irreversible temper brittleness 4−45697
- steel, low alloy, thermomechanically tempered martensitic structures and mech. props. *(Japanese)* 4−53750
- steel, low-C, quenched and tempered, hydrostatic press. effect on ductility *(Japanese)* 4−67850
- steel, low-C, with rare earth metal inclusions, cold resist. and ductile-brittle transition temp. 4−82915
- steel, maraging, heat treatment conditions effect on microstruct. and mech. props. 4−80027
- steel, maraging, reverted austenite influence on torsional behaviour 4−80004
- steel, medium-C, torsional prestrain effect on tensile and low-cycle fatigue props. 4−57742
- steel, mild, vanadium influence on heat affected zone props. 4−82931
- steel, mild plate, plastic flow at crack apex influence on transition to brittle condition 4−61467
- steel, Ni-Mo type, PM formed, deform. effect on tensile and impact props. 4−67860
- steel, pearlitic 1080, cold worked, deform. struct. and tensile fracture characts. 4−45675
- steel, precip. hardened, doping influence on struct. and plastic props. *(Russian)* 4−45712
- steel, pressure vessel type, damage-function analysis of neutron induced embrittlement 4−45722
- steel, roller type, high-temp. thermomech. treatment 4−61439
- steel, spring wire, ductility drop after low temp. tempering 4−82920
- steel, stainless, ferritic and austenitic, high temp. fast neutron embrittlement 4−43670
- steel, stainless, thin rolled foils, mech. behaviour in tension and fracture characts. 4−49855
- steel, stainless, thin sheet, strain and failure under static and alternating-reversing load 4−67883
- steel, stainless, Type 316, irrad. effect 4−43672
- steel, stainless, Type 316, irrad. effect on microstruct. and creep rupture props. 4−43671
- steel, stainless, Types 316 and 405, irrad., microstruct. effects on swelling and tensile props. 4−43657
- steel, structural, phosphorus effect on mech. props. 4−82926
- steel, tool type, ductility increase on annealing at 630°C 4−76493

ductility continued
steel, TRIP type, transform./strain relationships 4−53662
steel materials produced from alloy powders and metal powder mixtures, struct. and mech. props. 4−80059
Udimet 700, air environment effect on creep and rupture at 1200K 4−82910
Zircaloy cladding from Pickering-type fuel bundles, burst testing 4−43674
Al alloy, precipitation hardened, neutron irrad. damage 4−43661
Al-Mg alloys, extension rate and temp. influence 4−67882
Al-Mg$_2$Si(1.35 at.%) alloy, reversion treatments effect on precip. mechanisms 4−45563
Al-Zn-Mg alloy, precip. hardening high-strength, extended ductility 4−49770
Be-Al(38 wt.%) rate depend. 4−64575
Be-Ni, contact spring materials, ductility reversal during age hardening 4−49768
Co superalloy, directional solidification struct. and mech. characts. 4−61409
Co-Fe-Ni-Al-Ti alloys, annealed, titanium effect on β and β_2 phase props. 4−61441
Cr, deformability, rare earth metal additions effect *(Russian)* 4−53741
Cr, deformed iodised, mech. props. *(Russian)* 4−80016
Cr, recrystallised, rare earth metals effect on struct. and mech. characts. 4−80025
Cr and alloys containing rare earth metals, carbide forming elements influence on mech. props. *(Russian)* 4−80015
Cr-TaB(TaC) dispersion strengthened alloys, comp. and thermomech. condition effects on mech. props. 4−80010
Cu, grain boundary cohesion, effect of dilute additions of Bi 4−49805
Cu, polycryst., tensile ductility at intermediate temp., effect of strain rate *(Japanese)* 4−45628
Cu films, electrolytically deposited, strength, low temp. *(Russian)* 4−67827
Cu single crystal, tensile ductility at elevated temp., strain rate effects *(Japanese)* 4−45629
Cu:B(Sb), loss of ductility, intercryst. fracture, elevated temp. *(Russian)* 4−67825
Cu/W fibre reinforced, diffusion bonded, mech. characts. *(Slovak)* 4−49934
Cu-Ni-Sn alloy, spinodal decomp. and effects 4−64525
Dy, polycryst., mech. props., 78-750K 4−70489
Fe, Armco, cold plastic deform. and subsequent heat treatment effects on mech. props. at −196°C *(Russian)* 4−49762
Fe, cast, total elongation during pearlite⇌austenite transform. *(Japanese)* 4−61429
Fe-Co, brittle to ductile transition, non-stoichiometry and V addition influence *(French)* 4−67801
Fe-Co-V alloys, mag. and mech. props. correl. with microstruct. 4−80014
Fe-Cr-Mo alloys, pitting resistant, development 4−61410
Fe-Cr-Ni alloy, TRIP phenomenon of predeformed austenite *(Japanese)* 4−82888
Fe-Mo(Re) alloys, solid soln. softening and strain-rate sensitivity 4−80006
Fe-Ni-C alloys, influence of martensite formed during deform. on mech. behaviour 4−80005
Fe-Si-Ti alloys, precip. hardened, strength and ductility characts. 4−49802
Mg-Li alloys, heating effect on mech. props. 4−76483
Mo, ductile fracture due to fragmentation of structure *(Russian)* 4−49763
Mo, vacuum-melted, annealing temp. and addition effects on struct. and mech. props. *(Russian)* 4−45709
Mo strip with monocryst. polygonized struct. 4−49836
Mo-C, cast and recrystallised, effect of alloying with Fe, Ca, Ni, Ir, mechanical props. 4−82948
Mo-Re alloys, electron beam melted, rhenium effect on mech. props. 4−45651
Mo-V alloys with microadditions of vandium, recrystallized, physicomech. characts. 4−49829
Mo-Zr (0.2 wt.%) alloy, small boron additions effect on mech. characts. 4−76478
Nb, cold rolled, recovery of mech. props. *(French)* 4−49748
Ni, W reinforced, cylindrical shells, mech. props. 4−67929
Ni-Cr, produced by high rate vapour deposition, struct. and tensile props. 4−76471
Ni-Cr(20 wt.%) single-phase and precip. hardened alloys, high temp. ductility 4−80033
Ni-Fe based glassy alloys, quenching conditions depend. 4−61427
Ta-W-Hf alloy, internally oxidized, struct. and mech. props. 4−45644
α-Ti, alloying effect on plasticity collapse at 500°C *(Russian)* 4−79985
Ti, oxidation effect on mech. props. 4−76485
Ti alloy, β-III, effects of thermal and mechanical processes 4−82901
Ti alloy, ductility correlation with u.s. refls. from geometrical defects 4−50075
β-Ti alloy, ductility increase by thermomech. treatment *(Russian)* 4−53713
Ti alloy VT16, cooling rate effect on phase comp. and mech. props. 4−76479
β-Ti alloys, dispersion hardened, slip mode role in ductility 4−45650
Ti and alloys, effect of oxygen 4−76484
Ti and alloys, effect of oxygen 4−76487
Ti-Al-Fe and Ti-Al-Cr-Fe alloys, heat treatment and mech. props. 4−73331
Ti-Mn-Al alloys with elevated oxygen content, struct. and mech. props. 4−76480
Ti-Mo alloys, hardened by ω-particle precip., microscopic deform. behaviour 4−79977
Ti-Zr-Al alloys with high oxygen content, mech. props. and thermal stability 4−76486
V, yield stress, discontinuous temp. depend. induced by dissolved hydrogen from etching 4−45618
V and V-Cr-Ti alloys, He implantation effects on ductility and void swelling, obs. 4−55941

ductility continued
W alloy, electron beam melted low-alloy, mech. characts. and recrystn. 4−76477
W-C alloys, struct., fracture type and ductile-brittle transition temp. 4−76489
W-heavy metal alloys with Co-Fe-Ni binder, comp. depend. of mech. characts. *(German)* 4−61477
W-Re-Hf-C alloys, comp. effects on mech. props. 4−80003
Zr, polycrysts., hydrostatic press. effect 4−67884
Zr-Cr-Fe alloy, irrad. effects 4−66261
ZrCo and Zr$_{50}$Co$_{50-x}$Ni$_x$, struct. and mech. props. 4−64550
duplicating *see reproduction (copying)*
dusk *see twilight*
dust
see also cosmic dust
air pollution, detrimental effects, behaviour and control *(Norwegian)* 4−58636
atmosphere, light absorption coeff., 0.3-1.1 μm 4−76680
atmospheric small particle motion 4−70699
Chandigarh, India, 1971, November 1, unusually intense duststorm 4−80333
effect on 1.06 μm laser induced breakdown of air 4−69671
gas from oil-burning boiler, analysis using smoke meter *(Japanese)* 4−46956
SEM backscatt. electron imaging for dust characteris. 4−77250
storms over N. Africa, meteorological satellite TV pictures *(Russian)* 4−61940
suspension relaxation time, accel. in shock tube 4−72325
volcanic, layer formation after eruption of Mount Agung *(German)* 4−61804
Y$_2$O$_3$, suspension in air, u.v. induced cond. 4−48180
dust storms *see storms*
dwarf stars
see also giant stars; white dwarfs
A-type dwarfs, photoelec. meas. of Hγ line strengths 4−73690
BD+43°44 AB, flare activity of red dwarf system *(Russian)* 4−68419
cataclysmic variable stars, space density 4−58331
UV Ceti, model of flare star 4−62150
UV Ceti, simultaneous 408 MHz emission and b-colour during large flare 4−62149
BY Dra conis-type, light variations, brightness, colour index, period, photoelec. obs. *(Russian)* 4−73706
BY Draconis, variability nature *(Russian)* 4−71000
F and G type stars, C and Fe abundances 4−76832
Gliese 182, M1e star, detection of Li in spectrum 4−80596
HD 101065 (Przybylski's star), red spectrum and rare earth abundances 4−76843
Hyades cluster, parallaxes and proper motions of faint red dwarfs 4−58308
Hyades dwarf K- and M stars, variability 4−62184
K and early M spectral type, nearby, UBVRI photometry 4−80597
low velocity red dwarfs near North Galactic Pole distances and velocities 4−73703
M-type, spectral types of 426 objects 4−73688
novae, role of gravitational radiation and mass transfer 4−68431
Pleiades dwarf K- and M stars, variability 4−62184
red dwarf density distrib., errors caused by faint companions 4−83213
strong-line k-type dwarfs, absolute spectrophotometric photometry 4−70983
strong-line k-type dwarfs, chemical abundances from model atmosphere analysis 4−70984
white, applications of pulsation theory 4−50614
Fe I line formation in models of solar-type giants and dwarfs 4−46234
dyeing
dyehouse shade sorting applic. of Adams-Nickerson colour difference eqn. 4−54892
fluorescent colours, industrial suitability of spectrofluorophotometers 4−54898
multicomponent fabric dyeing, computer-aided colour matching system 4−54914
dynamic programming
arch-beams in state of plastic collapse, limit analysis 4−77455
capital expenditure planning, sequencing and scheduling problems 4−58124
flow through porous media eqn., numerical soln. *(French)* 4−44151
optimum elastic rotating disc design, applic. 4−59182
dynamic response
fast-reactor core subassemblies 4−74783
linear dynamic system, large step integration 4−51396
rate of change, finite element optimisation procedure 4−59219
stress generation by pulsed relativistic electron beams, meas. 4−50067
dynamic stability *see stability*
dynamic testing
accelerated fatigue testing, determ. of critical stresses and number of cycles *(Russian)* 4−80153
acetal copolymer, uniaxial and rot. bending fatigue tests 4−80158
alloy, directionally solidified eutectic, axial extension during cyclic torsion 4−45594
alloy, fatigue study, cyclic mechanical and thermal stresses 4−67969
anisotropic material, kinetic effects under uniaxial deformation 4−57796
butt joints, cyclic testing device 4−61570
compression testing device for ring specimens 4−61567
corrosion cracking, device for static or pulsating loads 4−67975
corrosion fatigue, low-cycle testing apparatus *(Russian)* 4−53936
crack propagation under variable amplitude loading, Willenborg retardation model 4−50107
creep testing, high temp. vacuum unit 4−61575
cyclic impact testing device for 20-600°C range 4−61565
damping properties, soft ductile and elastic materials 4−50061
elastoplastic strain energy, under pure flexure with rotation 4−50059
electrohydraulic system, dynamic loading characts. 4−76569
fatigue, cyclic loading, rupture energy determ. method 4−64666

dynamic testing continued
fatigue, h.f., temp. stresses 4−53954
fatigue, Manson-Coffin formula extension *(German)* 4−64671
fatigue, push-pull, nonpropagating fatigue crack hypothesis applic. to plate with hole notch 4−50054
fatigue, random, general statistical model 4−50099
fatigue, statistical spread *(German)* 4−67987
fatigue, Turbo-4 vibr. testing machine, device for asymmetric load applic. 4−61566
fatigue, under multiple repeated stress, slip band initiation *(Japanese)* 4−80159
fatigue crack growth, loading variables effect on acoustic emissions 4−70592
fatigue crack growth, stress ratio influence, test procedure 4−57798
fatigue crack growth of surface flaws from holes in thick plates, stress intensity factor 4−50111
fatigue crack propagation model based on inverse hyperbolic tangent function 4−50106
fatigue crack propagation under cyclic loading, elastic-plastic analysis 4−50105
fatigue curve, total, construction 4−50093
fatigue notch factor dependence on plasticity and duration of crack growth 4−45884
fatigue testing, low-cycle beam or plate bending 4−62416
fatigue testing apparatus for thermal cycling under load 4−67989
fatigue testing apparatus for vacuum testing down to 77K 4−61573
fatigue testing machine for combined bending and torsion 4−70591
fine wire, corrosion-fatigue 4−50062
free-body responses determ. from constrained tests 4−47121
hardness, ball penetration into plastic material, inertia forces role *(German)* 4−45872
helical springs, dynamic radial expansion due to longit. impact 4−77389
Hostaphan cylindrical tube, buckling strength prediction from natural frequency 4−57797
impact fatigue testing machine, axial load 4−50053
Instron Model 1122 machine *(German, English)* 4−53950
measuring instrument dynamic parameter determ. by high-speed cine camera 4−77112
mechanical properties, modernised KM50-1 testing machine 4−67973
metal, elastic/plastic $\lambda/2$ oscillator, hysteresis loop 4−53949
metal, fatigue fracture under harmonic and complex loads at low temps., apparatus construction 4−53953
metal, fatigue life under complex cyclic straining into plastic range 4−82883
nonlinear viscoelastic media, stress wave propag., short time relax. functions 4−50088
one-dimensional inelastic behaviour of solids in modulated tension *(French)* 4−61553
plastic, cyclic tests under load, two-component device 4−80164
polyacrylamide solution, steady-state and oscill. flow props. 4−57779
polyethylene oxide solution, steady-state and oscill. flow props. 4−57779
polymer, dynamic modulus determ. by reson. vibr. method, RUIZ-2T instrument 4−53946
polymer, dynamic toughness testing, crack vel. meas. 4−50119
polymer, rigid, acoustocreep and acoustic fatigue, electron-acoustic apparatus 4−53948
polymer, stress relax., sound vibrs. effect, apparatus construct. *(Russian)* 4−50101
polymer monofilament, compressive deformability in radial direction, multiple apparatus 4−53947
polymer shell, thin-walled, fatigue props. and susceptibility to damage 4−50000
polymers, mech. 4−76568
polymers, quarter-wave vibrator a.f. application *(Russian)* 4−50964
rock, jointed, models, fatigue failure characts. 4−68074
rubber, porous, dynamic mech. props., −50 to +50°C 4−50003
steel, carbide morphology role in low-cycle fatigue behaviour 4−70475
steel, cavitation damage tests correl. with residual stress meas. 4−45876
steel, fatigue crack propagation, effects of crack length, stress range and minimum stress 4−53931
steel, fatigue notch factors calc., two-parameter formula *(German)* 4−67964
steel, fatigue strength, ultimate number of stress cycles *(German)* 4−64670
steel, low-C, crack propag. by stress amplitude below fatigue limit 4−70589
steel, low-C, random loading near-term correl. effect on fatigue behaviour 4−67820
steel, maraging, crack growth, cyclic freq. and corrosive environment effects 4−50115
steel, maraging, sustained load subcritical flaw growth characts. 4−50116
steel, medium-C, torsional prestrain effect on tensile and low-cycle fatigue props. 4−57742
steel, mild, impact fatigue testing 4−50053
steel, mild, random lead fatigue damage accumulation, eddy current inspection 4−76571
steel, Ni-Cr-Mo-V type, temp. influence on corrosion fatigue crack propag. 4−76475
steel, rail type, mean stress effects on fatigue crack growth and failure 4−67822
steel, rimming aged, tensile testing at high strain rates 4−45892
steel, rolled anisotropic plates, biaxial low-cycle fatigue 4−50055
steel, rotatory bending fatigue test, circumferential temp. change effect on strain energy change *(Japanese)* 4−80160
steel, stainless, acoustic emission-damping fatigue 4−76567
steel, stainless, kinetic deform. criteria of fatigue fracture, 650°C 4−53952
steel, with protective coating, kinetics of crack development during corrosion-fatigue 4−67970
stress state simulation during plane wave loading using servo-controlled testing machines 4−76558
thermal fatigue tests, strain meas. by photographic method 4−61555

dynamic testing continued
thermoplastics, dynamic fatigue tests eval. method *(German)* 4−50080
triacetate fibre, thermal degradation, multiple extension effect 4−53885
viscoelastic materials, short-cycle bending testing equipment 4−61568
yield point determ. by high-speed tensile tests on pyrotechnical machine *(French)* 4−45888
Al, tensile tests below 1K, load-elongation curves 4−50089
Al alloy 2024-T850, sustained load subcritical flaw growth characts. 4−50116
Al alloy 2024-T851, crack growth, cyclic freq. and corrosive environment effects 4−50115
Al alloy 2219-T87, fracture and cyclic flaw growth, effect of combined modes loading 4−50117
Al alloy 6061-Tb, dynamic yield strength at elevated temps. after pulse heating 4−70590
Al alloy 7050-T73, fatigue crack growth, compressive overload effects 4−50104
Cu, high cycle fatigue crack propag. rates 4−76565
Fe, sheet, temp. and loading rate influence on fracture characts. 4−61457
LiF, dislocation struct. and yield pt. changes during multiple loading 4−48670
plastic, repeated shock bending, hysteresis heating and fatigue life 4−76561
Ti-Al-V alloy, fatigue crack growth, compressive overload effects 4−50104
Ti-Al-V alloys, crack growth, cyclic freq. and corrosive environment effects 4−50115
Ti-Al-V alloys, fracture and cyclic flaw growth, effect of combined modes loading 4−50117
Ti-Al-V alloys, sustained load subcritical flaw growth characts. 4−50116
Zn, tensile tests below 1K, load-elongation curves 4−50089

dynamics
see also ballistics; fluid dynamics; force; friction; haemodynamics; impact; kinematics; resonance; rotating bodies; rotation; vibrating bodies; vibrations
of balloons, tethered multi-stage 4−59081
coupled basic dynamic systems, appl. acoustics of coated panels in fluids 4−80818
education, transfer of learning, conservation laws 4−73941
extended body, general relativity, equations of motion calc. 4−77538
fusion reactor design parameters, temperature coefficients and stabilisation 4−55950
geometrodynamics, Lagrangian approach 4−59258
gyrostat, moment of momentum modulus constancy *(Russian)* 4−47055
gyrostat, precessional motion in central Newtonian field of force *(Russian)* 4−43031
gyrostat motion in Newtonian field of force, linear invariant relations *(Russian)* 4−47060
gyrostat motion in Newtonian field of force, linear invariant relations in eqns. of motion *(Russian)* 4−47061
gyrostat with fixed point, eqns. of motion soln. *(Russian)* 4−47054
Lagrange's equation for rigid body 4−43032
Lagrangians, generalised, integrals of motion from Noether's theorem extension 4−55232
M51, axisymmetric properties of spiral galaxy 4−71041
M51, Hα obs. of kinematics and dynamics of spiral galaxy 4−71040
M51, spiral structure of spiral galaxy 4−71042
mechanical cables, simulation approach to dynamic problem 4−68882
motion, algebraic description 4−68592
nonholonomic systems, Poincare-Cetaev variables, eqns. of motion 4−81146
rigid body, bifurcation and stability of steady state movements *(Russian)* 4−74270
rigid body, invariant relations of differential eqn. system *(Russian)* 4−47056
rigid body motion about fixed point, algebraic integrals of Euler-Poisson eqns., Liouville's theorem *(Russian)* 4−43030
rigid body rotation about fixed point, fourth integral of Euler-Poisson eqns. *(Russian)* 4−47059
rigid body with fixed point, eqns. of motion, algebraically invariant relations *(Russian)* 4−47057
rigid body with fixed point, integrability of motion problems, mass distrib. conditions *(Russian)* 4−47062
rigid body with fixed point, linear invariant relation for eqns. of motion *(Russian)* 4−47058
rigid body with liquid filled ellipsoidal cavity, stability of stationary solns. of eqns. of motion *(Russian)* 4−47063
scree slopes, dynamical behaviour 4−80254
shallow shells, stress functions applic. 4−59155
ship stability criteria, theoretical approach 4−81143
stellar, dynamical friction in gravitating systems 4−50656
structures, structural dynamics and materials, conf., Las Vegas, USA (April 1974) 4−49553

dynamometers
see also force measurement
Ayrton-Jones current balance dynamometer modification for standard ampere 4−65343
fast response system, description 4−42713
precision methods, use of mechanical linkages *(French)* 4−50961
two-dimensional force, cutting process of peripheral milling application 4−71158

dynamos *see d.c. generators*

dysprosium
activation of Li$_2$O-SiO$_2$ glass, luminescence of two types of centre, effect of alkali metal oxide content *(Russian)* 4−45347
alkaline earth oxide:Dy^{3+}, e.p.r. 4−57362
atom, laser produced X-ray spectrum 4−72045
critical behaviour of sp. ht. near Neel temp. 4−82565
crystal field parameters determ. from mag. meas. on dilute alloys 4−76053

dysprosium continued
- electrical resistivity meas. for liquid and solid states, room temp. to 1600°C 4−60776
- exchange and one-ion anisotropies calcs. 4−57257
- film, GHz phonon generation through excitation of normal magnetoelastic modes and parametric processes 4−76131
- Hall resistivity, contrib. of side-jump effect 4−64067
- magnetisation at 4.2K and 77K, secondary recrystallised thin sheet Dy 4−79540
- magnetoresistance and field-induced phase transitions in the helical antiferromagnetic state 4−45112
- mechanical properties, 78-750K, polycryst. 4−70489
- u.s. absorption, ferromagnetic-spiral transition 4−53274
- $CaF_2:Dy^{3+}$, e.p.r. meas. of stress-induced g-shifts of Γ_7 levels 4−76156
- $CaF_2:Dy^{3+}$, spin-lattice relax. times, orientational depend. 4−79591
- $CaF_2:Dy^{3+}$, spin-lattice relax., mag. circular dichroism obs. 4−79768
- CdS:Dy, photocond. and charge phototransfer, 297 and 77K *(Russian)* 4−82459
- $Cs_2NaYCl_6:Dy^{3+}$, e.p.r. spectra, g-factors, spin Hamiltonian parameters, dopant sites, 4.2K 4−45174
- Dy I, atomic beam mag. resonance, hyperfine structure, nuclear ground state mag. dipole moments 4−81706
- Dy^{3+}, fluorescence in soln., energy transfer to C-H and C-N solvent mol. bonds 4−52197
- Dy^{3+} ions in soln., nonradiative deactivation, effect of H_2O intramol. vibr. anharmonicity 4−79785
- Li_2O-SiO_2 glasses, Dy^{3+} activated, luminesc. centre types 4−70343
- Y:Dy(Er), h.c.p. single crystals, cryst. field mag. anisotropy 4−57260

dysprosium alloys
- Dy-Gd, hyperfine interactions, ^{161}Dy Mossbauer obs., spin wave and single-ion anisotropy models 4−64316
- $DyFe_{3-x}Ni_x$, Mossbauer spectra, cryst. struct. 4−82641
- Dy_5In_3, cryst. struct. 4−63792
- Dy_5Pd_2, cryst. struct. and lattice const., X-ray obs. 4−75480
- DySb, Mossbauer spectra, DySb, effective field at ^{161}Dy nuclei, anomalous temp. depend. *(Russian)* 4−67501
- $DyZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
- Pd-Dy, dil., low temp. sp.ht. 4−64202
- Pd-Dy, dilute alloys, sp. ht. meas. in temp. range 0.5 to 6K 4−53235

dysprosium compounds
- *see also dysprosium alloys*
- DyAl garnet, mixed phase region, microscope obs. 4−64204
- DyAl garnet, time reversed antiferromag. states, magneto-optical rot., magnetisation depend. 4−64361
- DyB_{12}, mag. suscept. investigation between 100 and 300K 4−45089
- DyF_3, enthalpy and other thermodynamic props., 100-1600°C 4−52905
- DyF_3, impurity-controlled solid-solid transition and melt growth 4−60614
- DyF_3, polymorphism and cryst. struct. 4−48589
- DyFe garnet, far i.r. spectrum, line assignment 4−76248
- $DyFe_{0.998}Fe_{0.002}O_3$, spin reorientation transitions, mag. props. and n.m.r. *(Russian)* 4−70157
- $DyFeO_3$, domain wall movement asymmetry, deformed surface layer 4−64242
- $DyFeO_3$, melt grown crysts., crystn. vel. effect on uniformity 4−61284
- $Dy_5Ge_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases, cryst. struct. 4−63810
- Dy(III) complex with 2-pyridineamidoxime, refl. spectra, nephelauxetic effect 4−72137
- $Dy_xM_{10-2x}Na_x(PO_4)_6F_2$, (M=Ca, Sr, Ba), cryst. struct. obs. 4−72449
- Dy_2O_3, enthalpy and thermal capacity at high temp. 4−69916
- Dy_2O_3, Mossbauer study, relaxation, anisotropy, site depend. 4−70236
- Dy_2O_3, powder, high-field magnetisation meas., 1.45 to 4.2K 4−76123
- Dy_2O_3 film, amorphous, in m.i.m.. struct., s.c.l. cond. 4−53155
- C-Dy_2O_3 film, C-type, electron diffr. patterns, forbidden spots, dynamical theory *(French)* 4−67134
- Dy_2O_3+Li liquid reaction 4−83027
- DyOOH, magnetoelec. new materials 4−82539
- Dy_2O_2S, lattice contrib. to specific heat, 1.4-80K 4−48773
- Dy_2O_2S, mag. struct. determ. by neutron diffraction at 1.5K 4−57294
- Dy_2O_2Se, mag. struct. determ. by neutron diffraction at 1.5K 4−57294
- $DyPO_4$, Ising antiferromagnet, Mossbauer spectra, relax., anisotropy and site depend. 4−70236
- DyS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4−76082
- DyS, mag. and structural transitions 4−64206
- Dy_2S_3, transport props. and mechanism, single crysts. 4−48969
- Dy_3Si_5, mag. meas. in temp. range 6-630K 4−60943
- $Dy_5Si_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases, cryst. struct. 4−63810
- Dy_2SiO_5, Dy_4SiO_8, cryst. flux growth with vapour transported Si 4−73250
- $DyTiNbO_6$, i.r. spectra, 30-1500 cm^{-1}, interpretation *(Russian)* 4−79737
- $DyVO_4$, antiferromag. paramag. phase transition spectroscopic investigation 4−76078
- $DyVO_4$, mag. field depend. of Jahn-Teller transition 4−63882
- $Dy_pY_{1-p}VO_4$, $0 \leqslant p \leqslant 1$, cooperative Jahn-Teller effect 4−79298
- W-Dy_2O_3 pressed cathodes, thermionic electron emission and evaporation rate obs. 4−53568
- $(Y_xGd_yDy_{1-x-y})_3Fe_5O_{12}$, lattice parameter, Curie temp., cluster component method *(Russian)* 4−67364

E-layer *see E-region*

E-region
- *see also sporadic-E layer*
- auroral zone E-region neutral winds during 1972, August 3-9 magnetospheric storm 4−64956
- electron temp. discrepancy between in situ and remote probe meas. 4−64962

E-region continued
- F- and E-region electrical coupling, effect on F-region drifts and winds 4−58101
- IBC class II aurora, ion composition meas. 4−70761
- IBC class II aurora, ion composition model 4−70762
- ion composition and drift obs. in nighttime equatorial regions 4−64957
- LF/MF/HF radiowave propagation, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−70796
- low-latitudes, nighttime, ion layer formation by uniform neutral winds 4−70793
- midlatitude nighttime, geomagnetic disturbance effect on electron density 4−68242
- nighttime midlatitude energetic electrons and ionisation rate, rocket obs. 4−83121
- nighttime radiation fields, Lα and Lβ 4−83120
- plasma heating by intense HF fields 4−58102
- polar E-layer, radio auroral backscatter signals, Doppler shift 4−73565
- radio drift, evidence for focusing model using diffraction methods 4−46075
- relativistic E-layers, instabilities, automation of derivation of dispersion relations 4−63651
- tidal oscill. from 935 MHz incoherent scatter obs. over Saint Santin 4−64958
- vertical electron density profile, middle latitudes, nighttime 4−54275
- wave scattering, incoherent, fine regular struct., random irregularities *(Russian)* 4−80385
- NO^+/O_2^+ diurnal variations 4−54274

ear
- *see also hearing*
- attention sharing between ears 4−62286
- auditory nerve fibre, tails of tuning curves 4−50779
- auditory nervous system, lateral inhibition for monosyllabic vowel speech sounds *(Japanese)* 4−68496
- basilar membrane, pure-tone excitation 4−46381
- basilar membrane tuning curve, guinea pig 4−50775
- cat, basilar membrane of inner ear, acoustic transmission meas. by combined Mossbauer and laser technique *(German)* 4−77259
- chinchilla, combined continuous and impulse noise effects 4−46378
- chinchilla, inner changes due to intense auditory stimulation 4−54653
- cochlea, nonlinear vibration, Mossbauer studies 4−50776
- cochlea, vertebrate, intracellular electric responses to sound 4−50790
- cochlea model, hydromechanical with basilar membrane and tectorial membrane *(German)* 4−65248
- cochlear mechanics, nonlinearities, potentials 4−50777
- cochlear microphonic meas. on cats, loss, recovery processes during intermittent stimulation 4−76956
- cochlear microphonic pot., peripheral auditory function of Ornithorhynchus platypus 4−76955
- cochlear nucleus, coding of sounds 4−50780
- cochlear partition stiffness, composite beam model 4−73897
- cochlear waves, propagation 4−50774
- differential intracochlear electrodes, recording of summating pot. components, stimulus biasing 4−80711
- displacement limit of human middle ear, high h.f. hearing loss implications 4−76957
- impaired hearing, auditory ability and compensation *(Japanese)* 4−68502
- inner, elec. phenomena *(Japanese)* 4−68503
- inner, hydromechanical sectional model for investigating stimulus of sensory cells *(German)* 4−65249
- inner ear, intracellular response to acoustic clicks, alligator lizard 4−50778
- inner ear, sectional model, aperture width and flow *(German)* 4−68495
- middle, hydrodynamic modelling 4−58503
- middle-ear function in guinea pig, Mossbauer technique over broad freq. range 4−76960
- neurotransmitter synthesis, in inner ear and lateral line sense organs 4−50760
- organ of Corti, elec. potential and fluid boundaries 4−46379
- outer, transfer functions, impulse meas. device *(German)* 4−65553
- pressure difference across cochlear partition, soln. of integral eqns., short-wave cochlear model 4−80713
- right ear advantage, sensorimotor dominance in mandibular-auditory tracking 4−80709
- semicircular canal, functional and anatomical correlation of afferent responses 4−73892
- speech perception, complementary effect between amount and rate of formant transition *(Japanese)* 4−68500
- time-intensity trading functions, pure tones, high freq. a.m. signal 4−80715
- transform. function of external ear, in response to impulsive stimulation 4−80708
- tympanic membrane vibration, holographic interferometry anal. 4−65554

ear microphones *see microphones*

earphones
- *see also telephone sets*
- loudness discomfort level, effects of calibration methods 4−80807

earth
- *see also earth age; earth composition; earth rotation; earth structure; geochemistry; geodesy; geomagnetic variations; geomagnetism; terrestrial atmosphere; terrestrial electricity; terrestrial heat*
- angular momentum of Earth-Moon system rel. to gravitational constant 4−55340
- e.m. wave reflection, polarisation, gently-sloping rough surfaces *(Russian)* 4−77595
- forces and torques caused by magnetospheric currents 4−46090
- free oscillations using Askania borehole tiltmeter 4−80236
- geocentric rectangular coord. system construction, depend. on polar wandering and rotation vel. vars. *(Russian)* 4−80222
- gravitational differentiation energy density calcs. 4−83046
- gravity fields, filters for upward and downward continuation using linear programming 4−45949

earth continued
latitude var. of Pulkovo and Washington, 170 to 260 mean day period range *(Russian)* 4−80221
latitude variations of Poltava, 1959 to 1966, Zeiss zenith telescope obs. *(Russian)* 4−80220
origin of life rel. to lunar orbital evolution 4−76799
planetological comparison with Venus 4−58260
revolving uniform ellipsoid, Earth, inertial navigation procedure *(Russian)* 4−80389
spherical asymmetry, influence on spheroidal vib. freq. 4−83054
strain, power spectrum from 10^{-8} to 10^{2} Hz 4−45948
tides, geometry and mechanics 4−54105
torsional free oscillation data, asymptotic struct. 4−64803

earth (electric) *see earthing*

earth (soil) *see soil*

earth age
see also radioactive dating
S Africa, 3500 Myr old Mushandike Granite 4−80239
Cenozoic and quaternary lavas of NW Sardinia, K/Ar dating *(French)* 4−54134
diorite, isotopic mineral ages, Eisenkappel intrusion, Austria 4−57942
Drake's passage opening, eocene echinoids populations 4−57929
fission track dating of faults using epidotes 4−50231
N central Gaspe, Canada, geology and age of plutons 4−64755
Glen Cannel granophyre, Rb-Sr and K-Ar ages and ^{18}O data 4−57911
gneisses in S.W. Greenland, origin rel. to isotope abundances 4−50240
granitic rock, geochem., Halifax County, Nova Scotia 4−64761
Gulf of Genoa, evolution of continental margins, tectonic features 4−61704
Hudsonian orogeny, Rb-Sr age of late-kinematic phase 4−68057
lead isotope evolution, bidirectional mixing model 4−45970
Long Range dikes, Newfoundland, ^{40}Ar/^{39}Ar dating 4−57910
Massif Central, Eocene volcanic activity, geochronology, petrology, Alpine tectonics 4−73467
meteorites, determ. from thermoluminesc. 4−65127
mineral fission track age corrections rel. to annealing studies of radiation damage 4−80250
mineral fission track dating, weathering effects 4−50232
Nellore mica belt, India, fission track ages 4−80251
Oklo natural fossil reactor, U mineralization age from Rb and Sr isotopic anal. *(French)* 4−80227
plutons near Prince Rupert, B.C., age and tectonics from palaeomagnetic results 4−70639
Precambrian II sediments of Morocco, Rb-Sr dating *(French)* 4−64776
Protocadic Ocean closing, intraplate basin positions 4−57930
Rajasthan pegmatites, India, thermal history from fission track studies 4−64752
sediments of central Pacific, extension of magnetic time scale 4−64817
Shawinigan area, Quebec, temporal relationships of rock units 4−64763
stromatolite microstructure, implications for Precambrian time stratigraphy 4−64738
stromatolites, Riphean and Recent, review 4−64737
Worcester Mountains, Vermont, Ordovician and Devonian metamorphic events 4−61654
K-Ar basalt ages, Macquarie Valley, New South Wales 4−50237
K-Ar dating limitations, meas. of atm. Ar adsorption for rock samples crushed in air 4−80234

earth atmosphere *see terrestrial atmosphere*

earth composition
see also earth structure
basaltic system, phase relations between greenschist and amphibolite 4−64739
carbonatites, Pb-U-Th concentrations and Pb isotopic composition 4−57908
chemically layered mantle model, convective stability 4−54107
core, lower mantle, Fe$_2$S eutectic composition rel. to thermal regime 4−68091
deep-sea chert, formation, associated clays 4−57932
density variation, possible determ. using passage of neutrinos from meson decay *(Russian)* 4−64730
fold interference structure, Northern Saskatchewan 4−64759
formation model with accretion onto metal rich core 4−70643
Hunting Formation stratigraphy, Somerset Island, Northwest Territories 4−64760
magmas containing meteoric water 4−80256
minerals, Great Bear Lake, Northest Territories, stable isotope geochem. 4−64764
Russian plate, boundary velocities rel. to formation, gravity anomalies and composition *(Russian)* 4−57945
stromatolite microstructure, implications for Precambrian time stratigraphy 4−64738
stromatolites, Riphean and Recent, review 4−64737
^{206}Pb/^{204}Pb and crustal evolution of Slave Craton at Ghost Lake, N.W.T. 4−80224

earth core
Allende carbonaceous chondrite meteorite, melting relations, comp. comparison with Earth material 4−68398
geomagnetic anomalous field, statistical distribution on surface and in core and upper mantle 4−68112
geomagnetic spatial power spectrum, extrapolation to core 4−54153
inner core average vel. from phase PKIIKP detect. 4−80233
melting curve of close packed structures at h.p., geophys. implications 4−63900
PcP pulses near core boundary, numerical seismograms for wave trapping 4−64757
PKIKP seismic phase, PKP precursor wave trains analysis in 128 to 142° distance range 4−61672
two layer transition zone, seismic array evidence 4−68090
viscosity and damping of Chandler wobble, errors 4−50243
Fe$_2$S eutectic composition rel. to thermal regime 4−68091

earth crust
see also geology
Alaska earthquake 1964, preearthquake displacements 4−73476

earth crust continued
Andes, tectonic segmentation, magmatism and metallogeny 4−70642
Andes, volcano spacing, fractures and lithosphere thickness 4−80226
Arctic resources review *(Norwegian)* 4−57940
Argentinian Andes, Cuyo region, geomorphological phenomena *(Spanish)* 4−83072
Bakinsk archipelago petrology of tertiary deposits *(Russian)* 4−54148
Basin and Range province, thin layered subcontinental crust 4−76640
Black Sea region, crustal structure from seismic surface wave data 4−70634
Bourgas-Strandja area and adjacent shelf, deep geological structure 4−70627
British Columbia, plate tectonics, volcanism and lithosphere 4−61686
Burtle Beds, Somerset, evidence for estuarine-marine origin 4−73487
Caradocian, volcanicity, Ireland 4−76637
Carpatho-Balkan arcs, plate tectonic evolution hypothesis 4−80229
coastline structure effect on alternating geomagnetic fields 4−57954
continental crustal model and geothermal implications 4−57895
cooling oceanic lithosphere, thermal stresses and transform faults 4−68076
crustal segmentation in lower Palaeozoic rocks 4−76638
developing fracture, slip area form., wave field 4−64787
Dneprovsk-Donets depression, seismological and borehole logging of density props. *(Russian)* 4−54146
Dnieper Donets aulakogen basement, rel. to Ukranian shield *(Russian)* 4−68066
Donets Basin, fractures rel. to mineral localisation *(Russian)* 4−68069
earthquake dilatancy-diffusion model, constraints on dilatant volume strains 4−73471
earthquake fault dislocation, water flow paths 4−73475
earthquake occurrence probability from crustal strain 4−70654
earthquake occurrence probability from Weibull distrib. analysis of crustal strain 4−70655
earthquakes due to crustal loading by reservoir filling, depth resolution 4−68059
Eastern Alps basement, vertical distrib. of heat production 4−50244
e.m. wave propagation, USSR theory and expt. 4−76669
epeiric sea shorelines from lithofacies plots of Devonian-Mississippian-Kaskaskia sequence 4−57904
Gondwanaland breakup evidence in SW Australia from early Cretaceous marine magnetic anomalies 4−73485
Gondwanide, Australia, plate tectonic model extension for orogenesis 4−57928
ground stress determ. in Canada 4−80255
Himalayan foot hills, bi-layered crustal struct. 4−80244
Indian subcontinent, Pn wave vel. variations rel. to continuous Gondwanic continental fragment 4−80245
Ireland, central, sub-Palaeozoic basement 4−70645
isostasy rel. to deep seismic sounding 4−70633
isostatic gravity anomalies in USSR 4−64786
Ivreazone magnetic anomaly, amphibolitic body *(German)* 4−80266
lithofacies and environments of Bed I, aduvai Gorge, Tanzania 4−54132
longitude secular variation rel. to Eurasia and America plate rotation 4−83048
longitudinal wave vel. in rocks, quartzite grain contact effects 4−83056
lower lithosphere, long-range propagation of seismic energy 4−73483
magmas containing meteoric water 4−80256
Massif Central, France seismic anal. *(French)* 4−57893
Mediterranean basin, middle western area, Pn wave study 4−64748
membrane tectonics and East African rift 4−50229
Mid-Atlantic Ridge, surface wave dispersion for Azores region earthquakes *(Spanish)* 4−83061
mid-Atlantic ridge at 37°N, seismic refraction profiles 4−73481
Mid-Atlantic Ridge Rift Valley, first submersible study, FAMOUS programme 4−70644
model, crisis tendencies in deep seismic sounding *(Russian)* 4−68064
multilayer, compound multiply reflected waves in deep seismic sounding *(Russian)* 4−68067
oceanic crustal structure rel. to ophiolite complexes 4−61687
old U deposits, Rabbit Lake, Oklo mine, heavy rare gases rel. to natural spontaneous chain reactions 4−73465
P and S velocity stability from Central California quarry blasts 4−68051
P wave ground motion, topographic effects 4−68054
PKP wave scattering near mantle core boundary 4−68086
PL waves, vel. dispersion curves, Sofia data 4−83055
polar wander separation from continental drift, mathematical method 4−73490
Porcupine Ridge, NE Atlantic, crustal structure from explosion seismology 4−57907
pre-seismic crustal deformation, Japan 4−45969
predrift fit for Greenland and western Europe 4−73486
Pripyatsk depression deep structure, transformation of gravitational field *(Russian)* 4−54145
propagating faults, near field motions from kinematic models 4−68050
Proterozoic crustal distrib. mobile belts and apparent polar movements 4−76635
quartz geobarometry, potential method using trapped H$_2$O released on heating 4−64804
Rayleigh wave group velocity dispersion in N. Atlantic region 4−68060
rock density changes in tectonic structures and tectonic-magmatic bodies 4−64792
Russian plate, boundary velocities rel. to formation, gravity anomalies and composition *(Russian)* 4−57945
San Francisco Bay mud site, P and S wave velocities 4−64747
sediment cores from central North Pacific, magnetic instability 4−76662

earth crust continued
- seismic Sa phase on shield structure 4—57917
- seismic shakeability and earthquake maps, Carpathian-Balkan region 4—83051
- shelfbreak physiography, Mid-Atlantic states 4—80238
- shortening, shear model 4—64808
- Siluro-Devonian alluvial plains, river structure models rel. to geomorphology 4—57964
- Spanish Pyrenees, lower tertiary stratigraphy, paleogeography and tectonics 4—73488
- strain rel. to temperature variation on its free surface 4—76623
- structure under large aperture seismic array 4—61663
- surface heat flow anomaly assoc. with dike intrusion 4—54115
- Ukraine, deep seismic investigation *(Russian)* 4—68063
- vertical movement, evaluation from scattered geodetic relevellings 4—64976
- vertical oscillating movements of continental crust 4—54113
- viscosity-depth-structure of tectonic units, consequences for converging plates 4—45964
- viscous stresses due to crustal thickness var. 4—83045
- Wasatch front, crustal structure from seismic refraction profile 4—68081
- ^{206}Pb/^{204}Pb and crustal evolution of Slave Craton at Ghost Lake, N.W.T. 4—80224

earth electricity *see terrestrial electricity*

earth heat *see terrestrial heat*

earth interior
- *see also earth core; earth crust; earth mantle; tectonics; volcanology*
- gravitational differentiation energy density calcs. 4—83046
- Love wave leaking mode dispersion curves for one layer crust-mantle model 4—68048
- orogenic stress, 'locking-in' mechanism 4—64740
- seismic shakeability and earthquake maps, Carpathian-Balkan region 4—83051

earth lower mantle *see earth mantle*

earth magnetic field *see geomagnetism*

earth magnetic field variations *see geomagnetic variations*

earth mantle
- alkalic-basaltic lavas, mantle-derived amphiboles from inclusions 4—57922
- Allende carbonaceous chondrite meteorite, melting relations, comp. comparison with Earth material 4—68398
- andesitic magma generation and melting of hydrous upper mantle 4—64769
- anhydrite, deformation by axial compression under mantle conditions *(German)* 4—76647
- Baffin Bay region, earthquake relocation, seismicity 4—61659
- coastline structure effect on alternating geomagnetic fields 4—57954
- convection and plate dynamics from three-layer model 4—45963
- convection mechanism explaining episodicity of magmatism and orogeny 4—80247
- convective stability of chemically layered mantle model 4—54107
- creep strength and low velocity zone specific attenuation factor 4—64732
- diapiric upwelling rel. to kimberlite pipes origin 4—54129
- electrical conductivity depth profiles rel. to olivine at high pressure 4—54117
- electrical conductivity from geomagnetic secular var. data inversion 4—80393
- electrical conductivity structure in S.E. Australian region 4—64823
- French 600 km discontinuity, travel time and amplitude anomalies 4—70646
- geomagnetic anomalous field, statistical distribution on surface and in core and upper mantle 4—68112
- hot spots and trench volcano separations 4—61681
- inhomogeneous upper mantle, derived from peridotite comp. in basanitic lavas 4—83050
- isostatic gravity anomalies in USSR 4—64786
- kaersutite, possible source of alkali olivine basalts 4—61689
- Kverkfjoll hot spot and composition var. of Recent Icelandic tholeiite 4—83059
- marscoite rel. to origin of andesitic lavas 4—54127
- Massif Central, France seismic anal. *(French)* 4—57893
- Mid-Atlantic Ridge, seismic refraction 4—57931
- Mid-Atlantic Ridge, surface wave dispersion for Azores region earthquakes *(Spanish)* 4—83061
- mid-Atlantic ridge at 37°N, seismic refraction profiles 4—73481
- mineral elasticity, crystal structure and phase transitions 4—64772
- P velocity distrib. in cent. and E. USA in 450-800 km depth range 4—57916
- P-wave velocity anisotropy in mantle peridotite from Ivrea zone 4—45959
- PcP pulses near core boundary, numerical seismograms for wave trapping 4—64757
- PKP wave scattering near mantle core boundary 4—68086
- plate movement rel. to rigid lower mantle 4—64800
- Protocadic Ocean closing, intraplate basin positions 4—57930
- Rayleigh wave group velocity dispersion in N. Atlantic region 4—68060
- S wave velocity structure in Japan 4—68052
- Scotland, German seismic obs. of 10 ton explosion, upper mantle structure 4—73484
- seismic velocity anomaly in lower mantle 4—68082
- spessartite-almandine garnet, elastic constants and pressure derivatives 4—68077
- structure, central US, P and S wave spectra 4—45972
- structure under large aperture seismic array 4—61663
- thermal runaways from viscous heating, thermal explosion analogy 4—57925
- titan-phlogopite, refractory phase in upper mantle 4—45955
- transformational superplasticity as deformation mechanism in mantle 4—73470
- USA, upper mantle structure from Rayleigh wave dispersion 4—57913
- velocity-density, polymorphic phase transformations and transition zone 4—80218
- viscosity-depth-structure of tectonic units, consequences for converging plates 4—45964
- viscous pipe flow model of mantle hotspots 4—83060

earth mantle continued
- ^{40}Ar/^{36}Ar ratio increase in upper mantle, petrogenetic implications 4—61685
- Mn_2GeO_4, electrical conductivity jump produced by the α-β-δ transformation 4—68087
- Mn_2SiO_4 (olivine) high-pressure decompositions rel. to mantle transformations 4—68088

earth rotation
- acceleration, ancient astronomical obs. 4—54351
- anomalous polar motion *(Japanese)* 4—54109
- atmospheric gravity waves induced by Earth's diurnal rotation 4—50296
- chandler wobble and core viscosity, errors 4—50243
- Chandlerian wobble excitation *(French)* 4—73458
- ellipsoid parameters, new mean estimates 4—83044
- latitude var. of Pulkovo and Washington, due to free diurnal nutation *(Russian)* 4—80221
- latitude variation based on US Naval Observatory photographic zenith tube obs. 4—73478
- polar motion resonance effects, radio interferometry and laser ranging determ. 4—54122
- polar wandering and tectonic plate breakup 4—68075
- pole of inertia, 100 year motion 4—45976
- regularity of polar motions 4—54131
- rotational equilibrium, Clairaut's theory 4—62038
- secular change, phase lag rel. to westward drift of geomag. field 4—64814
- solar wind torque on magnetosphere 4—50363
- Tokyo Astronomical Obs., Time and Latitude Bulletins (December 1973) 4—80260
- velocity vars. and polar wandering effects on geocentric rectangular coord. system construction *(Russian)* 4—80222

earth satellites *see artificial satellites; Moon*

earth structure
- *see also earth composition; earth interior*
- S Andean Cordillera rel. to fossil marginal basin 4—64799
- Andes, tectonic segmentation, magmatism and metallogeny 4—70642
- Argentinian Andes, Cuyo region, geomorphological phenomena *(Spanish)* 4—83072
- Australian-Antartic discordance, new geophysical data 4—68044
- Banke ring complex, Nigeria, gravity profile 4—64729
- Bourgas-Strandja area and adjacent shelf, deep geological structure 4—70627
- craters, multivariate classification and mode of origin 4—57909
- crust and upper mantle structure under large aperture seismic array 4—61663
- density variation, possible determ. using passage of neutrinos from meson decay *(Russian)* 4—64730
- dislocation source, P, S and surface reflections 4—45968
- Dneprovsk-Donets depression, seismological and borehole logging of density props. *(Russian)* 4—54146
- Drake's passage opening, eocene echinoids populations 4—57929
- epeiric sea shorelines from lithofacies plots of Devonian-Mississippian-Kaskaskia sequence 4—57904
- fold interference structure, Northern Saskatchewan 4—64759
- formation model with accretion onto metal rich core 4—70643
- geomorphic-geologic mapping, remote sensing, review 4—50386
- Gondwanide, Australia, plate tectonic model extension for orogenesis 4—57928
- Himalayan foot hills, bi-layered crustal struct. 4—80244
- Hudsonian orogeny, Rb-Sr age of late-kinematic phase 4—68057
- Hunting Formation stratigraphy, Somerset Island, Northwest Territories 4—64760
- mantle velocity-density, polymorphic phase transformations and transition zone 4—80218
- Mid-Atlantic Ridge, seismic refraction 4—57931
- natural formations, spectrophotometry from Soyuz-9 spacecraft 4—68094
- omission of layers, registration of first arrivals *(Russian)* 4—68065
- Philippines (1907-67), seismicity rel. to archipelago structure *(German)* 4—64782
- post accretion evolutionary processes, comparison with Mars 4—73468
- pre-seismic crustal deformation, Japan 4—45969
- Protocadic Ocean closing, intraplate basin positions 4—57930
- Rayleigh wave group velocity dispersion in N. Atlantic region 4—68060
- rotational equilibrium, Clairaut's theory 4—62038
- Russian plate, boundary velocities rel. to formation, gravity anomalies and composition *(Russian)* 4—57945
- San Fernando earthquake, bedrock intensity attenuation, site factors 4—64744
- San Fernando earthquake, California, three-dimensional dislocation model 4—64743
- shear dislocation, generalised ray theory 4—61658
- Siluro-Devonian alluvial plains, river structure models rel. to geomorphology 4—57964
- Speke Gulf, Tanzania, structure rel. to East African Rift System 4—76651
- spherical asymmetry, influence on spheroidal vib. freq. 4—83054
- stress-induced diffusion during folding 4—61701
- stromatolite microstructure, implications for Precambrian time stratigraphy 4—64738
- upper mantle, central US, P and S wave spectra 4—45972
- upper mantle, USA structure from Rayleigh wave dispersion 4—57913
- Wasatch front, crustal structure from seismic refraction profile 4—68081

earth third layer *see earth mantle*

earth upper layer *see earth mantle*

earthing
- power transmission line, earth resistance measurement of steel structure *(Korean)* 4—46740

earthquake recorders *see seismometers*

earthquakes
- *see also seismology*
- Alaska 1964, preearthquake displacements 4—73476

earthquakes continued
central Aleutian Islands, Semyenov earthquake prediction test 4-70648
amplitude curves, divergent character for different magnitude levels 4-80243
Austria 1905-1973, macroseismic estimations of focal depths *(German)* 4-73482
b values, sequences, southeastern United States 4-64745
Baffin Bay region, seismicity 4-61659
Bear Valley, effect on geodimeter line lengths in California network 4-61644
Bengough, Saskatchewan, 26 July 1972, information from recorded data 4-45982
Borrego Mountain, 1968, generalised ray theory for shear dislocations 4-61658
central California, large earthquakes, probability from P-residuals 4-76631
Caracas, 1967, July 29, local b-values rel. to seismicity 4-70652
Carpathian-Balkan region, seismic shakeability and earthquake maps 4-83051
Central American volcanoes, microearthquake monitoring 4-61664
central United States, felt area rel. to magnitude 4-64741
control by fluid injection into rocks 4-50373
crustal loading by reservoir filling, depth resolution 4-68059
deep-focus, diffraction from PKP caustic B 4-61657
deep-focus, in S. America, empirical models for anomalous h.f. arrivals 4-64781
deep-focus South American, travel times and velocity anomaly in lower mantle 4-68082
developing fracture, slip area form., wave field 4-64787
dilatancy recovery of Westerly granite and earthquake prediction 4-61677
dilatancy-diffusion model, constraints on dilatant volume strains 4-73471
elastic displacements due to propagating crack, exact soln. 4-48687
elastic pre-straining prior to earthquakes rel. to subsequent seismic radiation 4-57915
elastic-plastic model, stress/strain state at notch head during antiplanar deform. *(Russian)* 4-61705
Elsinore fault zone, southern California, recording of micro earthquakes 4-61661
fault plane solution, Fisher statistics 4-61665
faulting mechanisms for two oceanic earthquake swarms 4-68079
faulting of porous medium, time dependent strain 4-57919
forecasts on basis of complex geophysical features 4-70649
forerunners, dependence of arrival time on earthquake energy 4-64788
generation by diffusionless phase transform. 4-68084
gravitational wave radiation, effect on satellite trajectories *(Russian)* 4-68043
intense earthquake occurrence and apparent resistivity of local rocks 4-83064
Japanese national program for earthquake prediction 4-68099
Jupiter effect and earthquake prediction, book 4-80259
Macquarie Loop, body-wave magnitude 4-45971
magnetic field effect, Biot-Savart calc. *(Russian)* 4-59329
mechanics, Central United States, fault type and orientation 4-68046
micromorphic continuum, point source model 4-64734
microseisms, long period in 10-150 sec range 4-64791
Mid-Atlantic Ridge, surface wave dispersion for Azores region earthquakes *(Spanish)* 4-83061
mIkawa 1945, fault parameters 4-54138
model for seismic disturbances rel. to rock shear over 100 kbar 4-45960
New Zealand, body-wave magnitude 4-45971
North Island, New Zealand, frequency-magnitude, depth and times of earthquakes 4-70653
occurrence probability from crustal strain 4-70654
occurrence probability from rock fracture experiments 4-76646
occurrence probability from Weibull distrib. analysis of crustal strain 4-70655
P-wave seismogram complexity from simple earthquake sources 4-61671
P-wave velocity variation, Bear Valley, California, 24 February 1972 4-68096
passive earth pressure coefficient during earthquake calc. 4-68083
PKP precursor wave trains analysis in 128 to 142° distance range 4-61672
PL waves, vel. dispersion curves, Sofia data 4-83055
precursor detection by pipeline current and strain telemetry to satellites 4-70824
prediction, rel. to developments in seismic wave propagation theory, review *(French)* 4-45975
predictions, deterministic, survey *(German)* 4-64813
propagating faults, near field motions from kinematic models 4-68050
Pt. Mugu, 1973 February 21, aftershock hypocentre determ., use of sonobuoys 4-61883
response spectra, characterisation through statistics of oscillator response 4-61662
San Fernando, 1971 February 9, faulting mechanism 4-45962
San Fernando, bedrock intensity attenuation, site factors 4-64744
San Fernando, California, three-dimensional dislocation model 4-64743
San Francisco, strain release mechanism 1906 4-68097
San Juan Bautista, effect on geodimeter line lengths in California network 4-61644
scale effects in Earth tides, appl. to mechanical behaviour of materials, earthquakes, volcanoes 4-68047
seismic waves generated by Nevada Test Site events at low magnitudes, discrimination 4-68058
shallow, active periods in world's chief seismic belts 4-64810
shallow, P travel-time model, Canadian Shield 4-64758
Snake River plain, central Idaho, Microearthquake survey 4-64746
source dynamics from farfield amplitude and phase spectra of body waves 4-61669
statistical prediction of max. magnitude earthquakes 4-68053
strong motion accelerograph array, Bear Valley, Calif. 4-68261
studies of Geophysical Institute of Academia Sinica 4-57912

earthquakes continued
surface Rayleigh waves and origin of upper atmosphere sonic wind effect *(Russian)* 4-46052
teleseismic P residual changes before large earthquakes in New Zealand 4-73474
transient response of buried foundation to antiplane shear waves 4-45979
tsunami warning system, ionospheric acoustic wave Doppler technique 4-46135
upper mantle S wave velocity structure in Japan 4-68052
upper mantle structure, central US 4-45972
Zagros in Iran, Main Recent Fault between 33 and 35°N, seismotectonics 4-68085
Zangezur, 1968 July 9, seismogeological conditions 4-64790

EAS *see cosmic ray showers and bursts*

Eberhard effect *see photographic materials*

ebullition *see boiling*

e.c.g. *see electrocardiography*

echelons *see diffraction gratings*

echo
see also anechoic chambers; architectural acoustics; reverberation; sonar
bat, Doppler echolocation system 4-80815
Doppler shift in echoes from fish schools 4-77000
ionospheric echo structure and S/N ratio 4-76745
materials testing by u.s. echo method, errors 4-50094
radar echoes around Nagpur, non-monsoon seasons climatological study 4-80331
spatial density of acoustic point scatterers, equiv. echo counter, integrator 4-80784
u.s. echography, B-type, for two-dimens. detection of material inhomogeneities *(French)* 4-73398

ECL *see current-mode logic*

eclipses
see also solar eclipses
artificial satellite, eclipse calculation from relation between solar position and satellite's orbital plane 4-58204
ECHO 2 satellite, photoelec. photometry in eclipse *(French)* 4-70759
Ganymede by Callisto, Oct. 30th, 1973, S. Africa 4-58256
Jovian satellite mutual eclipses, UBV photoelectric light curves 4-65093
V729 Cygni, O9 + Of eclipsing binary, UBV obs. 4-58309
ZZ Cygni, eclipsing binary, UBV photometry 4-58310

economic and sociological effects
see also personnel
environmental changes, rel. to human activity *(Russian)* 4-57897
environmental quality, remote sensing 4-50389
process plant noise control 4-50923

economics
Arctic resources review *(Norwegian)* 4-57940
engineering-economic aspects of seismic prospecting *(Russian)* 4-58130
fast breeder reactors, use of Th as blanket material 4-81590
fusion reactor energy balance assessment formalism 4-55949
fusion reactors, laser comparison, cost estimation for D-T and D-D fuelled systems 4-51907
gas cooled fast breeder reactors, use of ThO_2 blankets 4-81591
industrial control, laser beam applics., instrums. 4-47398
industrial power demand production use of recording instruments *(German)* 4-62491
laser fusion power plant system analysis 4-69321
laser-fusion power reactors, scientific and economic problems 4-63307
metalliferous potential of United Kingdom 4-61693
nuclear fuel reprocessing *(German)* 4-81615
nuclear power stations, limits of application in utility systems 4-81686
nuclear reactor, gas-cooled fast, using N_2O_4, natural uranium fuelling *(Russian)* 4-43609
nuclear reactors, stockpiling and recycling of plutonium 4-78306
nuclear waste disposal by underground in situ melting 4-81691
plasma confinement project, 2XIIB 4-56532
power supply to radiometric instruments, efficiency increase *(Russian)* 4-46857
power systems optimal operating strategy from input-output model 4-81687
regional medical physics centre, services and economics 4-46444
solar energy, for domestic and industrial usage, prospects 4-58219
solar energy utilisation by phys. methods 4-70899
tidal energy, Severn Estuary 4-57993
welding and cutting, w.r.t. current and voltage ranges *(Dutch)* 4-57753
U enrichment plant, commercial, costs 4-78256
U enrichment provision and economics 4-47802

eddy current losses
Alcomax III, magnetic properties with dynamic excitation, calcs. 4-70179
magnetic structures, finite element analysis 4-47270
metallic structures near current carrying cond. 4-47269

eddy currents
see also induction heating
conductor surface heating by pulsed mag. field, minimization 4-55424
ferromagnetic, Barkhausen jump, mag. field intensity *(Russian)* 4-67392
ferromagnetic material, analytical soln. of nonlinear eddy current losses 4-79542
induction coil, coaxial with arbitrary number of cylindrical conductors, eddy-current heating effects in conductors 4-51501
magnetosonic heating of semi-infinite body and layer, heat source power determ. *(Russian)* 4-53739
NDT, calcs. for various bar cross sections 4-64687
NDT, straight-through eddy-current convertors, hodograph calcs. 4-64688
NDT of nuclear control rods 4-81550
NDT of stainless steel nuclear fuel cladding tubes 4-45890

eddy currents continued
- protective coatings, diffusion aluminide, nondestructive characteriz. methods 4−50072
- rail crack detection, defect dynamic field contributions of magnetisation and eddy currents, expt. 4−47278
- rail crack detection, defect field eddy-current component calc. 4−47277
- rectangular slab of homogeneous linear conducting material, in repetitive-pulsed external mag. field, calc. 4−51505

education
- *see also computer-aided instruction; educational aids; educational courses; teaching; training*
- American and English attitudes to scientific education during 19th century 4−50935
- branched program test construction 4−62392
- broadcasting, continuing role 4−58681
- CAI, audio-visual means, user reaction comparison 4−65326
- CAI, National Development Programme 4−62395
- CAI, personality differences factors 4−65327
- CAI implementation model, graduate level 4−62394
- computer instruction to students, evaluation using record of use 4−58723
- computer programming techniques taught by APL language 4−58724
- conference, London, England (July 1974) 4−58674
- Council for Educational Technology activities 4−65321
- curriculum development, open-ended and structured learning approaches 4−68589
- degree requirements of Worcester Polytechnic Institute Plan 4−58673
- distant study systems, for use in industry 4−58728
- electric field intensity and equipotential line plotting, computer education 4−73960
- engineering, Oxbridge and Keller system comparison 4−62370
- examination device, transistorized *(Latvian)* 4−46541
- future, techniques and role of technology 4−62389
- geological, role of mineral extractive sites 4−61698
- instructions developments, audio/visual materials implementation 4−65320
- interactive computer system, answer analysis and feedback 4−62405
- Keller plan instruction, R&D at Univ. of Texas at Austin 4−62369
- medical, CAI applic. 4−46542
- medical, new approach to CAI 4−46543
- medicine, nuclear, CAI applic. 4−46544
- multidiscipline, role of CAI 4−62393
- Open University, Australian postgraduate, TV and radio broadcasting 4−58675
- Open University, India, proposal 4−58676
- Open University, UK, course evaluation techniques 4−58680
- Open University, UK, educational technology applic. 4−58678
- Open University, UK, home experimental kits 4−58729
- Open University, UK, objective assessment techniques 4−58730
- Open University, UK, student computing service 4−58731
- Open University, UK, technology courses, struct. and design 4−58679
- Open University, UK, use of computers by home based students 4−58732
- part time graduate students, for effective professional manpower 4−65322
- physics in British universities, pedagogic innovations *(German)* 4−46536
- physics teaching, practical training for student-teachers, exptl. method *(Portuguese)* 4−50940
- professional, in-house, cost-effectiveness 4−65323
- programs, new, evaluation 4−54770
- repeat students of laboratory courses given teacher-like roles 4−58671
- self-paced learning, effectiveness evaluation 4−65319
- seminar for undergraduate preparing them for leaving university 4−58699
- Tele-Universite, University of Quebec, analysis for further implementation 4−58677
- TV applic., problems of learning at a distance 4−65328

educational aids
- *see also student laboratory apparatus*
- activities centre at Kansas State 4−54810
- analogue computer generated displays 4−58727
- audio-visual, conference, London, England (July 1974) 4−58674
- audio-visual, programmer 4−42686
- audiovisual teaching, computer preparation of 16 mm films 4−62402
- colour circle based on colour perception with subtractive and additive mixing 4−54807
- colour education for secondary schools and teacher training 4−54808
- computers, use by home based students, Open University 4−58732
- conference telephone set, for distant study system 4−58728
- examination device, transistorized *(Latvian)* 4−46541
- feedback classrooms, design and application 4−62391
- future, techniques and role of technology 4−62389
- laser diffraction photographs, instructions for teachers to produce 4−54812
- mathematical biology, resource letter 4−68599
- minicomputer for medical instruction of radiologic technologists 4−42685
- models for molecules, simple method for locating bond positions 4−58725
- orbital lobe molecular models 4−73964
- physics, library of programs for student use 4−73959
- planetaria projectors, ancillary unit for reproducing Galilean satellite of Jupiter 4−54606
- problem-solving, teaching with sound-on-film 4−58718
- radiography, Denver Collaborative Training Program, physics instructional modules 4−42684
- Raman laser spectrography device, performance *(Spanish)* 4−42799
- remote writing blackboard, for distant study system 4−58728
- student computing service, Open University 4−58731
- television, for physical science demonstrations, acoustics appl. *(Russian)* 4−58719
- TV centre block-diagram *(Russian)* 4−46540
- TV tapes, participatory, group teaching of laboratory skills 4−62390

educational aids continued
- two-way video system, for distant study system 4−58728
- videotapes of instructions for laboratory experiments 4−54809
- written texts, improvement of effectiveness 4−58733

educational courses
- astrology, for students 4−54775
- astronomy, introductory laboratory course, behavioural objectives 4−73962
- astronomy courses for liberal arts college 4−68586
- chemical measurement laboratory course for undergraduates 4−58672
- computers, for educators 4−73942
- degree requirements of Worcester Polytechnic Institute Plan 4−58673
- environmental topics for physics course 4−54771
- evaluation procedures 4−54770
- evaluation techniques at the Open University 4−58680
- geophysics course for physics university students 4−54769
- laboratory, for undergraduates, self paced with laboratory open every afternoon 4−54811
- laboratory, repeating students encouraged to take teacher-like roles 4−58671
- laboratory course in which students determine how the experiment is to be carried out 4−54773
- mathematical sciences, degree courses in Polytechnics and Colleges of Technology 4−58667
- measurement and feedback as single obligatory course for students 4−65324
- physics for educationally disadvantaged students, pre-college 1-year course 4−54768
- physics teachers course, primary and secondary, combined 4−62363
- radiologic technologists' medical instruction by minicomputer 4−42685
- radiological training, physics course 4−50938
- technology, Open University, structure and design 4−58679

e.e.g. *see electroencephalography*

effusion
- EuN, Knudsen effusion mass spectrometry, heat of vaporisation determ. 4−45943
- Y_2O_3, vaporisation, effusion and mass spectra meas. 4−80176

EHD *see electrohydrodynamics*

eigenfunctions *see eigenvalues and eigenfunctions*

eigenvalues and eigenfunctions
- accelerated ladder operator, closed-form expressions of matrix elements and eigenfunctions 4−59235
- analytic properties, Graffi-Grecchi methods, energy-level crossing 4−68920
- angular momentum, boson representation, operators, eigenfunctions and coherent states 4−68923
- anharmonic oscillator, kp^{2m}, eigenvalue evaluation in perturbation theory 4−71367
- annular plate, postbuckling analysis 4−51313
- asymptote, eigenvalue of eqn. associated with Mathieu eqn. *(Russian)* 4−51261
- asymptotic behaviour of eigenfunctions for second-order eqns. with non-negative characteristic form 4−51296
- atomic eigenvector calc. from isotope shifts of normal mode frequency 4−56830
- augmented plane wave method generalization, eigenvalue calcs. 4−44813
- augmented plane wave secular equation, method of solution 4−57019
- bar with random props., impact anal. 4−81163
- 3-body Coulomb system, generalised ang. momentum S states, eigenvalues, eigenfunctions 4−63317
- Boltzmann eqn. eigenvalue anal. using neutron diffusion theory 4−78154
- Callan-Symanzik eigenvalue, deviations from power law, non-negligible mass insertion terms 4−59496
- Case's eigenfunctions, full-range completeness in soln. of Milne neutron transport problem 4−66250
- computer calcs., instructional program 4−68600
- conducting wedge, loaded with radial dielec. slab, E-polarised line source diffraction 4−77601
- confluent hypergeometric equation, series expansion of solns. for ang. momentum quantum numbers 2 and 3 4−71366
- continuum mechanics, design function variations 4−81147
- convolution-type integral equations, eigenvector expansions applic. to numerical deconvolution 4−62666
- coupled systems, one term approximations for lowest eigenvalues 4−71339
- diatomic molecule, vibrational eigenfunctions reduction to canonical functions *(French)* 4−74967
- differential equations, strongly elliptical system, Dirikhle and Neiman problems, eigenvalue distrib. anal. *(Russian)* 4−55209
- discrete eigenvalues for neutron transport in anisotropic scattering media 4−78138
- disordered systems, one-dimensional, localization of eigenstates and transport phenomena 4−53023
- dynamic stabilization, for system where one parameter oscillates sinusoidally with small amplitude 4−82029
- eigenstate expansions in soluble model of identical particle scattering 4−59725
- eigenvalue function in massless QED, approximate calculation 4−69131
- eight-vertex lattice model, soln. without elliptic functions 4−71429
- elastic strip, periodic cracks, complex eigenfunction soln. 4−43076
- e.m. oscillations, boundary and eigenvalue problems *(German)* 4−62782
- e.m. wave difraction 4−62794
- Faddeev equations with repulsive two-body interactions, eigenvalue spectrum 4−59252
- finite groups representation and asymptotic behaviour of symmetric manifold eigenvalues *(Russian)* 4−62662
- flexural vibration of rotationally symmetric bodies, simultaneous iteration method 4−51382
- flow, small disturbances in plane Couette flow, mode-pairing phenomena 4−72333

eigenvalues and eigenfunctions continued
formic acid, ^{13}C kinetic isotope effects, variations in react. co-ordinate eigenvalue 4—53980
Gell-Mann-Low eigenvalue, supergauge invariance in renormalisable field theory model 4—71599
generalised inverse matrix, eigenvalues *(Russian)* 4—74209
half-range orthogonality theorem for thermal neutron scattering 4—81533
Hartree energy of simple metals 4—57020
Heisenberg model classical, with anisotropic interactions, determ. of free energy 4—67329
hydrodynamic stability, rel. distrib. local props., eigenvalue spectrum 4—48187
ideal fluid, stability of plane-parallel flow, non-existence of continuous spectrum *(Russian)* 4—75162
identical particle systems, lower bounds on energy eigenvalues, extension to above ground state levels 4—43170
information content in remote sensing, eigenvalues rel. to error magnification, calcs. 4—47313
inhomogeneous plates, lower bounds of natural frequencies determ. by Weinstein intermediate problem technique 4—43111
intermediate problems for eigenvalues, brief historical review 4—77358
Ising model, three-spin interactions in triangular lattice, eigenvalue equation 4—60930
Ising model, three-spin interactions in triangular lattice, free energy and correl. length 4—60931
isospectral second order differential operators 4—81125
iteration algorithm for solution of inverse eigenvalue problem *(German)* 4—43002
kets not strongly symmetry adapted, in electronic system descriptions 4—59227
Kron's determinant, scanning algorithm 4—55189
Lennard-Jones 12-6 potential, vibr. eigenvalues, approx. formula 4—66529
Lie theory and separation of variables, groups SO(2,1) and SO(3) 4—74203
liquid oscillations in rotationally symmetric fuel tanks, singularity method *(German)* 4—69599
lower bound formulae for eigenvalues 4—47157
lower bounds to eigenvalues by planelike surfaces 4—77368
many electron atom state functions, eigenfunctions of L^2 and S^2 for one open shell config. 4—78322
many electron atoms, J^2,S^2 4—78323
matrix eigensystem routine package EISPACK, in FORTRAN 4—55176
matrix elements, variational calc., extremum principle 4—47167
membrane, rectangular, free vibr., eigenvalue problem, curve veering aberration 4—62701
membrane eigenvalues, lower bounds by anisotropic auxiliary problems 4—68903
minimum modulus in Frechet derivative spectrum of nonlinear operator 4—55174
molecular eigenfunction, perturbation by electric field 4—69443
molecular potential, 1-dimens., accuracy of lower-bound formulae 4—66391
multiple eigenvalues of sound absorbing circular and annular ducts 4—73922
Neumann eigenvalue problem 4—68865
neutron eigenspectra in monoenergetic neutron transport 4—55897
neutron one-velocity transport equation, closure and completeness relations 4—78149
neutron transport, thermal, half-range orthogonality theorem 4—81523
neutron transport equation, velocity dependent case solved by eigenfunction expansion method 4—71973
neutron transport problems, rel. to generalised collision probabilities 4—78143
neutron transport theory using scattering theory methods applied to orthogonal polynomials 4—66247
noncontinuous operator, quasilinear elliptic equations 4—51264
nonlinear quasi-geostrophic equation, solutions on a bounded domain 4—64892
nonlinear system response, analytical procedures for autocorrelation and spectral density function determ. 4—74237
nonoverdamped Lagrangian systems, minimax principles for subset of real eigenvalues 4—59206
nuclear forces, nonperturbative approx. schemes for effective interaction 4—66129
nuclear reactor design, mean value of fund. mode in fixed membrane problem 4—69275
nuclear reactor static power tilts and eigenvalue separation, higher order perturbation theory relationship 4—78210
one dimensional continua, Ritz method, iteration method combination *(German)* 4—81151
Onsager symmetry relations, hydrodynamic propagating modes, maximum number 4—48188
optical images from point like element pupils, eigenfunctions of integral eqn. 4—47321
orientation data, eigenanalysis of principal components 4—70811
parallelopiped, influence of heat source on temperature distribution, second kind boundary conditions 4—68975
perturbation theory, diagram technique for corrections 4—55329
plasma, cylindrical homogeneous, eigenmodes study by finite element method *(German)* 4—82018
plate, rectangular, simply supported, with linearly varying thickness *(Japanese)* 4—59209
plate, rectangular orthotropic parallel edges, natural frequency 4—77484
pole regularised spinor theory with dressed propagator eigenvalue eqns. 4—62897
Potts model, configurational studies 4—65830
pressurised water reactor, appl. of finite elements method to two-dimensional diffusion problems 4—78165
quantum mechanical observables, complete set on two-dimensional sphere 4—55336
Rayleigh's piston, spectral theory for unit mass ratio 4—55391
Rayleigh quotient appl. to eigenvalue problems of pseudo-conservative systems 4—43104

eigenvalues and eigenfunctions continued
Schrodinger eqn. with oscillating potential, wave operators and positive eigenvalues 4—68922
Schrodinger equation, one-dimens., numerical soln. 4—55333
Schrodinger equation, particle in static screened Coulomb potential, variational soln. 4—47166
Schrodinger operation eigenvalues as functions of coupling const. 4—81225
self-adjoint operator, least eigenvalue determ. from continued fraction to Brillouin-Wigner expansion 4—55321
shell model Hamiltonian matrices, distrib. of lowest eigenvalue 4—63084
speckle in coherent light, eigenvalues of first-order probability density functions 4—65886
stability, non-parallel flow 4—81829
stability, Rusanov's third order scheme 4—77360
stability of non-perfect elastic systems, eigenvalue restrictions 4—74285
Sturm-Liouville problem, inverse, iterative soln. 4—47037
Sturm-Liouville problems, upper and lower bounds for zeros of eigenfunctions *(French)* 4—43023
Sturm-Liouville singular problem, eigenvalues determ. 4—77551
term splitting, asymptotic behaviour, complex shape pot. barrier *(Russian)* 4—74945
thin plate, layer potentials, eigenfrequencies 4—47125
two-centre wavefunction problem, Hermitian operators 4—55334
two-point boundary value problems, Jacobian matrix characterized by large positive eigenvalues 4—74220
two-point linear differential eigenvalue problems, iterative soln. 4—55188
vibr. quartz plates, appl. of finite element method 4—80806
vibration of skew membranes, classical perturbation theory 4—80819
wave equation for unit ball in R^n, eigenvalues separation 4—59056
CsCl, surface waves, dynamic surface problem 4—79230
HCl-DCl, mixed crysts., lattice dynamics, absorpt. spectra estimate using negative eigenvalue theorem 4—75601
Li, atom, energy level lower bounds, intermediate hamiltonian method 4—55987
Li isoelectronic series, 1/Z expansion calcs. of $(1s)^2 2s^2S$ and $(1s)^2 2p^2P$ states 4—74860
Na atoms, optical pumping expt. with c.w. dye laser, eigenvalue change obs. 4—74853
XeF_2, binding energy, eigenfunctions, relativistic wave function calcs. 4—72127
$Zn^{32}S(^{34}S)$, atomic eigenvector calcs. from isotope shifts of normal mode frequency 4—56830

eigenvectors *see eigenvalues and eigenfunctions*

eightfold way *see SU_3 theory*

Einstein-de Haas effect
see also gyromagnetic ratio
plasma, mag. induced rot. in theta pinches 4—69623
solid state, especially metals, tunnel photoemission in Richardson background 4—57672

einsteinium
No entries

einsteinium compounds
No entries

elastic constant measurement
acoustic shock pulse appln. 4—50955
composite material, chopped stainless-steel fibre reinforced, effective moduli determ. by u.s. pulse technique 4—45792
composite material plates, viscoelastic consts., u.s. meas. method *(French)* 4—42729
contact method for first type modulus determ. 4—65381
dynamic Young's modulus, cantilever beam method 4—74004
Elastomat II measurement system, applic. to anisotropic mats., texture correction *(German)* 4—73391
fatigue crack length monitoring, liquid environments 4—83002
fibre, strain meas. techniques for modulus determ. 4—76564
glass reinforced plastics, shear moduli determ. using ring specimens 4—50086
holographic and speckle-pattern interferometry, fringe interpret. problem 4—42720
isothermal bulk modulus under hydrostatic pressure for polymethylmethacrylate 4—71157
isotropic materials, u.s. reson. pulse technique for small specimens meas. at high temp. 4—42717
orthotropic plate, by compressive tests on rings *(Japanese)* 4—77031
piezoelectric resonators elastic moduli and internal friction, digital meas. techniques 4—46577
polymer, determ. using flexural waves 4—73997
polymer, dynamic modulus determ. by reson. vibr. method, RUIZ-2T instrument 4—53946
polymer film, dynamic shear modulus determ. in torsion 4—73998
polymer film, elasticity modulus determ. under biaxial tension 4—73999
spring wire and microribbon materials, imperfect elastic elasticity characts. determ. method 4—62414
steel, Poisson ratio, strain variation during yield-point elongation 4—46576
three beam speckle pattern interferometer, elastic const. and strain meas. 4—62415
yield point, using stress waves emission, equipment 4—50082

elastic constants
see also compressibility; stress/strain relations; Young's modulus
alkali halides, Hugoniot curves, Gruneisen parameter, high press., lattice model calc. 4—72545
alkali metal biphthalate crystals, elastic moduli 4—66955
alkali metal halides, melting and elastic shear instability calc. from u.s. data 4—63849
amorphous semiconductor, relaxed continuous random network model 4—60412
anharmonic crystal, temp. depend. of elastic moduli, self-consistent phonon theory 4—56798
anisotropic ring with circumferentially varying modulus, state of stress 4—53842
Borsic reinforced Al, elastic-plastic Poisson's ratio 4—61516
α-brass single crystals, and pressure derivatives, u.s. meas. 4—45621

elastic constants continued
ceramic, fracture mechanics applic. and role of elastic consts. 4−64620
composite, anisotropic, three-dimens. mech. characteris. 4−76534
composite, fibre reinforced, unidirectional, elastic and viscoelastic parameters, Airy method *(French)* 4−45787
composite, grain and fibre reinforced, simulation *(Japanese)* 4−70567
composite, reinforcement curvature effect 4−49943
composite, three phase, continuum model 4−61532
composite, two-phase isotropic, effective moduli 4−61521
composite laminate, graphical determ. of stiffness and strength 4−80080
composites, with chopped-fibre reinforcement, elastic moduli dependence on modulus ratio and fibre length 4−45792
crystal, covariant canonical elastic const. and modulus tensors for all cryst. symmetries 4−75560
crystal structure stability and noncentral forces, depend. of shear elastic consts. 4−56646
cubic crystal, Anderson-Gruneisen parameter, delta, from third order consts. 4−75558
cubic crystals, pressure derivatives of elastic constants 4−44582
N-p cyanobenzilidene-p-n-octyloxyaniline, impurity depend. of crit. exponent of nematic bend elastic constant 4−66822
d-dimensional isotropic model, mech. anomalies and critical behaviour 4−49175
diamond, Brillouin scatt. shift meas. 4−56796
diamond structure materials, Gruneisen constants evaluation from elastic data 4−60581
disclination loops for hexagonal crystal, elastic field calcs. from equivalence rels. 4−44540
electrostatics, Knowles' version of Saint Venants' principle 4−59116
epoxy resin, mica flake filled, filler orientation effect on dynamic mech. props. *(Japanese)* 4−53854
epoxy resin filled with mica flake, dynamic mech. props. 4−49945
epoxy resins, bulk compressibility moduli and Poisson's ratios 4−49982
ferromagnet, long-range dipolar effects, acoustic mode depend. 4−53273
ferrous alloys, strength differential effect, effective modulus interpret. 4−53771
fibre metal composite, sintered, mech. characts. 4−57766
fibre reinforced plastic, unidirectional, viscoelastic behaviour, constitutive eqns. 4−49931
fibreglass-plastics, high-modulus fibre reinforced, mech. props. 4−80084
glass, elastic moduli determ. rel. to adsorpt. of water and organic vapours 4−67103
glass, ion-exchanged, elastic modulus effects localized near surface, acoustic surface wave obs. 4−52978
glass reinforced epoxy resin, deform. characts. 4−49932
glass reinforced epoxy resin, mech. anisotropic optically sensitive, development technology 4−49991
glass reinforced plastic, extremal directions determ. 4−45779
glass reinforced plastics, matrix interaction with short reinforcing fibres 4−49942
graphite, lattice dynamics, analytical two-body potential 4−67007
graphite, pyrolytic, press. and temp. depends. 4−82213
h.c.p. metal, Fuchs model of metallic binding forces 4−78947
p-n-hexyloxybenzilidene p-aminobenzilonitrile, nematic layer, deformation in crossed electric and mag. fields 4−66826
homogeneous deformation method, noncentral interatomic potentials 4−48664
inert gas crystal, high order multipole long range interactions between atoms 4−79110
ionicity correlation, A_nB_{8-n} type crystals 4−75559
kaolinite, elastic moduli determ. rel. to adsorpt. of water and organic vapours 4−67103
liquid crystal, cholesteric polypeptide, twist elastic const. 4−56608
liquid crystal, nematic, bending from birefringence data 4−82685
liquid crystal, nematic to smectic A phase transition, viscosity and Frank elastic constant obs. 4−78897
liquid crystals elastic moduli and flexoelectric coefficients, limitations 4−69843
martensite/austenite interface shear stresses generated by hydrostatic press. 4−61332
MBBA, nematic, from ellipticity of domain walls 4−78901
metal, f.c.c., third order elastic consts., calc. 4−73314
metal, hexagonal, total energy and shear modulus calc., role of three-body interactions 4−48718
metal, static and dynamical problems 4−49771
metallic glasses, mech. characts. 4−76453
microscopic theory of lattice dynamics, appl. 4−60568
minerals, general relationships among sound speeds 4−46101
modulus anomaly with initial susceptibility as response function of statistically pinned elastic line 4−79089
monatomic material, two-body interatomic potentials and elastic consts., relationship 4−44608
nematic layer, deformation in crossed electric and mag. fields 4−66826
noble metal alloys, ternary, electron cell model approach 4−45484
oxide glasses, composition-property relations 4−78930
periodic modulation in crystals with helical spin ordering 4−73008
plastic, glass fibre reinforced, under pulsating tension test and repeated bending test 4−82965
plastics, glass fibre reinforced, under tensile sinusoidal and impact stresses 4−82964
PMMA, isothermal bulk modulus under hydrostatic pressure 4−71157
polydimethyl siloxanes, shear modulus from dynamic shear resist. 4−80094
polyethylene, ultra-oriented, mech. props. rel. to morphology 4−70578
polyformaldehyde fibres, structural changes effect on sorptivity and mech. props. 4−50005
polymer, anisotropic, nonelastic losses consideration in rigidity parameters determ. by u.s. methods 4−80123
polymer, block type, and polyblends, morphology and elastic modulus 4−50013

elastic constants continued
polymer, lens formation, uniform impact loading, shape and Poisson's ratio relationship 4−80095
polymer, linear, fibre-forming type, intermol. interactions correl. with mech. props. 4−45828
polymer, moduli, u.s. monitoring 4−56795
polymer, oriented, small deform. behaviour 4−49998
polymer, partially crystalline, equil. mech. props., math. approoach 4−49987
polymer solution, flexible-chain, viscoelastic props. over wide conc. range 4−45835
polymers grafted on polypropylene, mech.-dynamic props. 4−50009
polystyrene foam, pure tension and compression tests 4−50043
polyurethane foam, with cylindrical cavities, elasticity and strength 4−50044
porcelain, firing temp. effect on elastic and anelastic consts. *(French)* 4−80062
propag. of linearly polarized plane harmonic waves, energy vel. 4−77473
quantum crystal, thermodynamic relation between adiabatic and isothermal elastic consts. derived 4−63850
rare earth monosilicides, B20 struct., sound vel. meas. 4−60534
rubber, porous, dynamic mech. props., −50 to +50°C 4−50003
rubber, styrene-butadiene, crosslinking effect on biaxial relax. using reduced variables 4−53873
rubber band spring constant determ., student experiment 4−54794
rubber elasticity, entanglements rel. to Edward's theory 4−80114
rutile-structure difluorides, press. derivatives calc. from rigid ion model 4−75592
shell of revolution, approx. elasticity soln. 4−43069
spessartite-almandine garnet, elastic constants and pressure derivatives 4−68077
statistical theory of equilibrium elastic and thermal properties of crystal 4−56849
steel, stainless Ci-Ni type, workpiece shape and sampling effect *(German)* 4−49740
styrebe-butadiene-styrene block copolymer, time/temp. superposition, dynamic mech. response 4−64640
superconductor, type II, flux line lattice 4−75998
thiourea, elastic stiffness constants meas. by Brillouin scatt. 4−44585
triglycine selenate crystals, piezoelec. and elastic expts. in region of phase transforms. *(German)* 4−57478
two phase solid, using improved correl. functions 4−76529
ultrasonic measurement apparatus at low temperature 4−68624
univalent halides, phase transitions and elasticity-density relations 4−67034
zincblende structure materials, Gruneisen constants evaluation from elastic data 4−60581
Ag-Cd(Mg)(Zn), Morse potential appl. 4−44617
Ag_3AsS_3, proustite, sound vel. meas. 4−57499
Al, gradient-elastic tensor determ., n.m.r. obs. 4−61047
Al, Gruneisen parameters determ., u.s. attenuation 4−66997
Au, third order consts., calc. by long waves method 4−72516
Au-Ag solid solns., u.s. wedge method, comp. depend. 4−67853
$AuSb_2$, acoustic velocity obs. 4−82353
β-B, rhombohedral, acoustic properties, u.s. absorpt., elastic const. 4−72528
B fibre reinforced plastics, structural characts. 4−45774
B/Al composite, elastic consts. by u.s. vel. meas. 4−61509
B_2O_3-PbO glasses, comp. depend. *(Japanese)* 4−70575
$BaFe_{12}O_{19}$, elastic moduli from 80-303K, composite piezoelectric oscillator meas. 4−82595
$3BaO.5SiO_2$ glass-ceramics, mech. props. w.r.t. microstruct. 4−49894
$BaTiO_3$, cubic phase, lattice dynamic theory, elastic constant C_{12} calc. *(French)* 4−75586
$BaTiO_3$, paraelectric, dynamical determ. of higher order elastic coeffs. *(German)* 4−82667
Be, Fuchs model of metallic binding forces 4−78947
Be_4B, hot pressing and mech. characteriz. 4−45751
Bi-Sn alloys, elastic const. behaviour near solid soln. pt. 4−82226
C, fibre reinforced resins, boundary layer theory, elastic constants 4−74294
C fibre reinforced plastics, structural characts. 4−45774
C fibre reinforced plastics, unidirectional, transverse compressive behaviour 4−53824
$CaMoO_4$, single cryst., optimisation of u.s. vel. data 4−75557
Cd, bonding force calc., lattice symm. and electron distrib. correl. *(Russian)* 4−66850
Cd-Mg alloys, distorted struct. formation 4−64533
CoO, elastic constants, Krishnan-Roy theory 4−56794
Cr-rare earth (0.5-5.0%) alloy, influence of alloying element *(Russian)* 4−80022
CsBr, interionic pots. from cryst. data at different temps. 4−69747
CsCl, interionic pots. from cryst. data at different temps. 4−69747
CsCl(Br, I), localised at impurity ion, anharmonic coupling coeff. 4−63836
CsI, interionic pots. from cryst. data at different temps. 4−69747
Cu, isothermal bulk modulus calc., comparison of anharmonicity theories 4−44639
Cu, low temp. limit of Gruneisen's gamma from elastic constants data 4−44637
Cu, rel. to u.s. attenuation and velocity near open-orbit reson., 4.2K 4−44830
Cu, thermal neutron irrad., effects of self-interstitials and close pairs on elastic consts. 4−79072
Cu, thermal neutron irrad. effects 4−79071
Cu, thermal neutron irradiation, elastic constant changes evidence for split interstitials 4−44569
Cu, third- and fourth-order consts., calc. by method of homogeneous deform. 4−66957
Cu-Al(Zn), Morse potential appl. 4−44617
Cu-Ni solid solns., u.s. wedge method, comp. depend. 4−67853
α-Cu-Zn solid solns., u.s. wedge method, comp. depend. 4−67853
Cu_3Au, shear modulus interaction and flow stress interpret. 4−53770
CuBr, elastic and piezoelectric consts. anal. 4−57479
CuCl, anharmonicity, meas. of elastic, dielec. and piezoelec. constants 4−60532

elastic constants continued
CuCl. elastic and piezoelectric consts. anal. 4−57479
CuI, elastic and piezoelectric consts. anal. 4−57479
CuI, optical lbs. of lattice vibrs., theoretical approach 4−56837
Er, single-cryst., and magnetoelasticity, 4.2-300K 4−45160
Er, u.s. pulse-echo technique meas., 4.2-300K 4−48666
Fe, elastic properties, comprehensive compilation 4−44583
Fe, pure, and alloys and cpds., elastomech. props., isotropy values for polycrysts. *(German)* 4−61403
Fe, shear modulus, effect of neutron irrad. 4−43652
Fe alloys, strength differential effect, effective modulus interpret. 4−67874
Fe and FeS_2, elastomech. props., crystallographic direction, temp. and press. depend. *(German)* 4−67813
Fe-Ni alloys, elastic properties, comprehensive compilation 4−44583
Fe-Ni-C martensite, carbon content depend. 4−45645
Fe_2GeO_4, elastic parameters from u.s. meas. 4−45967
$Fe_{72}Pt_{28}$ disordered, temp. depend. meas. 4−76468
Fe_2SiO_4, elastic parameters from u.s. meas. 4−45967
Fe_2TiO_4, anomalously small elastic const., theory 4−45159
Ga, Cauchy relations, deviations, 293K *(Russian)* 4−66959
GaAs, ultrasonic attenuation and velocity 4−60557
GaSb, optical obs. of lattice vibrs., theoretical approach 4−56837
p-GaSb elastic moduli and deformation potential constants determ. using pulse-pulse technique 4−66958
Gd, u.s. pulse-echo technique meas., 4.2-300K 4−48666
Ge, effective Debye temp. calc. 4−60580
Ge, meas. of acoustic nonlinearities and third order consts. 4−52803
Ge III, bulk modulus calc., pressure effect on structure 4−48668
GeO_2, elastic parameters from u.s. meas. 4−45967
GeO_2-La_2O_3-Ga_2O_3(Ta_2O_5) system glasses, viscosity and elastic props. correl. with phase diagram 4−67897
HIO_2, Brillouin spectra, elastic parameters determ., 20°C *(French)* 4−45280
HfO_2 crystal, Mandel'stam-Brillouin light scattering 4−53394
HgTe, ultrasonic attenuation and velocity 4−60557
Ho, elastic constants and magnetoelasticity obs. from 4.2 to 300K 4−67414
In-Mg alloys, distorted struct. formation 4−64533
In-Tl alloys, elastic behaviour near martensitic transition 4−45703
In-Tl alloys, lattice softening and martensitic transform. 4−79921
InAs, optical obs. of lattice vibrs., theoretical approach 4−56837
In_2Bi, u.s. vel. meas. 4−53759
InP, optical obs. of lattice vibrs., theoretical approach 4−56837
K, eqn. of state, second order elastic consts., temp. and cond. press. depend. 4−63887
KBr, interionic pots. from cryst. data at different temps. 4−69747
KCl, interionic pots. from cryst. data at different temps. 4−69747
KCl, temp. depend. calc., influence of noncentral forces 4−72519
KD_2PO_4, 20-190°C 4−52804
KH_2PO_4, 20-190°C 4−52804
KH_2PO_4 light scatt. study of temp. depend of elastic modulus C_{33} 4−49373
KH_2PO_4-like crystals, spin-phonon model, low freq. response 4−70271
KMF_3, M=Mg, Ni, Co, Zn, Mn, interatomic force constants investigation using elastic constants and lattice parameters 4−60563
$KNbO_3$, orthorhombic phase characterisation 4−70248
Kr, solid, zero sound elastic consts. from phonon dispersion extrapolation 4−44628
Li, single crystal, temperature, pressure variation of elastic constants meas. 4−79090
LiH, press. and temp. derivs. of elastic moduli 4−82214
$LuAsO_4$, Brillouin scatt. meas., and Debye temp. determ. 4−72517
$LuPO_4$, Brillouin scatt. meas., and Debye temp. determ. 4−72517
Mg, Fuchs model of metallic binding forces 4−78947
Mg_2GeO_4, elastic parameters from u.s. meas. 4−45967
MnF_2, lattice dynamical models 4−56831
MnO, elastic constants, Krishnan-Roy theory 4−56794
$MnZnFe_2O_4$, elastic moduli from 80-303K, composite piezoelectric oscillator meas. 4−82595
Na, equations of state, second order elastic constants, temperature and pressure dependence 4−63887
$Na_8(Al_6SiO_{24})(OH_2).nH_2O$, hydrosodalite, cryst., piezoelectric and elastic props. 4−76219
NaCl, interionic pots from cryst. data at different temps. 4−69747
NaCl, rel. to subgrain-size creep 4−44591
NaCl, temp. depend. calc., influence of noncentral forces 4−72519
NaF, temp. depend. calc., influence of noncentral forces 4−72519
NaI single crystals, temp. depend. meas., i.r. dispersion freq. calcs. 4−72518
NaN_3, anomaly in temp. depend., obs. of phase transform 4−56818
$NaNO_2$, in phase transition regions, Brillouin scatt. obs. 4−45288
Nb-Zr (1.4, 3.6 and 6.0 at.%) alloys, 4.2-290K 4−61416
NbC_x, elastic props. in homogeneity region 4−49882
Ni, elastic properties, comprehensive compilation 4−44583
Ni, W reinforced, cylindrical shells, mech. props. 4−67929
$Ni(NO_3)_2.6NH_3$, anomalous temp. depend. 4−44581
NiO, elastic constants, Krishnan-Roy theory 4−56794
$NiZnFe_{12}O_4$, elastic moduli, 80-303K, composite piezoelectric oscillator meas. 4−82595
Pd, lattice and electronic contribs., Gruneisen consts. calc. 4−67877
$RbMF_3$, M=Mg, Ni, Co, Zn, Mn, interatomic force constants investigation using elastic constants and lattice parameters 4−60563
$RbMnF_3$, Born model, calc. using electrostatic and ion ion repulsion 4−48667
Re, u.s. eqn. of state, press. depend. 4−44584
Si, lattice dynamics and dielec. screening, elastic const. calcs. 4−44626
Si III, bulk modulus calc., pressure effect on structure 4−48668
SiC, hot pressed, high-temp. shear modulus 4−49901
Si_3N_4, hot pressed, high-temp. shear modulus 4−49901
SiO_2, elastic parameters from u.s. meas. 4−45967
SnO_2, elastic parameters from u.s. meas. 4−45967
Tb, u.s. pulse-echo technique meas., 4.2-300K 4−48666
$TbAl_2$, ultrasonic measurements 4−49764
Ti alloys, low temp., u.s. vel. meas. 4−64572
TiO_2, rutile, temp. and pressure depend., u.s. obs. 4−48665
VC_x, temp. depend., room temp. to 2200°C 4−61487

elastic constants continued
V_3Si, third and fourth order elastic constants and nonlinear stress/strain reln. 4−49817
W, elastic bulk effect, computer simulation 4−53672
Xe, cryst., zero-sound elastic consts., temp. depend. 4−60533
Xe, solid, isothermal bulk modulus, zero press., 4.2, 65 and 77K 4−69844
Xe, zero sound elastic consts. determ. from force consts., phonon dispersion relns. 4−75595
YIG single crystal resonator, magnetic field effect 4−79564
Zn, bonding force calc., lattice symm. and electron distrib. correl. *(Russian)* 4−66850
Zn-Al-Cu alloy, uniaxially stressed, X-ray elastic consts. *(German)* 4−53779
ZnSe, from velocity of injected GHz sound waves, Brillouin scatt. obs. 4−75578
ZrB_2-ZrO_2-W system cermets, mech. and elastic props. 4−61505
ZrC_x, elastic props. in homogeneity region 4−49882
$ZrSiO_4$, nonmetamict, phase comparison and pulse superposition methods 4−52802
$ZrZn_2$ polycryst., weak itinerant ferromag., elastic moduli, sound velocity meas. 4−82594

elastic deformation
see also bending; elasticity; stress/strain relations; torsion
adhesive lap joint under tension-shear, elastostatic load transfer 4−43047
anisotropic disc, iterative soln. of load-strain problem *(German)* 4−65688
anisotropic material, kinetic effects under uniaxial deformation 4−57796
anisotropic thin rubber tube, exact soln. to finite amplitude oscill. 4−74333
beam, anisotropic, loaded on lateral surfaces and ends, stress functions method *(French)* 4−47073
beam, nonlinear bending as tracking problem *(French)* 4−51315
beam, optimal rectangular section for asymmetric bending *(Russian)* 4−74288
beam in transverse shear, mixed variational principles applic. *(French)* 4−43039
beams, axially constrained, bending on elastic foundation 4−51326
bending of polygonal plates simply supported, integral eqn. soln. 4−74290
bilaterally supported beam, equilibrium state *(German)* 4−65695
body with crack, stress anal. for shear deformation *(Russian)* 4−51332
bridge decks, orthotropic, anal. using macro-discrete field approach 4−51322
building vibrations, finite element modelling techniques 4−59217
butadiene-nitrile copolymer, SKN-40, deform. in various states of stress 4−49992
cantilever beam, equilibrium state *(German)* 4−65695
cantilevered plate, bending under concentrated load, effect of material props. 4−43061
circular cylindrical shell, under circumferentially varying edge loads, approx. stability analysis 4−43072
circular cylindrical shells, thin-walled, Morley-Koiter eqns., eval. procedure, boundary conditions 4−43070
circular cylindrical shells, thin-walled, Morley-Koiter eqns., line loaded case, boundary conditions 4−43071
circular plates on elastic foundations with nonsymmetrical loading *(German)* 4−43053
circular ring, deformations under nonuniform normal press. 4−74308
cold-rolling, numerical anal. of deformed roll shape 4−51323
collisions of elastic bodies, duration and non-Newtonian coeff. of restitution *(Russian)* 4−51312
composite materials, layered, stress and continuity conditions *(Russian)* 4−47093
Cosserat medium, effect of couple-stresses on dynamic stress concentration around elliptical hole 4−55236
crack propagation across interface, associated dynamic stress and displacement field 4−47076
crack propagation with variable velocity *(Russian)* 4−74299
cracks, cut-induced, extension under antiplane loading 4−59125
cylinder, shallow symmetrically loaded *(Russian)* 4−74300
cylinders, transversely isotropic, exponential decay of stresses 4−59118
cylindrical shell, compliance coeffs. conc. force end frame loading 4−55257
cylindrical shell with closure attached by frame loaded by concentrated force system, stress state 4−47099
cylindrical shells, thick, impulsive deform., numerical analysis 4−43075
cylindrical shells loss of stability and strength under internal pressure and axial force *(Russian)* 4−51321
disc layer, translation parallel to contact plane 4−74292
discs, of bilinear elastic material, anal. of stress and deformation states during rotation 4−77415
discs, rotating, quasi-three dimensional elastic stresses 4−77412
discs, rubber, governing eqn. formulation for axisymmetric problems 4−43044
discs of variable profile, stress anal. by dynamic relaxation method 4−77411
edgebeam reinforced annular plate, stability 4−59144
elastic-plastic deformation, exptl. stress analysis *(German)* 4−65697
fibre tensioning, soln. to problem of sliding on cylindrical surfaces *(Russian)* 4−43043
finite element analysis, energy forms 4−59158
finite element functions, discontinuous, local and global smoothing by least squares method 4−62681
finite element generation, by Euler's variational method 4−59157
finite element hybrid stress model, derivation of geometrical stiffness and mass matrices 4−59120
large-flanges, stress displacement under external loads 4−74312
flexible plate with opening, state of stress, effect of material props. 4−43062
flexible plates with reinforcing ribs, bending *(Russian)* 4−51351
frame systems stiffened by panels, limit analysis 4−77423

elastic deformation continued
half space, transient stresses from frictionless indentation with conical die 4−59127
half-plane, row of external cracks, plain-strain soln. 4−59124
half-plane interface in compression, instability problem 4−47090
half-space, dynamic indentation 4−59126
half-spaces, dynamic intensity factor for interface flaw extending at non-uniform rate 4−51340
homogeneous isotropic material, iterative method for plane strain and stress problems 4−59121
hyperelastic tube, compressible, finite telescopic shear 4−81155
incompressible materials, Dirichlet problem, uniqueness theorem 4−51337
indentation of elastic layer bonded to rigid cylinder, slipping with Coulomb friction 4−77414
infinite beams, bending moment, shear and normal force for various impact velocities 4−43050
infinite medium with regular symmetry, interaction of screw dislocations and conc. defects 4−51316
inhomogeneous region, plane elasticity theory in curvilinear coordinates *(Russian)* 4−51350
Lagrangian non-linear shell theory 4−59114
laminated cantilever beams, lower bounds for deflections, transverse shear deform. effect 4−62687
laminated cantilevered beams, deflections, upper and lower bounds, transverse shear deform. effects 4−43073
large, of extensible cord-reinforced materials 4−59152
large deflections of heterogeneous anisotropic rectangular plates, numerical results 4−65682
layer with circular division line between regions with differing boundary conditions, wedge insertion *(Russian)* 4−47084
layer with crack, local axially symmetric compression *(Russian)* 4−47085
linear elastodynamics, bounds on solns. to eqns. for non-negative and indefinite strain energies 4−51343
linear equations with constant coeffs., complex exponential solns. 4−51341
macromolecules in flow, deformability, light scattering expt. 4−48323
magnetoelastic fields of statistically deformed ferromagnetic bodies *(Russian)* 4−53276
membrane, impulsive press. loading, wave propag. 4−77500
membrane, nonlinear axisymmetric problems, minimum pot. energy principle applic. 4−77438
membrane of revolution, inflatable, large deform. theory 4−81153
metal, finite elastic-plastic deformation 4−82950
micropolar cylinder, thick-walled, state of plane strain, stresses, displacements 4−74297
mirror, laser heating, elastic half space model 4−43331
Mises structure, snap-through problem *(German)* 4−65675
Mooney-Rivlin material, homogeneous biaxial deformation, Dirichlet problem 4−51337
nonisothermal deformation reversal of cyclically hardened materials *(Russian)* 4−45609
nonlinearly elastic solids, oscillatory shearing motion 4−62686
orthotropic rings, variational calc. *(Russian)* 4−51320
orthotropic sandwich cylinders, axial compression and bending, analysis 4−74320
orthotropic semispace subjected to distributed surface loads, plane deform. 4−43079
penny-shaped cracks, linear viscoelastic medium under shear 4−74295
plane elasticity theory, appl. of initial function method to body with rectilinear orthotropy *(Russian)* 4−77419
plate, elastic-plastic, thin, finite deform. theory for stretching 4−59137
plate, elastically restrained rectangular orthotropic, nonlinear vibrations, Von Karman eqns. soln. 4−81201
plate, infinitely long, transverse action of pressure pulse *(Russian)* 4−51391
plate, stress singularity at non-uniformly moving crack tip 4−51342
plate, stretched, stress conc. near hole in three-dimens. test 4−59130
plate, thick with circular cylindrical opening, flexure *(Russian)* 4−51352
plate, thin, finite deform. theory, transverse shear stress 4−59135
plate, thin, finite deform. theory, transverse shear stress 4−59136
plate, unilateral deform. problems, stationary case *(French)* 4−68895
plate bending, variational principles applic. 4−59151
plate bending analysis, finite element method *(Greek)* 4−43080
plate bending problem, by variational alternative to finite element method 4−59156
plate strips, internal stress state anal. *(German)* 4−65692
plates, thin rectangular orthotropic, twisting and bending 4−81174
plates with circular inclusions, thermal anal. by least squares boundary point matching method 4−81164
PMMA, biaxial orientation effect on physicomech. props. 4−45812
polyester film, hardening effect 4−45821
polyethylene-polyisobutylene two-component systems, temp. depend. of deform. props. 4−45827
polymer, deform. props. prediction method 4−53883
polymer, oriented, small deform. behaviour 4−49998
polymer network, random node distrib. 4−60535
polymer network, regular stable, free energy at small finite deforms. 4−45813
polyolefins, crystalline, deform. and fatigue props. relationship 4−45830
prismatic bar anal. by potential theoretic analog method *(German)* 4−65693
prismatic bars, stress field and stiffness moment determ. *(German)* 4−65691
prismatical bodies, finite deform. theory 4−81157
PVC plasticized film, uniaxial large deformation, mechanical properties *(Japanese)* 4−50016
reinforced tube, finite cylindrical deformations 4−47077
rhombic plates, simply supported, under uniform pressure, exact analysis, series soln. 4−59128
rigid body modes, automatic extraction, from stress and strain elements 4−59161

elastic deformation continued
rod, cylindrical, stressed by constant force and variable temp., stress and deformation calcs. *(Rumanian)* 4−77409
rubber, crosslinked natural, deform. in various states of stress 4−45834
rubber, styrene-butadiene, large deform, behaviour, analysis method *(Japanese)* 4−80109
rubbery materials, actual contact area formation kinetics 4−50002
sandwich shell, large deflection, stiffness matrix generation 4−68896
sandwich shells, nonlinear dynamic response using Cosserat surface theory 4−59142
shape function formulations for elements other than displacement models 4−59160
sheet, plane-parallel, displacement soln. *(Russian)* 4−55210
shell, circular cylindrical of varying thickness, stability *(Russian)* 4−51353
shell, cylindrical dielectric thin finitely-deformed, stability 4−51336
shell, cylindrical with flat head closure, nonlinear effects on discontinuity stresses 4−74313
shell, shallow spherical, stress anal. from Marguerre's eqns. soln. 4−51330
shell theory, mixed variational principles 4−59154
shell-beams, curvilinear, semimomentless theory *(Russian)* 4−51335
shells, interaction with weak shock waves, literature review *(Russian)* 4−77472
shells, rectilinear, evolvable, in bending state, soln. of general system of eqns. 4−51317
shells, spherical, influence coeff. for edges 4−55253
shells, thin smooth cylindrical, stability in longitudinal compression *(Russian)* 4−51348
shells and plates, anisotropic of variable thickness, variational anal. *(Russian)* 4−51349
shells of rotation, axisymmetric, nonlinear boundary problems *(Russian)* 4−51334
single crystals, obs. of Laue X-ray absorpt. coeffs. 4−52658
slender webs and shallow shells, nonlinear problems 4−59180
sphere, incrementally elastic thick walled, behaviour under internal pressure 4−74289
spherical shell, optimum design of elements for load introduction 4−59119
steel, strain variation during yield-point elongation 4−46576
steel reactor pressure vessel, stress and deformation anal. at critical locations, review 4−43599
stiffness matrix, method of construction and solution, flow diagrams of programs *(Polish)* 4−71326
stochastically nonuniform medium, stress/strain relation *(Russian)* 4−47087
stress concentrations at openings in materials with small deformation elasticity nonlinearities *(Russian)* 4−77426
stress waves emission, yield point determination equipment 4−50082
strip, infinitely long, stress distrib. around Griffith crack 4−51339
structural analysis, using dual variational principles 4−59153
subcritical, three-dimensional theory with bifurcation eqns. in rates of change of Lagrange coords. *(Russian)* 4−74301
surface asperities, directions crossed rel. to machined surfaces in contact 4−66982
surface asperity, no direction quality, rough surfaces in contact 4−69855
thermodynamics applic., and variational methods in reversible thermoelasticity 4−59148
thick rectangular plate under thrust, bifurcation conditions 4−43046
thin rectangular plate on elastic foundation, thermal bending 4−77430
thin shell analysis, axisymmetric and nonaxisymmetric, ring finite elements 4−59159
thin-shells, stress deformation anal. *(German)* 4−65696
three-dimensional, in nonlinear elastodynamics, uniqueness of solns. to boundary-initial value problems 4−51338
torsional, of half-space with penny-shaped crack 4−65678
tubes, thin-walled curved, lateral bending and twisting, numerical soln. 4−55254
vertical cylindrical sector, self weight deform. 4−59134
viscoelastic beam loaded at one end, Saint-Venant's principle 4−43081
viscoelastic cylinder with pressed in shaft, stress field anal. 4−51324
viscoelastic plate, isotropic, with holes, reinforced by rigid rings, stressed state study *(Russian)* 4−55243
Vlasov torsion of non linear elastic beams of thin walled open cross-section 4−51325
wedge insertion into isotropic medium, contact problem *(Russian)* 4−47083
C fibre composite, notched, deformation obs. 4−64627
n-Ge, many valley, charact. parameters of selected const. energy ellipsoid 4−75859
Mo filament, influence on thermal expansion *(Russian)* 4−44687
Na_2O-SiO_2 glass, deformation mechanisms under microindentation 4−79092
Ni-Cr-W-Mo-Al-Ti alloy, precipitation vol. change effect on X-ray scatt. 4−61394
SiO_2, vitreous, strength and deform, props. 4−80093
W filament, influence on thermal expansion *(Russian)* 4−44687
W-Re filament, influence on thermal expansion *(Russian)* 4−44687

elastic fatigue *see fatigue*

elastic hysteresis
plastic, repeated shock bending 4−76561
$BaFe_{12}O_{19}$, elastic moduli from 80-303K, rel. to hysteresis effect 4−82595

elastic limit
see also slip
ceramic, dense and porous, shock fracture mechanisms comparison with single crysts. *(German)* 4−61503
critical load, symmetrically loaded shell, nonlinear elastic material *(Russian)* 4−81177
cylindrical pressure vessels, influence of head thickness on yield pressure 4−81185

elastic limit continued
metal, ductile, abrasion resistance criteria 4−76510
PMMA, biaxial orientation effect on physicomech. props. 4−45812
spring materials, energy dissipation as yield criterion 4−76457
spring wire and microribbon materials, imperfect elastic elasticity characts. determ. method 4−62414
steel, low-C normalised, manganese and dispersoids influence on mech. props. *(French)* 4−80024
thin curved tubes bending 4−77452
Tresca type plastic materials, mech. and optical constitutive eqns. *(Japanese)* 4−77453
Cu films, electrolytically deposited, ductility, strength, low temp. *(Russian)* 4−67827
Mo, effect of C *(Russian)* 4−70486
NaCl:NaOH, hardening and near u.v. absorption, flow stress from deformation meas. 4−79047
Nb, cold rolled, recovery of mech. props. *(French)* 4−49748

elastic losses *see internal friction*

elastic relaxation
see also creep
amorphous polymers, elastic aftereffect theory *(Russian)* 4−73379
caprylic acid, acoustic velocity and attenuation, 10^5-10^{10} Hz and 0-65°C 4−82223
cast superalloys, effect of material characteristics, test variables 4−73322
Earth crust elastic energy reduction, effects on continental drift 4−61690
enanthic acid, acoustic velocity and attenuation, 10^5-10^{10} Hz and 0-65°C 4−82223
epoxide resin, relax. technique to obtain stress versus crack velocity diagrams 4−80097
glycerol, Rayleigh scatt., structural relax. using digital correl. spectroscopy 4−67584
oscillations accompanying external friction, mechanism 4−48695
polystyrene 4%-chlorinated diphenyl soln. stress relax. 4−57778
PVC plasticized film, uniaxial large deformation, stress relaxation *(Japanese)* 4−50016
undecylenic acid, acoustic velocity and attenuation, 10^5-10^{10} Hz and 0-65°C 4−82223
viscoelastic creep, relaxation, incompressible and linearly compressible media 4−66967
viscoelastic stress relaxation, computational method 4−57778
Al, Bordoni relaxation, neutron irradiated and cold worked samples *(French)* 4−52770
$Fe_{0.74}P_{0.16}C_{0.05}Al_{0.03}Si_{0.02}$, $Fe_{0.75}P_{0.16}Si_{0.06}Al_{0.03}$. mech. props. rel. to temp. 4−64588
$Ni_{0.74}P_{0.16}B_{0.07}Al_{0.03}$, mech. props. meas. rel. to temp. 4−64588
PdH, crit. behaviour, lattice gas aspects 4−60611
$Pd_{0.81}Si_{0.19}$, mech. props. meas. rel. to temp., relax. process investig. 4−64588

elastic waves
see also acoustic waves; Love waves; magnetoelastic waves; Rayleigh waves; seismic waves; vibrations
acceleration in non-linear elastic material 4−59203
acceleration waves intrinsically characterized, in heat-conducting elastic materials 4−77486
anisotropic half-plane, boundary problem in dynamic theory *(Russian)* 4−74346
axial shear wave radial propagation, finitely deformed elastic solid 4−74339
axisymmetric, propagation in initially stressed layer *(Russian)* 4−77492
biaxial crystal, light scatt., Bragg condition 4−53393
ceramic substrate, real time crack detection using stress wave emission 4−64699
composite, fibre reinforced, time-harmonic elastic wave propag. 4−70566
composite, fibre-reinforced nonlinear elastic, shock wave propagation 4−80074
composite, laminated, one-dimens. acceleration wave propag. 4−45788
composites, wave propag., continuum theory with microstructure 4−65715
compressional wave scattering by rigid spheroidal inclusion 4−43122
conical shell, elastic response to oblique impact 4−43115
continuous media with periodic array of discrete inclusions 4−51397
conversion due to heating 4−43098
Cosserat medium, effect of couple-stresses on dynamic stress concentration around elliptical hole 4−55236
coupled thermo-, acousto-, galvanomagnetic-flexural wave excitation 4−77497
crack generated, Green's function method analysis giving stress field 4−43048
crowdion wave motion at low temperature, quantum theory based on defecton model 4−52755
cubic crystal, anisotropic, polarization vector as Taylor series *(German)* 4−48704
cylindrical shells, forced motion, shell and elasticity theory comparison 4−55298
diffraction at finite crack in antiplanar deform. conditions *(Russian)* 4−75566
diffraction by crack, brittle fracture, crack extension 4−55272
diffraction by spherical perturbed zone, direct and inverse problem *(French)* 4−43097
diffraction of h.f. torsion waves by disc-shaped obstacles 4−62706
eclogites, compressional velocity depend. on mineral chemistry 4−73464
elastic-plastic waves, reflection and refraction at interfaces 4−74344
external conical refraction in orthorhombic crystals 4−56806
fibre reinforced material, bi-directional, elastic wave propagation 4−64626
flexural, diffraction by semiinfinite impedance 4−74337
fluid saturated porous media, harmonic and transient pulse wave propag. 4−61675
fracture in solid spheres and discs, due to point explosive impulse on surface 4−52816
free vibration of orthotropic elastic conical shell 4−77477

elastic waves continued
graphite/epoxy shells, unidirectional, axial wave vel. meas. 4−76535
half space, transient stresses from frictionless indentation with conical die 4−59127
half-space, elastic-viscoplastic wave propagation with combined compressive and shear stresses 4−55264
half-spaces, dynamic intensity factor for interface flaw extending at non-uniform rate 4−51340
heterogeneous anisotropic plates, elastic wave surfaces 4−47118
impulsive, diffraction by fluid cylinder 4−55290
inhomogeneous bars of several sections, wave propag. 4−43120
interface wave propag. between elastic and thermoelastic solids 4−77466
Lamb's Problem, numerical solns. 4−64750
Lamb's problem, three-dimens., Green's function 4−62694
Lamb wave propagation in stressed medium *(Russian)* 4−47132
layered composite, harmonic waves, bounds on freqs. 4−77499
layered solids, impedance mismatch effect on strength of waves 4−60549
l.f. elastic disturbances, propag. in composite material 4−74341
membrane, impulsive press. loading, wave propag. 4−77500
membrane, spherical and toroidal, dynamic characts. *(Russian)* 4−59213
metal cutting, shear forces, work components *(Russian)* 4−57744
metallic thin films, piezoelectric substrate surface wave attenuation rel. to electron mobility 4−53157
noncollinear interaction of bulk elastic waves in crystals 4−72524
nonconducting medium, elastic and plastic acceleration waves propag. *(French)* 4−43096
nonlinear viscoelastic material, plane longitudinal wave propag. 4−74343
phonon conduction, focussing effects in hexagonal crystals 4−52836
photoelastic tensor, full symmetry 4−45268
piezoelectric coupling, characteristic vector rotation 4−73076
plane flexural waves, diffraction in infinite multiply connected plate *(Russian)* 4−77491
plane waves in stratified anisotropic media with each layer homogeneous 4−55276
plate, infinitely long, transverse action of pressure pulse *(Russian)* 4−51391
porous medium, fluid saturated, wave motions 4−44159
prismatic guides of arbitrary cross section, extended Rayleigh-Ritz formulation 4−43121
progressive, in non-linear elastic material 4−59203
propagation and interaction in media with dispersion and small nonlinearities *(Russian)* 4−47128
propagation in inhomogeneous elastic media 4−43101
propagation in layer, gravity effect analysis using Biot's theory 4−55275
pulse propagation in straight and curved beams 4−65714
quartz, piezoelectric cryst., nonlinear interactions of elastic waves resulting in electric field oscillations 4−76217
radial propagation of rotary shear waves in finitely deformed elastic solid 4−55273
response of thin circular plates to asymmetric loadings, normal mode method 4−77476
scattering, by movable rigid sphere in infinite elastic solid 4−43108
scattering by large convex body, far field solution 4−65711
scattering by large convex rigid object with statistically corrugated surface, perturbation solns. 4−59207
seismic wave velocity and matter parameters of equations of state for pressure and density *(German)* 4−70628
shell, cylindrical, axial impact, pulse duration effect on transient response 4−81207
shell, cylindrical, resonant interactions in dynamic stability 4−59208
shock wave growth in anelastic materials 4−74330
solid-state, review 4−53115
stability, connection with wave propagation 4−51378
stepped shaft with attached rigid body, torsional impact, wave eqn. soln. 4−43114
Stonneley waves, surface, in micropolar elastic medium 4−55268
stress pulse in finite nonhomogeneous rod 4−81204
stress wave propagation in anelastic multi-layer body 4−49986
string, nonlinear dynamic eqns., class of general solns. 4−43118
strip-travelling wave impedance on elastic half-space, asymptotic soln. 4−77502
surface wave propagation on nonhomogeneous spherically aeolotropic shell 4−77494
surface waves in micropolar elastic medium 4−55268
thermally induced vibrations and waves, review 4−71348
thermodiffusion in solids, dynamical problem soln. 4−55267
thermoviscoelasticity problems, numerical method of soln. *(Russian)* 4−77471
three-dimensional solid body, tensor wave theory 4−59212
torsion waves, h.f., diffraction by penny-shaped crack 4−77470
torsional oscillations of rigid oblate spheroid embedded in infinite medium 4−65713
torsional wave propagation in solid elastic cylinder with thin soft elastic skin 4−62695
transient, in two semi-infinite viscoelastic media with plane interface 4−59204
transverse and longitudinal, associated with heat pulse propag. in crystal mol. dynamical calc. 4−56816
transverse axisymmetric waves in circular cylindrical shells, dynamic stability 4−74338
velocities in granites at high pressure rel. to porosity 4−70629
vertical shear wave pulse distortion at free surface 4−81205
viscoelastic, generated by unsteady shear crack 4−43134
viscoelastic bar, nonstationary disturbance propagation, eigenfunction series expansion *(Russian)* 4−77493
viscoelastic equilibrium wave propagation 4−43135
viscoelastic rods, nonhomogeneous four parameter, impact problems 4−47074
wave propag. in elastic rings and small pitch helical coils, generalized plane stress 4−71337
waveguide propagation, coupled-mode formalism 4−55282
AgI, longit. and transverse wave vels. as function of press. determ. near polymorphic transition 4−60551
Au, third order elastic consts., calc. by long waves method 4−72516

elastic waves continued
$BaFe_{12}O_{19}$, elastic moduli from 80-303K, composite piezoelectric oscillator meas. 4−82595
CdS, piezoelectric cryst., nonlinear interactions of elastic waves resulting in electric field oscillations 4−76217
$LiNbO_3$, piezoelectric cryst., nonlinear interactions of elastic waves resulting in electric field oscillations 4−76217
$MnZnFe_2O_4$, elastic moduli from 80-303K, composite piezoelectric oscillator meas. 4−82595
NaCl noncollinear interaction of bulk elastic waves in crystals 4−72524
$NiZnFe_{12}O_4$, elastic moduli, 80-303K, composite piezoelectric oscillator meas. 4−82595
elasticity
see also anelasticity; elasticity of liquids; elastoplasticity; photoelasticity; rheology; thermoelasticity; viscoelasticity
3-D problem analysis, by integral representation of displacement 4−59174
acoustic wave propagation along inhomogeneous elastic thin rod, mean damping coeff. *(French)* 4−54738
axisymmetric deformation, composite tube of unequal modulus 4−81167
axisymmetric double contact problem for frictionless elastic layer 4−43052
biaxially loaded longitudinally stiffened composite structures, elastic stability 4−47067
bonded half planes with arbitrarily oriented crack 4−43051
boundary layers, highly anisotropic plane elasticity 4−74294
boundary value problems, integral formulation 4−59177
boundary value problems, spatial multiply connected non-canonical domains *(Russian)* 4−74286
branched shell of revolution, static response, computer program 4−77433
circular cylindrical shells, thin-walled, Morley-Koiter eqns., eval. procedure, boundary conditions 4−43070
circular cylindrical shells, thin-walled, Morley-Koiter eqns., line loaded case, boundary conditions 4−43071
circular ring, deformations under nonuniform normal press. 4−74308
classical theory, boundary-value problem in three-dimensional domain 4−59123
coincident buckling systems, imperfection sensitivity 4−65679
composite, design, fourth rank tensor invariants derivation 4−61515
composites with discontinuous fibres, mech. damping *(German)* 4−57762
compressible rough surfaces, contact thermal cond. 4−43204
connected shells, different materials and thickness, algebraic eqns. 4−81168
constitutive relations, non-history dependent for elastic, fluid and plastic bodies 4−59100
contact problem for half-space indented by flat annular rigid stamp 4−77417
contact stresses between elastic cylinder and layered elastic solid 4−74311
continuum mechanics, nonconservative stability problems, variational techniques applic. 4−59168
crack problem anal. using triple integral eqns. 4−74291
crack theory, randomly orientated rectilinear system, integral eqns. for plane problem *(Russian)* 4−74303
cylinder, axisymmetric problems soln. in elasticity theory 4−59131
cylinder of finite length, stationary axisymmetric vibrations *(Russian)* 4−81202
cylindrical shell, hybrid finite element anal. 4−77444
cylindrical shell, shear compliant, connected with elastic foundation, stability, nonlinear approach 4−77424
cylindrical shell roofs with post tensioned edge beams, analysis 4−68892
cylindrical shell with end plates, effect of line load along generator 4−81175
cylindrical shell with variable wall thickness, stability in torsion 4−47101
cylindrical shells, forced motion, shell and elasticity theory comparison 4−55298
cylindrical shells, large deflection geometrically nonlinear behaviour, finite element analysis 4−59170
damping properties, in plane stressed condition 4−50061
dielectric, elasticity theory and interaction of coherent acoustic waves with phonons 4−69859
dielectric, matrix, Galerkin type representations for equations of motion, method of associated matrices 4−55241
discrete dislocations in micropolar elasticity 4−59111
dislocations, hydrostatic pressure influence, nonlinear elasticity theory 4−79051
dynamic analysis of elastic plate, thin elastic foundation 4−77483
dynamic problems, review 4−59117
dynamical contact problem of semi-plane strengthened by elastic beam, integral eqn. soln. *(Russian)* 4−55245
elastic bodies in contact with large spin and small slip velocities 4−81169
elastic body, lower bounds for buckling loads and fundamental freqs. 4−74324
elastic circular membrane, impulsive press. loading, wave propag. 4−77500
elastic fields for line force arrays parallel to planar crack 4−65683
elastic moduli, isotropic tensors 4−55244
elastic-isotropic layered medium, asymmetric load *(German)* 4−51356
elastodynamics, generalized variational theorem, shell theory applic. 4−62685
elastohydrodynamic lubrication of thin elastic layer, Grubin-type formula 4−75202
elastostatics, potential problems involving annulus 4−59054
electrostatics, Knowles' version of Saint Venants' principle 4−59116
existence theorems in linear and semi-linear elasticity 4−59139
face element theory using potential functions 4−62684
factorisation method of problem soln. *(Russian)* 4−47088
finite difference discretisation procedures applic. 4−59184
finite element analysis, cases requiring combination of elements possessing different numbers of degrees of freedom 4−59162
elasticity continued
finite element analysis, grid optimisation, variational approach 4−59163
finite element analysis, incompressibility introduced by residual energy balancing 4−65684
flexible circular foundation, stresses and displacements in presence of friction or adhesion 4−77440
flexural stiffness of rectangular plates *(Russian)* 4−55239
gravitating sphere, effects of nonhomogeneity on stresses 4−77428
Hooke's law solid, crystal stability, two-dimensional computer studies 4−60531
Hostaphan cylindrical tube, buckling strength prediction from natural frequency 4−57797
hypar shells, variational and integral methods 4−59176
imperfect elastic structures, flexural-torsional buckling 4−51368
infinite medium, elastic displacements due to propagating crack, exact soln. 4−48687
infinite strip subjected to loads symmetrical to axis of rectangular coordinates, stress analysis 4−50090
inhomogeneous elastic media with (N + 1)-dimensional spherical symmetry, wave propag. 4−68890
interaction of acoustic waves, elastic shell, internal mech. systems 4−77474
interface flaw extension due to static prestressing 4−81172
isotropic solid subjected to nonconservative external load, variational principle applic. 4−59149
iterative techniques, Kantorovich method 4−59166
laminate, generalised effective stiffness theory 4−81171
laminate composite, stress distribution due to infinite row of parallel cracks 4−77416
linear and linearized problems analogies 4−51354
linear lumped-parameter elastic system, Lypunov functional for stability analysis 4−77435
linear system, lower bounds to oscillatory freqs. 4−51409
linear systems, necessary conditions for divergence 4−55252
median-type problems, parallel transfer of physical fields on mobile manifolds 4−59143
membrane theory, error bounds for variational solns. of nonlinear Foppl-Hencky eqn. 4−47080
metal, elastic energy state eqn. rel. to nonspherical deform. tensor *(Russian)* 4−61326
micropolar medium, force-and couple-stress singularities from concentrated loads *(Polish)* 4−71324
micropolar medium, stress singularity from discontinuous loads *(Polish)* 4−71325
mixed problems, plane antisymmetrical, with two contact segments, orthogonal polynomials method *(Russian)* 4−55246
Mooney-Rivlin expression statistical derivation for unswollen elastomer 4−75463
motion of solid composed of two elastic materials 4−77410
natural rubber, strain energy function, from generalised meas. of strain 4−56802
non-conservative system, stability, Ritz method, cantilever column 4−81159
nonconservative elastic system, end supports effect on stability 4−81173
nonlinear, conjugate gradient method in finite element anal. *(German)* 4−65690
nonlinear, hypoelastic form of eqns. *(Russian)* 4−59138
nonlinear, roots of charact. eqns. *(Russian)* 4−74314
nonlinear finite element models, effect of higher order terms 4−47068
nonlinear shell theory, direct variational formulation 4−59169
nonlinear theory of plates, new perturbation method 4−68894
nonlinear two-point, boundary value prob. reduction Cauchy system 4−81156
nonlinearly elastic solids, oscillatory shearing motion 4−62686
nonshallow spherical shell, appl. of Reissner's eqns. to stability *(Russian)* 4−77421
nonshallow spherical shell, asymptotic value of upper critical pressure *(Russian)* 4−74304
nuclear vibration random phase approx. eqns. of motion elastic behaviour 4−71788
orthotropic elastic slab, thermal stresses due to prescribed surface temps. 4−65687
orthotropic laminated cylindrical shells, pure bending and stretching 4−74306
plane contact problem of semi-infinite beam bending on elastic wedge 4−51347
plane problems in nonuniform theory 4−74298
plate, infinite, stress states produced by arbitrary inclusion distrib., approx. method *(French)* 4−81154
plate, rectilinear on elastic foundation, large amplitude vibrations 4−74329
plate, with piecewise varying thickness, static elastic stability 4−43077
plate bending, bicubic fundamental spline applic. 4−62682
plate deflection, equilib. eqns., general soln. 4−59129
plate with opening, influence of stringers on stress distrib. *(Russian)* 4−47086
Polwinit resin, tensile behaviour, thermal ageing and d.c. field effects *(Polish)* 4−82981
poly-γ-benzyl-l-glutamate, cholesteric liq. cryst., orientation scatt. effects, twist elasticity 4−63760
polycrystals, monophase, correlation functions for elastic field *(Russian)* 4−56797
polymer, exptl. data, rotation operator anal. 4−76546
polymeric microporous films, elastic cryst., form., properties, porosity, struct. 4−53866
potential and axially symmetric generalized potential theories, three part boundary value problems 4−66594
prismatic shells, hexagonal cross section, use in nuclear reactor subassembly ducts 4−74293
proustite, elastic and photoelastic properties 4−57497
random micrononhomogeneous elastic space, large macrohomogeneous strain problem 4−59113
random walk method applic. 4−59132
rectilinear plate on elastic foundation, Monte Carlo method 4−55259
Reissner's theory of plates, equation solution by applic. of Hajdin's method 4−59175

elasticity continued
- rock anelasticity by Complex Modulus Apparatus 4−80249
- rod, curved and pretwisted conservative loading 4−68891
- rotating disc, optimum design dynamic programming approach 4−59182
- rotational membranes, variational optimisation 4−59185
- rubber band experiments for students 4−54794
- rubber band oscillations, force law obtained, student experiment 4−62382
- sandwich plate, stiffness matrix of element in bending *(Polish)* 4−71327
- sandwich plate under local load, filler stresses 4−47096
- Schur's lemma on irreducible sets of matrices, application 4−43034
- semi-infinite plate containing circular inclusion under partial decoding along straight edge, stress conc. 4−47072
- semi-infinite strip problem, singular integral eqn. approach 4−43068
- shaft coupled through sleeve, load transfer problem 4−43074
- shallow shells, dynamic analysis, stress functions applic. 4−59155
- shell, cylindrical dielectric thin finitely-deformed, stability 4−51336
- shell, locally stressed cylindrical, stable equilibrium *(Russian)* 4−55250
- shell, numerical accuracy test for finite element and difference methods *(Italian)* 4−77406
- shell, shallow spherical, dynamic buckling 4−81170
- shell, simply supported cylindrical, nonlinear axisymmetric free vibrs. 4−81206
- shell continuum, geometrically nonlinear, method of asymptotic integration applic. 4−55258
- shell equations, general, finite difference formulation 4−43060
- shell of revolution, approx. elasticity soln. 4−43069
- shell of revolution, linear strain-displacement interpret. 4−43066
- shell theory, optimal basic eqns. and efficiency *(German)* 4−77442
- shell theory, role of convergence 4−43049
- shell theory derivation, direct approach 4−74307
- shells, thin, general props. of free elastic vibrations *(Russian)* 4−51392
- shells of revolution, non-shallow, existence of soln. and approximate method convergence in nonlinear theory *(Russian)* 4−55247
- shells of revolution, static, stability and dynamic anal. by integration, program comparison 4−47127
- singularities of stresses at conincal notches or inclusions 4−65681
- singularity formation for integral method *(German)* 4−65689
- skew-nonuniform anisotropic regular media, two-dimensional potential field determ. *(Russian)* 4−55248
- solid, finitely deformed, axial shear wave radial propagation 4−74339
- solid resting on a stratified medium 4−59172
- spatial theory, soln. of contact problems by an electrical modelling method *(Russian)* 4−77418
- split-Hopkinson pressure bar system, elastic response, elastic-plastic artificial viscosity computer program 4−74305
- splitting techniques, applic. 4−59183
- stability, general theory, book 4−59145
- stability, three-dimensional theory with bifurcation eqns. in rates of change of Lagrange coords. *(Russian)* 4−74301
- stability of non-perfect elastic systems, eigenvalue restrictions 4−74285
- stiffened shell instability in nonlinear regime 4−47106
- straight beams, variational formulation of nonlinear equations 4−68893
- stress distribution in laminated plates, correspondence principle 4−55240
- structural, dynamic load anal., sample function changes 4−77443
- structural mechanics, incremental formulation of the generalised variational approach 4−59107
- structures, nonlinear, analysis, by Newton's method 4−59181
- structures of high complexity, static and dynamic responses, variational method 4−59179
- styrene-butadiene rubber, strain energy function, from generalised meas. of strain 4−56802
- theory of elasticity, book 4−59146
- thin spherical shell, plane acoustic wave diffraction *(Russian)* 4−80775
- thin spherical shell, three dimensional stress state calc., for action of local loads *(Russian)* 4−77420
- thin-walled members, variational formulation of stability problems 4−47078
- transversally isotropic bodies, soln. of axially-symmetric problem by generalised analytic functions *(Russian)* 4−55251
- transverse isotropic layer, soln. of system of eqns. *(Russian)* 4−55210
- ultrabasic rocks and serpentinites, serpentinization and elastic and electric properties 4−68073
- variational techniques, Galerkin's equations, a hybrid type 4−59164
- vibrating rods, nonlinear elastically fixed ends, stationary and nonstationary modes *(Russian)* 4−55284
- wedge, anisotropic, displacement and traction displacement, plane solns. 4−74309
- wedge, orthogonal elastic, plane steady vibration, linear elastodynamics treatment 4−51402
- wedge, three-dimensional, mixed boundary problem for finite number of contact segments *(Russian)* 4−55249
- wedge boundary value problem, stress analysis 4−77422
- wedge with elastic support, contact problem 4−47095
- wedges, orthotropic unsymmetrical and symmetrically twinned, traction problems, plane solns. 4−74310
- wheel rolling on rigid track, elastic-plastic analysis 4−68898
- wires, vibrations, magneto-thermo-viscous-elastic, anal. 4−61014
- wound bodies, pressures determ. method 4−53846
- zoned anisotropic continuum problems, integral techniques 4−59173
- Bi, elastic energy of dislocations calc. 4−69809
- Cr-Ni steel, effect of prior plastic deformation *(Russian)* 4−70484
- KH_2PO_4, ferroelec. transition, elastic anomaly, Brillouin scatt. obs. 4−49309
- V_3Si, elastic shear modulus, lattice instability and struct. transition calcs., pressure depend. 4−61447

elasticity of liquids
- *see also compressibility of liquids*
- alkoxy-azoxy-benzenes, nematic, Raman spectroscopy and elastic props. 4−66824
- dispersive medium, elastic props. investig. by nucl. γ reson. technique *(Russian)* 4−70243
- liquid crystals elastic moduli and flexoelectric coefficients, limitations 4−69843
- polymer, coil-stretch transition under ultrahigh velocity gradients investig. 4−75062
- shear modulus of elasticity, calc. 4−52799

elasto-optical effects
- biaxial crystals, light scattering at elastic waves 4−53393
- polyethylene films, low-density, rheo-optical props. in nonlinear viscoelastic region *(Japanese)* 4−80104
- n-GaN, epitaxial vapour deposition, carrier conc., mobility and photoluminescence *(Japanese)* 4−45438
- HfO_2 crystal, Mandel'stam-Brillouin light scattering 4−53394
- KBr temp. depend. of elasto-optical effects 4−53395
- KCl, temp. depend. of elasto-optical effects 4−53395
- KI temp. depend. of elasto-optical constants 4−53395
- NaCl, temp. depend. of elasto-optical constants 4−53395

elastomers
- *see also rubber*
- adhesive bonds, peel strength, plastic and viscoelastic effects 4−50030
- block copolymer blends, dynamic mech. props., math. model for entanglement slippage 4−64638
- crosslinked, struct. and relax. mechanisms *(German)* 4−82980
- dynamic properties, temperature-frequency dependence 4−65376
- finite deformation biaxial testing, miniature load cell instrumentation 4−76559
- fluoroelastomers with improved compression set resistance *(Japanese)* 4−49966
- friction and wear behaviour 4−75569
- moulding, point-pressure meas. using micro press.-pickups 4−50007
- unswollen elastomer, Mooney-Rivlin expression statistical derivation 4−75463

elastoplasticity
- annealing model for solids 4−59190
- axisymmetric solids, analysis by finite element method 4−81184
- bearing capacity of plates and shells edge loaded by distributed moments, lower bounds 4−59187
- Borsic reinforced Al, elastic-plastic Poisson's ratio 4−61516
- boundary-value problems, velocity discontinuities 4−59189
- circular cylinder, thickwalled, elastic-plastic deform. under transient heating and combined loads 4−43086
- composite, transversely loaded unidirectional, elastoplastic crack propag. 4−61518
- compressible rough surfaces, contact thermal cond. 4−43204
- crack tip yield and fracture, range of applicability of small scale yielding approach 4−67834
- cylinder, onset of necking under uniaxial tension, bifurcation analysis 4−43087
- cylinder, rheological factors effect on magnitude of circular zone of plasticity 4−77458
- cylinder, solid circular, under cyclic torsion and heating, inelastic deformation 4−51364
- cylindrical pressure vessels, influence of head thickness on yield pressure 4−81185
- deformation, exptl. stress analysis *(German)* 4−65697
- diffusion processes and heat conduction in deformable body *(Russian)* 4−51374
- discrete approximations of bodies by variational methods 4−59197
- dynamic deformations of elastoplastic continua, upper bounds 4−77454
- elastic-plastic waves, reflection and refraction at interfaces 4−74344
- elastoviscoplastic strain hardening material, deformation stability anal. *(Russian)* 4−74323
- fatigue crack propagation under cyclic loading, elastic-plastic analysis 4−50105
- fibre reinforced rigid plastic beams, dynamical behaviour 4−70563
- finite element program, three point bend fracture 4−67977
- finite-element dynamic elastoplastic large deformation anal. program DYPLAS 4−71335
- Galerkin method of solution of nonlinear problems, convergence *(Russian)* 4−55260
- half-space, cracked, under anti-plane shear, regular and singular elastic-plastic solns. 4−62688
- half-space, elastic-viscoplastic wave propagation with combined compressive and shear stresses 4−55264
- homogeneously deformed body, stress, deformation and velocity fields *(German)* 4−65706
- layered medium, elasto-plastic indentation 4−62689
- metal, constitutive eqns. at finite deform. 4−44590
- metal, finite elastic-plastic deformation 4−82950
- minimum rate principles, applic. 4−59196
- model of elastoplastic medium with plastic deform. dislocation dynamics *(Russian)* 4−82217
- nonconducting medium, elastic and plastic acceleration waves propag. *(French)* 4−43096
- nonhomogeneous motion, kinematics 4−51358
- plastic zone size, for a plate and a cylindrical shell 4−65664
- plate, thin, deformation state near elliptic opening *(Russian)* 4−51372
- plate, thin, finite deform. theory for stretching 4−59137
- plate bending, finite element incremental analysis 4−43088
- PMMA, microindentation deform. props. under influence of surface-active media *(Russian)* 4−45794
- pressure vessels, cylindrical, finite element anal. 4−63258
- quasistatic deformation with heat conduction, reln. to nuclear reactor fuel rod 4−81182
- rod, cylindrical, stressed by constant force and variable temp., stress and deformation calcs. *(Rumanian)* 4−77409
- rotational membranes, variational optimisation 4−59185
- shakedown analysis, elastic-plastic struct., load cycling 4−77456
- sheet, bending by finite deforms., unloading and new loading regions *(German)* 4−43084

- **elastoplasticity** continued
  - shell, cylindrical, anal. using Prandtl Reiss theory *(Russian)* 4–74316
  - shell, thick, ultimate load response 4–80836
  - steel, tubular anisotropic specimen, low cycle strength, repeated elastoplastic deformation, plane stress 4–82940
  - steel sphere in contact with plane, elastoplastic boundary determ. from contact area meas. *(Russian)* 4–45608
  - stiffened shells of revolution, inelastic nonlinear analysis by numerical integration, computer program STARS-2P 4–81186
  - stiffened shells of revolution, large deflection elastic-plastic dynamic response 4–81134
  - stress/strain relation for arbitrary loading trajectory, analytic investig. 4–50084
  - structures, nonlinear, analysis, by Newton's method 4–59181
  - viscoelastic bodies, forced vibrations, numerical solns. *(Russian)* 4–77490
  - work hardening structures, dynamic response, inadaptation theorems 4–47108
  - yarn, continuous filament, tensile behaviour 4–82971
  - Al alloy rod, with large length/diameter ratio, buckling failure modes on rigid plate impact 4–49861
- **elastoresistance**
  - dielectric, elastic, macroscopic field eqns., boundary conditions and eqns. of state 4–45252
  - n-Si on sapphire, resistivity and Hall effect meas. 4–67210
- **ELDOR**
  - enhancement arising from admixture of nuclear spin states 4–79638
  - high field modulation effects, theory 4–79637
  - potassium hydrogen maleate, ELDOR enhancement arising from admixture of nuclear spin states 4–79638
  - MgO, low temp. reorientation of V-centres from ELDOR and uniaxial stress expts. 4–67490
- **electrets**
  - *see also dielectric devices; electrostatics*
  - bees wax, elec. cond., thermoelectret 4–79363
  - carnauba wax, new type of orientation obs. 4–49295
  - carnauba wax, orientation, field strength depend. 4–70251
  - β-carotene, (i) and trans-forms, photo-electret effect 4–44957
  - depolarization process, discharge current inversion *(Russian)* 4–67520
  - ebonite, mag. susceptibility, thermo-electret formation effect 4–57255
  - focuser, molecular beams 4–60130
  - metal-CdTe-metal struct., electret and electretphotovoltaic effects 4–67519
  - naphthalene, magnetically polarised photo-depolarisation 4–67521
  - naphthalene magneto-electrets, depolarisation of positive isocharge by light 4–45233
  - perspex, cubical thermo-electrets, charge retentivity and permittivity at low polarizing field at softening temps. 4–49296
  - perspex, variation of initial charge with magnetic field in cubical magneto-electrets 4–45232
  - perspex thermo-electrets, magnetic susceptibility variation with time 4–45234
  - photoelectret with heterocharge, thermally stimulated depolarisation, theory 4–76211
  - polyethylene, mag. susceptibility, thermo-electret formation effect 4–57255
  - polyethylene terephthalate, charge production, storage and decay 4–70252
  - polyfluoroethylenepropylene foil, electron irrad., charge dynamics 4–79671
  - polypropylene, cond. process, appl. of zero-current electrometer method 4–46736
  - polypropylene, formation, nonuniform space charge distrib. 4–82661
  - probes fabrication and application 4–80956
  - PTFE, electret foil, electron bombard., thermally stimulated current spectra 4–67516
  - PTFE, Teflon, radiation hardening and pressure actuated charge release 4–53361
  - sealing wax thermoelectret charge, metal electrode effect 4–67522
  - supercooled liquids, ion pairs in slow motion 4–45244
  - As_2S_3, photoelectret and photomemory props. 4–61095
  - As_2Se_3, space charge electret state, rel. to thermally stimulated depolarisation 4–57464
  - CaF_2, X-ray induced thermally activated polarization transfers 4–67517
  - CdTe film, pseudoelectret, persistent internal polarisation effect 4–70084
  - HgI_2-polystyrene binder layers, photopolarization characts. 4–61096
  - $(Pb_{0.985}, Bi_{0.015}), (Zr_{0.53}, Ti_{0.42})O_3$, ferroelectric ceramic, reln. between thermoelectret and ferroelectric polarisation 4–67533
  - $SbSI_{0.35}Br_{0.65}$, repolarization, influence of illumination, electronic mechanism 4–49312
- **electric admittance** *see admittance*
- **electric admittance measurement** *see admittance measurement*
- **electric amplifiers** *see amplifiers*
- **electric arc furnaces** *see arc furnaces*
- **electric arc welding** *see arc welding*
- **electric arcs** *see arcs (electric)*
- **electric breakdown**
  - *see also corona; discharges (electric); electric breakdown of gases; electric breakdown of liquids; electric breakdown of solids; electric strength; flashover; sparks; Zener effect*
  - air, laser induced, dielectric surface effect on threshold 4–52337
  - air gap discharges, long, 1973 results *(French, English)* 4–82048
  - bypass gap to discharge voltage surge across a parallel gap 4–54985
  - conference, gas discharges, London, (Sept. 1974) 4–75343
  - distribution function determination 4–82047
  - electric insulation and dielectric phenomena, conference, Varennes, Quebec, Canada, (Oct 1973) 4–82650
  - fusion reactor direct collection unit h.v. breakdown expts. 4–55958
  - gas, control of breakdown time for electron beam focussing 4–43379
  - insulators in vacuum, impulse flashover, effect of d.c. prestress, expt. 4–68729
  - outgassed Mo electrodes 4–82793
  - p-n junction, anisotropic stress effects *(Korean)* 4–64133
- **electric breakdown** continued
  - vacuum, prebreakdown current, breakdown voltage, temp. depend. 4–43912
  - vacuum, stainless steel electrodes, characts. 4–43913
  - vacuum, time correlated stages with long gap 4–44414
- **electric breakdown of gases**
  - air, 1.06 μm laser induced breakdown, dust effects 4–69671
  - air, 20 psec. laser pulse induced breakdown, focal length depend. 4–44255
  - air, breakdown, negative ion spectra 4–75361
  - air, breakdown between independ. temp. controlled electrodes 4–75364
  - air, breakdown processes in positive point to plane gap 4–75380
  - air, by pulsed laser, focal length depend. using effective photon concept 4–82059
  - air, compressed, electric breakdown 50 Hz conditioning curves 4–75411
  - air, critical field strength for cylindrical conductors, Peek's formula extsn. 4–75390
  - air, effect of electrode surface on breakdown voltage 4–75407
  - air, effect of field geometry and conducting particles on breakdown voltage 4–75404
  - air, h.v. impulse testing, air gap residual ionisation levels, effects 4–48181
  - air, ionisation in long uniform field gaps, formative time lag 4–75358
  - air, laser sparks, charact. expansion vel. 4–78789
  - air, long gap final jump, voltage depend. 4–75377
  - air, optical breakdown freq. depend. 4–78850
  - air, rod-rod air gap lightning impulse breakdown, electrode parameter depend. 4–75414
  - air, switching impulse breakdown probability distribs. 4–75413
  - air gap, breakdown voltage, corona form control 4–75393
  - air point to plane breakdown, effect of floating barrier 4–75415
  - air-CO_2 mixture, breakdown, negative ion spectra 4–75361
  - capacitor thermal ionisation wave, neutral gas breakdown 4–78795
  - compressed gases in ball-plane system of electrodes *(Russian)* 4–56550
  - dielectric strength computation, breakdown voltage 4–60342
  - electrode surface effects upon gas breakdown 4–75409
  - h.f., nonisothermal discharge in wave field, electrodynamic structure 4–63731
  - high power laser induced, review 4–78845
  - inception voltage, effect of gas config. 4–78858
  - inert gas breakdown, solutions of classical Boltzmann eqn. 4–56557
  - long gaps under switching impulses, conference, Calif. (July 1974) 4–82078
  - low-threshold breakdown near solid targets induced by CO_2 laser radiation *(Russian)* 4–66755
  - Paschen law, similarity theorem, minimum breakdown voltage 4–63717
  - positive point/plane gap, switching surges, final arc development 4–75371
  - proforce wave, electron gas breakdown wave anal. 4–78844
  - in super-high vacuum *(Russian)* 4–72402
  - three-electrode long gap predischarges and breakdown 4–75378
  - vacuum, effect of clumps and ion bombard. of electrodes 4–66785
  - vacuum insulated gap, microparticle detection and identification 4–60351
  - variable density gases, theory 4–75364
  - A, laser sparks, charact. expansion vel. 4–78789
  - Ar, breakdown time lag of short gaps 4–75365
  - Ar, laser pulse, press. depend., cascade ionisation 4–43911
  - CO_2-He-N_2 mixture, laser-induced breakdown, refraction effect on spot size depend. 4–44253
  - D, laser sparks, charact. expansion vel. 4–78789
  - H, laser sparks, charact. expansion vel. 4–78789
  - H_2, underdense, CO_2 laser-driven absorpt. waves 4–48460
  - H_2 breakdown in electric discharge, cathode surface effect 4–75355
  - He, breakdown time lag of short gaps 4–75365
  - He, electron wave breakdown, wave speed and electron temp. meas. 4–44420
  - He, l.p. breakdown, re-entrant Paschen curve 4–75356
  - He, laser sparks, charact. expansion vel. 4–78789
  - N_2, breakdown time lag of short gaps 4–75365
  - N_2, discharge spectra between dielectric covered electrodes 4–75416
  - N_2, energy conditioning of h.p. gaps 4–75403
  - N_2, h.p. electric breakdown, conducting particle effects 4–75405
  - N_2, laser pulse, press. depend., cascade ionisation 4–43911
  - N_2, N_2-methane mixtures, overvolted parallel plane gap, discharge initiation 4–60349
  - N_2O and mixtures, fund. collision processes leading to breakdown at h.v. 4–75070
  - Ne, breakdown time lag of short gaps 4–75365
  - O_2, electron avalanches, O_2^- detachment 4–63718
  - SF_6, breakdown time lag of short gaps 4–75365
  - SF_6, h.p. and liq. state elec. strength temp. depend. 4–75406
  - SF_6, h.p. electric breakdown, conducting particle effects 4–75405
  - SF_6, high voltage breakdown mechs. 4–75408
  - SF_6, ionisation, electron detachment in discharge gap, time resolved obs. 4–75360
  - SF_6, ionisation in long uniform field gaps, formative time lag 4–75358
  - SF_6, spark breakdown, time lags 4–75359
  - SF_6 insulated apparatus, breakdown from stable partial discharges *(German)* 4–56552
  - SF_6-N_2 mixtures, dielectric characts. and breakdown voltages 4–75401
  - $SF_6 + N_2$ mixtures, h.p. electric breakdown, conducting particle effects 4–75405
- **electric breakdown of liquids**
  - cryogenic liquids, review 4–82666
  - diethyl ether, supersaturated, prebreakdown phenomena obs. using gas bubble chamber 4–61106
  - prebreakdown phenomena, gas bubble chamber obs. 4–82654
  - sequential photography, ultra high speed, laser Schlieren system, obs. 4–82653
  - water, discharge, switching characts., self-breakdown 4–79675
  - water, prebreakdown effects in nsec. range, optical investig. *(Russian)* 4–64329

electric breakdown of liquids continued
^{4}He, liquid, self-focusing role in optical breakdown · 4−79215
N_2, electrode area effect 4−53371
SF_6, h.p. and liq. state elec. strength temp. depend. 4−75406
Xe, liquid, electron avalanche obs. 4−73069

electric breakdown of solids
alkali halides, dielec. breakdown electrochem. aspects 4−61109
alkali halides, intrinsic laser damage mechanism 4−55509
dielectric, shock ionisation, positive space charge, hole effects *(Russian)* 4−57473
dielectric breakdown of first-wall insulator materials in fusion reactors 4−69303
disordered condensed system, analytic nature of depend. of breakdown field on physical parameters 4−73072
disordered medium model, probability of threshold ionisation, theory 4−73073
expoxy and polyester resins, breakdown voltage determ. switching impulse *(Hungarian)* 4−49303
insulator, treeing production at damage tracks 4−53373
ionic crystals, h.f. breakdown, Fokker-Planck formulation 4−53372
Langmuir film, low thickness, breakdown cond. mechanism 4−73074
Langmuir film, molecular, destructive breakdown 4−73075
laser surface damage mechanism, avalanche breakdown 4−55493
molecular crystals, Stark spectroscopic studies of dielec. breakdown and space charge effects 4−67529
partial discharge site location technique 4−57448
polyethylene, low-density, mol. wt. effects *(German)* 4−57472
polyethylene *(German)* 4−69733
polyethylene 2,6 naphthalate film, a.c. and d.c. breakdown strength meas. *(Japanese)* 4−82655
polyethylene thin film, breakdown by surface discharges 4−67297
polymer film, breakdown voltage, statistical distrib. 4−53168
quasicrystalline model, probability of threshold ionisation, theory 4−73073
Teflon film, electron irrad., split Faraday cup obs. 4−82442
$Al\text{-}SiO_2\text{-}Si(100)$, m.o.s. struct., self-quenched breakdown regions, SEM obs. 4−75964
Al-SiO-Al system 4−45019
Al_2O_3 films with amorphous semiconductors 4−49581
$As_2Te_3\text{-}As_2Se_3$, glass, reversibility conditions, crit. temp. 4−73070
CdS field emission cathodes, microplasma bistable state in elec. breakdown 4−79857
GaAs, crystal degradation by abrasion and subsequent heat treatment 4−49605
n-Ge, impurity compensation effect on elec. breakdown 4−73071
p-Ge field emission cathodes, microplasma bistable state in elec. breakdown 4−79857
pInSb, h.f. breakdown, 77K *(Russian)* 4−70046
NaCl, damage by 10.6 μ fractional J nanosec. laser pulses 4−55505
NaCl, microscopy, sublimation and decomposition due to implosion 4−61107
NiO, thin film, switching and dielec. breakdown props. 4−53165
NiO:Li, thin film, switching and dielec. breakdown props., change of threshold field with Li conc. 4−53165
SiO_2, defect distrib. determ., self-healing breakdown appl. 4−44529
SiO_2, degradation mechanism, cond. meas. 4−45251
SiO_2, in m.o.s. struct., time-dependent dielec. breakdown, meas. technique 4−60868
SiO_2, m.o.s. structure, alkali ion contamination effect 4−45005
SiO_2, thin film, breakdown characteristics 4−64328
SiO_2 film, dielectric breakdown rel. to growth in halogen and HCl environments 4−61108

electric cables *see cables (electric)*

electric capacity *see capacitance*

electric cells *see cells (electric)*

electric charge
see also space charge
charging of liquid droplets separating from tip of jets investig. 4−78694
drops of conducting liquids, dispersion and charges in dielec. medium during recharging on electrodes 4−45846
glass, electron irradiated, vol. elec. charge, relax. rel. to struct. 4−52782
moving particle, near a perfectly conducting sphere 4−68986
perspex, cubical thermo-electrets, charge retentivity and permittivity at low polarizing field at softening temps. 4−49296
perspex, variation of initial charge with magnetic field in cubical magneto-electrets 4−45232
polyethylene/Hg, contact electrification, effect of surface oxidation 4−79399
potential, due to arbitrary density, numerical calculation, using fast Fourier transform 4−55427
powders, compound, manufacture and electric charging properties *(Japanese)* 4−82996
quantisation condition for classical problem of charge and pole 4−55308
Smith-Purcell radiation from charge moving uniformly parallel to reflection grating 4−74459
static elimination using corona discharge with electrical screening 4−47275
LiF, charged dislocation mobility, high temperature, Debye-Huckel cloud 4−72468
ZnO surface, slow relax. of charge, field effect *(Russian)* 4−70087

electric coils *see coils*

electric condensers *see capacitors*

electric conductors *see conductors (electric)*

electric control equipment
see also controllers; electric sensing devices; switches; telecontrol equipment; telemetering equipment
CLEO stellarator/Tokamak exptl. machine design 4−59871
pain control by electrostimulation of dorsal column and nerves 4−71096

electric control gear *see electric control equipment*

electric current
see also arcs (electric); corona; current density; current distribution; current fluctuations; discharges (electric); eddy currents; electrojets; fault currents; leakage currents; sparks
dielectric solids, with recombining space charge, a.c. response results 4−75872
and e.m. wave scattering, Rayleigh region applic. 4−68998
semiconductor in magnetic field perpendicular to current current discontinuities predicted 4−49004

electric current control
electromagnet control current stabiliser for 8 mm radiospectrometer 4−80948
exploding foil, increasing circuit damping 4−54992
ion current stabilisation, from electron bombardment ion source 4−46795
spectral lamp source stabilization 4−42796

electric current measurement
see also ammeters; galvanometers
5×10^{-15}A, very low current meas. capacitative technique 4−54984
Ayrton-Jones current balance dynamometer modification for standard ampere 4−65343
characteristics of transistors, circuit for displaying on oscilloscope, educational 4−54796
d.c. comparator, superconducting with resolution of 1.5 nA. turn 4−54987
earthquake precursor detection by pipeline current and strain telemetry to satellites 4−70824
electrical measuring instrument, Multavi 8, digital multimeter *(German)* 4−46755
electron multiplier coupled to freq. modulator, input current $1 \times 10^{-9}\text{-}3 \times 10^{-7}$ A 4−46751
fundamental electrical units of current and resistance, determination and maintenance 4−65352
ion beam, pulsed, current meas. using coaxial resonator *(German)* 4−65483
magnetic fields, meas. during events in particle chambers 4−42904
photomultiplier overload effect due to short intense light pulse, meas. 4−68734
plasma diagnostics, current and mag. field meas. 4−66772
semiconductor doping profiles, oscilloscopic method using current pulse shape 4−56763
small a.c., meter for measuring 10^{-13} A, cct. 4−77121
superconducting tunnel junctions, voltage-current characteristics 4−54989
thermally stimulated, method for obtaining dielectric properties 4−57447
wires and elongated electrodes, current distrib. obs. by mag. field meas. method 4−54981
GaAs junction, I-V characteristics of abrupt n-n$^+$ junctions *(Italian)* 4−44987
Pt resistance thermometer, electrochem. system 4−68632

electric discharges *see discharges (electric)*

electric distortion
see also fading
intermodulation meas., harmonic distortion comparison *(Spanish)* 4−58867

electric domains
see also ferroelectric materials
ferroelectric, domain creation with mutually opposite directions of spontaneous polarisation 4−64337
ferroelectric, Mossbauer spectra, elec. field effect, domain structure *(Russian)* 4−79660
ferroelectric crystal, screening energy of flat charged domain boundary 4−64339
ferromagnetoelectric switching and twinning, domain struct., crystallography 4−76107
Gunn device domains, evaporation deposition technique for producing capacitative probes 4−54986
Gunn domain instability increment calc. 4−79367
Gunn effect, hole trapping and propag. conditions for slow high field domains 4−53103
hydrosodalite, phase transition, dielectric anomaly, domain struct. 4−82677
liquid crystal, cholesteric, bubble domain texture formation obs. 4−72425
negative differential cond. materials, small quasineutral domain propag. 4−75871
piezoelectric semiconductor, neg. resist. domain propag. at sonic speeds 4−64099
piezoelectric semiconductor, total energy calc. 4−64333
Rochelle salt, Be-doped, internal bias 4−82672
Rochelle salt, nucleation model for domain wall motion 4−61118
semiconductor, one-dimens. superlattice, existence of mobile high field domain 4−48996
spinel compounds, hidden antiferroelec. and other phys. props. 4−70270
triglycine sulphate, effect of local electric fields on AgCl crystal orientation *(Russian)* 4−69966
triglycine sulphate, ferroelec. domain delineation etching versus pyroelec. laser technique 4−49285
triglycine sulphate, switching, forward velocity of domain walls 4−70262
p-azoxyanisole, liq. cryst., domain struct. investigation by light diffraction 4−78920
$Ba_{0.97}Sr_{0.03}TiO_3$, growth and dielec. props. 4−49573
$BaTiO_3$, $(Ba,Pb)TiO_3$, ferroelec., 90° domain wall thickness meas. 4−61115
$BaTiO_3$, electron microscope obs. of shear surface decoration patterns *(Russian)* 4−73082
$BaTiO_3$, grain size effects 4−76222
$BaTiO_3$, secondary effects accompanying movement of 180° α domains 4−49314
$Bi_4Ti_3O_{12}$, ferroelec. domain switching, impurity control 4−61113
(Cd,Zn)S, evaporated film, l.f. photocurrent oscill., phase memory effects 4−64116
(Cd,Zn)S films, form. in dark, photo-excitation interruption 4−75981
CdS, acoustoelectric domain form., gain meas. 4−44972

electric domains continued
  CdS, current oscillations due to moving temp.-elec. domains 4–57100
  CdS, evaporated film, l.f. photocurrent oscill., phase memory effects 4–64116
  CdS, off-axis acoustoelectric domains, Brillouin scatt. 4–44971
  CdS, photocond., high elec. field domain nucleation due to acoustoelec. flux 4–44968
  CdS, surface wave acoustoelectric domains excitation 4–75926
  CdS films form. in dark, photo-excitation interruption 4–75981
  CdSe, luminesc. from acoustoelec. domains 4–53534
  n-CdTe, domain elec. instability 4–60809
  GaAs, acoustoelectric instability, 77K, domain behaviour 4–72834
  GaAs, nonsaturating velocity-field characts., domain meas. 4–75870
  n-GaAs, photocurrent oscill., phase memory effect 4–44959
  $Gd_2(MoO_4)_2$, domain boundaries, antiphase boundaries, dislocations 4–82678
  $Gd_2(MoO_4)_3$, light scatt. by acoustic waves 4–79701
  Ge, electric domain instability, cryogenic emission electron microscope obs. *(Russian)* 4–73068
  Ge, electron-hole plasma, high field domain 4–70032
  KIO_3, 120° shift in ferroelectric polarisation, and characteristics 4–82676
  $LiNbO_3$, electron microscope obs. of shear surface decoration patterns *(Russian)* 4–73082
  $LiNbO_3$, single cryst., ferroelec. domains X-ray anal. *(German)* 4–76224
  $NaNO_2$, laminar ferroelec. domains, second harmonic light scatt. 4–55521
  Na_2ZnGeO_4:Mn, properties of ionisation domains, luminous spots obs. 4–67664
  $PbMg_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, light absorption obs., 0.39-0.8μ 4–64394
  $PbTiO_3$, reciprocal domain obs. and formation 4–64343
  $PbTiO_3$ crystals, domain structure obs. 4–53382
  $PbZn_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, light absorption obs., 0.39-0.8μ 4–64394
  $Pb(Zr,Ti)O_3$, ferroelec. ceramic, contrib. to permittivity 4–67513
  $Pb(Zr,Ti)O_3$, grain size effects 4–76222
  $Pb(Zr,Ti)O_3$, mechanism for permittivity field depend. 4–70267
  SbSI, influence of illum. on electromechanical props. 4–64345
  SbSI, photo-ferroelectricity effect on hysteresis loop 4–64346

electric double refraction *see electro-optical effects*

electric drives
  see also clutches; electric propulsion
  astronomical telescope, electronic systems 4–65233
  noise analysis of compressor drives in chemical industry 4–50926

electric field effects
  see also electrodynamics; particle optics; Stark effect
  biological effects of h.f. fields, intensity meas. and frequency dependence problems 4–65576
  cathodic arc in plasma at different thermodynamic conditions 4–60373
  cholesteryl chloride + nematic N4, inducing texture changes 4–78905
  EAS radio pulses during thunderstorms rel. to atmospheric electric field 4–68305
  film condensation heat transfer in presence of noncondensable gas, effect of elec. field 4–75175
  trans-hexene-2, liq., γ-irrad., ionisation investig., electron range distrib. functions 4–76612
  h.f. discharge, electron energies distribution 4–44421
  linear dipolar molecules, effect of orientation variables on transport props., in elec. fields 4–75067
  liquid, critical phenomena in strong electric field 4–77581
  liquid, dielectrophoretic forces, exptl. effects obs. 4–53357
  liquid crystal, cholesteric, on shear induced texture change mechanism 4–78904
  liquid crystal, field induced phase transition *(Russian)* 4–48509
  liquid crystal, nematic, bend-shear-mode instabilities in a.c. field 4–72433
  liquid crystals, nematic, study of molecular reorientation and relaxation 4–52693
  maser, cyclotron-resonance *(Russian)* 4–77639
  metal film growth, d.c. field effect, expts. with detached electrodes 4–53592
  metallic thin films conductivity variations from induced changes in surface roughness 4–53159
  nematic liquid crystal film reorientation 4–69724
  neopentane, liq., γ-irrad., ionisation investig., electron range distrib. functions 4–76612
  nitrobenzene/benzene mixture, molecular hyperpolarisability, d.c. elec. field induced s.h.g. obs. 4–57459
  ohmic point contact, metal and p-type Ge, current fluctuations, low freq. *(Russian)* 4–79410
  perdeuterobenzene, in nitrobenzene soln., ^2H n.m.r. spectrum, elec. field effects, mol. alignment 4–64271
  plasma nonlinear 2-beam oscillations, influence of external modulating field *(Russian)* 4–52560
  Polwinit resin, tensile behaviour, thermal ageing and d.c. field effects *(Polish)* 4–82981
  polyatomic gases, quantum mech. treatment of elec. field effect on viscosity, thermal cond. 4–48176
  polyethylene, effect on contact electrification by Hg 4–72850
  preflashover and electron-stimulated desorption in high electric fields 4–56985
  shell, cylindrical dielectric thin finitely-deformed, stability 4–51336
  spark chamber, e.m. displacement dependence on elec. purifying field and mag. induction, obs. 4–81002
  triglycine selenate crystals, piezoelec. and elastic expts. in region of phase transforms. *(German)* 4–57478
  CO_2, laser plasma, positive column contraction, power decrease *(Russian)* 4–59387
  D_2, $c^3\Pi_u$ metastable state, quenching by electric field 4–48076
  Fe film, on SiO_2, photoemission, effect of electrostatic field up to 510000 Vm^{-1} 4–61270
  H_2, $c^3\Pi_u$ metastable state, quenching by electric field 4–48076

electric field effects continued
  KIO_3, cryst. growth from aq. soln., effect of elec. field *(German)* 4–64490
  NaCl, film, appearance of dislocations in strong elec. field 4–79052
  $(Pb,La)(Zr,Ti)O_3$, β-phase electro-optic ceramic, field induced microstructure 4–63829
  Si:B, diffusion from gas, B surf. conc. control by elec. field 4–44556
  p-Si:Zn, induced photoconductivity quenching 4–75924
  TlF dimer, mol. beam electric deflection, investig. of mol. struct., mol. polarity 4–48105
  W, tip growth normal to close packed face, heating in elec. field 4–57674
  YIG, influence on mag. anisotropy 4–76103

electric field measurement
  see also field plotting
  in air, by high-resistance tube electrometer cct. 4–46747
  biological effects of h.f. fields, intensity meas. and frequency dependence problems 4–65576
  electrostatic charging meas. technique *(German)* 4–77126
  electrostatic research, electrometer probe 4–71218
  instruments, field mill sensitivity, calc. 4–46757
  ocean, measurement technique *(Russian)* 4–80410
  p-n homogeneous junction after laser beam excitation 4–64131
  rectangular waveguide e.m. field visualization with liquid crystal indicators *(Russian)* 4–51107
  student experiment facilitated by use of a pantograph 4–54797

electric field strength measurement *see electric field measurement*

electric fields
  see also crystal internal fields; electric field effects; electric field measurement; electromagnetic fields; electromagnetic waves; field plotting
  approximate calculation in systems comprising two electrodes with common axis of rotational symmetry *(German)* 4–62774
  biological effect, 50 Hz a.c. field on human beings *(German)* 4–58599
  combined field shaping, system with uniform mag. field ⊥ spatially stratified elec. field 4–77586
  cyclotron central region anal. by magnetic analogue method 4–55010
  d.c. cables, aged mass-paper insulated, field strength calc. *(German)* 4–55420
  d.c. conduction MHD channel, electric field strength distrib. *(Russian)* 4–63605
  dielectric cylinder excitation, integral eqn. of 1st kind 4–81269
  difference equations, numerical method 4–47266
  electrostatic generator, bar-type, rotor field analysis and calc. *(Russian)* 4–47261
  electrostatic potential field analysis, linear programming *(Russian)* 4–47259
  energy storage, Gauss law in integral form 4–73945
  exterior, rotationally symmetric, numerical method for soln. of *(Serbocroatian)* 4–68985
  field ion microscope distribution, analogue investigation 4–65541
  illumination problems solved by e.s. field analogy for point and line sources *(Rumanian)* 4–55418
  intensity plotting by computer, educational 4–73960
  ionospheric dynamo-electric fields 4–70772
  ionospheric winds and electric fields from geomagnetic S_q-var. 4–61837
  lightning-induced electric fields in ionosphere 4–61839
  MHD generator channel, two-dimensional electric field, optimum loading circuits 4–63710
  microtron acceleration mode stabilisation 4–80967
  nitrobenzene, charge behaviour, static and pulsed high voltage, Kerr effect obs. 4–45249
  nitrobenzene, distrib. in l.f.-a.c. field, electro-optic Kerr effect obs. 4–82665
  parallel cylindrical conductors, exact classical soln. 4–81266
  in plane-parallel capacitor with intermed. electrodes, ion trajectories 4–77586
  plasma time-dependent microfield distribution, model including ion-ion interactions 4–72351
  potential problems in general 2D regions, numerical solution package:POTENT 4–77591
  quadrupole fields, mass spectrometer simulation by obs. of motion of charged particles 4–51665
  quasistationary, appl. to soln. of spatial elasticity theory *(Russian)* 4–77418
  radial electric dipole located close to ideally conducting circular cylinder 4–74453
  s.h.f. film drying process dielectric materials *(Russian)* 4–65865
  solid-liquid interface, distortion, electrohydrodynamic effects, Kerr cell obs. 4–44986
  strong atmospheric fields above ordinary rain cloud 4–50306
  travelling ionospheric disturbances, electric field control 4–46066
  variable electric fields in absence of mag. fields 4–65863

electric filters *see filters*

electric furnaces
  see also arc furnaces; resistance furnaces
  electron-beam heated furnace for ^{57}Fe thin film deposition 4–46603
  graphite, with circular cavity for atomic absorpt. analysis of ultrapure materials *(Russian)* 4–59011
  graphite tube, meas. elec. props. of MgO single crystal 4–58764
  temperature programming, millivolt source 4–62443

electric fuses
  exploding Cu foil fuse package for Z-pinch inductive energy storage system 4–59865

electric glow *see corona*

electric heaters *see electric heating*

electric heating
  see also domestic appliances; drying; electric furnaces; heating elements; induction heating; ovens; radiofrequency heating
  a.c. plasma torch, dynamic model 4–56529
  arc gas heater, heat exchange in cathode spot in Ar medium 4–48462
  arc heater for high enthalpy plasma flows 4–82023
  i.r. single crystal growing apparatus, floating zone method 4–79874

electric heating continued
reactor fuel pin simulators used in LMFBR thermal hydraulic tests, i.r. inspection 4–43598
temperature controlled cryostat for 77 to 800 K range 4–46607
temperature meas. of gas-discharge heat sources, 10000 to 18000K 4–80850
thermoelectric heater, permeable, thermodynamic analysis *(Russian)* 4–54841

electric heating elements *see heating elements*

electric ignition
gas discharge ignition, transcendental equation system, computer-aided numerical soln. 4–78836
propane-air mixture, discharge, non-metal electrodes 4–82054
spark ignition kernels, e.m. induced motion 4–69673
spark ignition kernels, e.m. induced motion 4–69674

electric load *see load (electric)*

electric machine testing *see machine testing*

electric machine theory *see machine theory*

electric machines
see also electric motors; machine bearings; machine testing; machine theory; machine windings; rotors
magnetic structures, eddy current losses, finite element analysis 4–47270

electric moments
see also atomic electric moment; molecular moments; nuclear electric moment
benzene chromium carbonyl, multi- elec. dipole moment matrix and semi-empirical MO models 4–56182
dichloroanthracene, mol. cryst., charge transfer excitons, local dipole moment 4–53062
dielectric media, space- and time-dependent fluctuations, mol. theory 4–55300
dipole oscillator, possibility of Vavilov-Cherenkov emission *(Russian)* 4–74361
excitonic insulators in crossed electric and magnetic fields 4–53055
heteroorganic compounds, dipole moments calc. 4–53363
methyl fluoride, laser Stark spectroscopy in 10 μm (infrared) region, nu$_3$ bands 4–66436
molecular rovibronic level dipole moment symm. cond. for first-order Stark effect 4–52191
multipole, new expressions 4–47140
neutron, test of superweak interaction theory 4–71661
neutron stars, rot. mag., elec. and mag. fields, general relativity 4–80576
nuclear debris cloud, electric dipole moments from Compton current model 4–50299
polar liquids, Debye dielectric relaxation theory, rotational Brownian motion of sphere 4–82096
polybutylisocyanate, in solution, rotational friction, dipole moments, conformation, rigidity *(Russian)* 4–72262
polymer solution, in good and bad solvents, props. of fibres produced *(Russian)* 4–53896
Van der Waals molecules, polarity 4–43820
CH, high field Stark effects, dipole moment determ. 4–74972
HBS, Zeeman effect obs. 4–43855
NH, high field Stark effects, dipole moment determ. 4–74972
Na$_4$(AlSiO$_4$)$_3$Cl, sodalite, elec. dipole centres, props. 4–61105
OH dilute system in NaCl, KCl, KBr, RbCl, 0.025 to 4.2K *(German)* 4–49287
PbBr$_2$, elec. dipole centres, props. 4–61105
PbCl$_2$, elec. dipole centres, props. 4–61105

electric motors
see also a.c. motors; d.c. motors
refrigerators, noise testing model *(Hungarian)* 4–50925
rolling rotor, split mag. field, pulsating field and torque *(Russian)* 4–47262

electric permeability *see permittivity*

electric potential
see also contact potential; surface potential; voltage control; voltage measurement
acoustic surface wave propag. in layered half space, electric pot. anal. 4–73919
due to arbitrary charge density, numerical calculation, using fast Fourier transform 4–55427
current filament moving close to conducting plate, inhibition force *(Russian)* 4–62779
e.m.f. unit monitoring by a.c. Josephson effect, Canadian expt. 4–65334
equipotential line plotting by computer, educational 4–73960
frame antenna near linear current carrying conductor, e.m.f. determ. *(Russian)* 4–51123
h.f. discharge, unipolar, electrode voltage drop determ. 4–60365
lower ionosphere potential field generated by diurnal atmospheric tide 4–58077
MHD generator optimal plane, distrib. of potential and magnetic field 4–78825
plane problem, integral eqn. represent. *(French)* 4–43224
problems in general 2D regions, numerical solution package:POTENT 4–77591
semiconductor, nonlinear induction effect in alternating inhomogeneous mag. field 4–75876
supercondcutor, type II, e.m.f. after thermal destruction of magnetisation, field profile depend. 4–45035
system of two spheres and two cylinders in uniform e.m. field, potential calcs. *(Russian)* 4–51502
water vapour, elec. pots. produced by relax. of saturating vapours *(French)* 4–60150
Cu/CuBr/Cu$_{2-\delta}$S/C solid cell, e.m.f. meas., for Cu$_x$S phase diagram determ. *(French)* 4–56857
Cu-Sb, thermodynamic props. 4–54089
α-Fe$_2$O$_3$, electrical conductivity and thermo-e.m.f. in gas mixtures, O$_2$, CO$_2$, SO$_2$ 4–70016
n-InSb, non linear induction effect in alternating inhomogeneous magnetic field 4–75876
LaCl$_3$-ACl system, A=Li, Na, K, Rb, Cs, thermodynamic quantities of mixing meas. using electrochem. cell method 4–68011
Pb-Cu, thermodynamic props. 4–54089
Pb-Cu-Sb, thermodynamics of intermetallides 4–50214

electric power generation
see also direct energy conversion; power stations
geothermal energy production and hydraulic fracturation *(French)* 4–45974
nuclear fuel fabrication for commercial gen. 4–47798
physics and the energy problem, conference Chicago, USA (February 1974) 4–73937
solar energy utilisation by phys. methods 4–70899
thermonuclear fusion expt., French research *(French)* 4–63293

electric propulsion
see also electric drives
space vehicle, solar electric propulsion, circular orbit transfer, starting orbit radius calc. 4–80448

electric relays *see relays*

electric resistance *see resistance (electric)*

electric resistance furnaces *see resistance furnaces*

electric resistors *see resistors*

electric sensing devices
see also instruments; measurement
analogue device for ratio meas. of two voltage inputs 4–80947
automatic Toepler pump control, photoconductive cells as mercury level sensors 4–46615
buoy technology 4–58148
capacitor moisture meter, algorithm for static capacity evaluation *(Russian)* 4–46950
current detector, using superconducting Nb wire 4–80853
exhaust analyser for internal combustion engines 4–71132
fatigue crack signallers 4–50063
field electrode, improvements and possibilities of vacuum usage *(French)* 4–80862
flow sensor, fine wire grid, design and sensitivity 4–46985
h.f. electrodeless conductometers, inductive meas. cell design 4–55144
humidity switch, use of hygroscopic polymer and conductive grains 4–80945
imaging, remote sensor systems 4–46730
induction orientation, inclinometer principles and construction *(Russian)* 4–54328
ionised-flame detector for hydrocarbon conc. meas. in air *(Croatian)* 4–46500
LEED current detector, electron multiplier coupled to freq. modulator, input current 1×10^{-9}-3×10^{-7} A 4–46751
l.f. internal friction in metals 4–42716
magnetic bubble sensing by pulsed focused laser beam 4–51658
magnetic field measurement and control system for spark source mass spectrometry 4–51217
multielement detector, for astronomical telescope 4–68468
NDT, eddy current inductive probes, effect of ferrite cores 4–64684
ocean moored temperature sensor, fine-struct. contamination 4–65004
oceanography, remote sensing 4–58147
optoelectronic displacement monitor, for a mechanical stimulator 4–65563
p-n junction differential thermometer with .0001°C resolution 4–65399
pH measuring device, for flowing liquids 4–68013
photoconductivity measurement, in dyes, using microelectronic structure 4–51110
position-sensitive detector, time-resolved position meas. applic. 4–54826
punched-tape collection of thermocouple sensor data *(Russian)* 4–68639
pyroelectric thermal conductivity sensor, for miniature gas chromatography system 4–62652
quartz crystal microbalance measurement, using r.f. voltage, nonmetallic films applic. 4–42702
semiconductor film thermoelectric elements, radiation temp. sensors 4–42747
temperature maintenance, ±0.5°C in 0 to 1200°C range 4–46590
temperature-compensated conductometric hygrometer *(Russian)* 4–80848
temperature-sensing transistor, data acquisition system, calculator-based 4–46587
tensoresistor, calibration over wide deformation range 4–50058
thin-film sensing element for thermochem. analysis of explosive gases 4–55145
two-channel e.m. flowmeters with frequency and time signal separation *(Russian)* 4–81104
Hg drop fall detector, based on antenna-VHF radio oscillator system 4–51221

electric shocks
see also protection; safety
ventricular fibrillation, threhold 60 Hz current 4–83303

electric sparks *see sparks*

electric strain gauges *see strain gauges*

electric strength
see also electric breakdown
compressed gases in ball-plane system of electrodes *(Russian)* 4–56550
d.c. cables, aged mass-paper insulated, field strength calc. *(German)* 4–55420
disordered condensed system, analytic nature of depend. of breakdown field on physical parameters 4–73072
disordered medium model, probability of threshold ionisation, theory 4–73073
electrode of accelerator tube, dielectric strength increased bu the He ion irradiation 4–42857
insulators in vacuum, impulse flashover, effect of d.c. prestress, expt. 4–68729
m.o.s. structure, stability and dielec. strength, effect of condensation heat of gate electrode metal 4–53150
polyethylene, low-density, mol. wt. effects *(German)* 4–57472
polythene cables, dielectric strength, testing *(German)* 4–45248
porcelain, hard, rel. to mineralogical comp. and microstruct. 4–49302
quasicrystalline model, probability of threshold ionisation, theory 4–73073
water, diffusion electrode system, increase due to electrode shielding *(Russian)* 4–64330

electric strength continued
  N_2O and mixtures, fund. collision processes leading to breakdown at h.v. 4−75070
  N_2O-$SF_6(O_2)$ mixtures, dielectric strength, sparking potentials 4−75357
electric switchgear *see switchgear*
electric transformers *see transformers*
electric variables control
  see also electric current control; frequency control; gain control; voltage control
  photoconductor, Si, linear control of ohmic value by appl. voltage 4−46739
electric variables measurement
  see also admittance measurement; attenuation measurement; capacitance measurement; charge measurement; dielectric measurement; electric current measurement; electric field measurement; electrical conductivity measurement; electrical impedance measurement; frequency measurement; gain measurement; inductance measurement; loss measurement; noise measurement; phase measurement; power factor measurement; power measurement; Q-factor measurement; reactance measurement; resistance measurement; voltage measurement
  a.c. properties of materials, freq. response analyser 10^{-5} to 10^5 Hz, computer controlled 4−62490
  electrochemical system responses, using detector and gated integrator in bridge cct. 4−68007
  electron diffusion and drift in gases, review of theory and expt., book 4−60151
  electrostatic charging meas. technique *(German)* 4−77126
  glow and arc discharges, flip-flop transition 4−56553
  h.v. impulse meas. systems, e.m. interf. 4−48391
  precision e.m. meas., conference, London (1974) 4−65367
  pulsed bias transient capacitance apparatus, p-n junction traps meas. 4−74092
  Seebeck effect, heat flow technique with in situ thermocouple calibration 4−42746
  thermal noise power measurement for high-temp thermometry, 273-1300K 4−50980
  USSR fundamental standard for means of measuring electrical quantities 4−77024
  work of Bureau International des Poids et Mesures 4−65361
electric welding
  see also arc welding; electron beam welding
  laser beam applications 4−47386
  laser pulse shaping device 4−62822
electrical conductivity
  see also electrical conductivity of gases; electrical conductivity of liquids; electrical conductivity of solids; electrical conductivity transitions; hopping conduction; Kondo effect; mixed conductivity; negative resistance effects; photoconductivity; semiconductor materials; semiconductors; skin effect; space-charge-limited conduction; spin disorder resistivity; superconducting materials
  apparent resistivity sounding results over transition layer Earth model 4−76659
  disordered branching network, self-consistent calcs. 4−67192
  disordered systems, one-dimensional, vanishing of d.c. conductivity 4−53023
  dispersion on spherical surface, probability anal. 4−65645
  electron condensation in system of polarons or fluctuons *(Russian)* 4−72738
  electrorheological disperse system in constant electric field, effect of dielectric axisymmetric rotation *(Russian)* 4−45856
  e.m. field above half-space, conductivity as function of position 4−81265
  Kubo formula with velocity dependent forces, Lorentz gas example 4−65836
  liquid crystal, cholesteric, temp. depend., rel. to struct. changes 4−75873
  plasma, azimuthal meas. using coil around discharge tube 4−66768
  plasma, kinetic properties in presence of strong elec. field, polarisation effect *(Russian)* 4−81979
  random systems, freq. depend. near true spectral edge *(Russian)* 4−70003
  resistivity, exact expression using force-force correlation function 4−79323
  stellar photosphere, rel. to stellar parameters 4−58284
  two-dimensional-site percolation problem 4−72739
  two-phase dispersed particle system, thermal, electrical cond. determ. using elastic moduli theory 4−45764
  Li exploding-wire plasma, numerical one-dimens. MHD calc. 4−60279
electrical conductivity measurement
  alloy, resist, temp. depend., apparatus for simultaneous graphical and digital recording *(Czech)* 4−80944
  apparent resistivity, transformation of dipole to Schlumberer sounding curves 4−76753
  conductivity amplifier, kinetics of reactions in solution 4−61599
  contactless l.f. meas. distinguishing between inhomogeneous and homogeneous samples 4−57093
  Earth mantle conductivity from geomagnetic secular var. data inversion 4−80393
  Earth medium electrical characteristics, meas. techniques, results and applications 4−70808
  geoelectric probing, resistivity factor in resistivity methods 4−80395
  geophysical resistivity data interpretation of two-electrode array meas. 4−76749
  geophysical resistivity meas. using linear electrodes, depth of investigation 4−76748
  heat flow technique with in situ thermocouple calibration 4−42746
  h.f. electrodeless conductometers, inductive meas. cell design 4−55144
  layered media, resistivity signal partition 4−61888
  liquids, method for liq. of unknown dimens. *(Russian)* 4−80949
  microwave reflection technique for semiconductors 4−65478
  permafrost subsurface conductivity and permittivity determ. 4−73575
  photocathodic film, polarization at low temp., possible appl. to resist. meas. 4−70395
  plastic films 4−79425
electrical conductivity measurement continued
  refractory alloys, subsecond duration pulse heating method 4−74093
  semiconductor, surface layer thickness and apparent cond. determ. method *(French)* 4−74091
  semiconductor, use of 4-point in-line and heated probes 4−46753
  semiconductor resistivity, van der Pauw method, contact size effects 4−80958
  semiconductors, high field effect on microwave conductivity 4−71216
  semiconductors, high-resist., spectral and thermal depend., automatic device *(Russian)* 4−65482
  wastewater electrolyte, limitations 4−71133
  Fe, simultaneous thermophysical measurements above 1500K, transient (subsecond) technique 4−74017
  GaAs, u.s. method, absorption coeff. obs. *(Slovak)* 4−64074
  Si, minority carrier lifetime meas., separation of bulk and surface effects 4−54990
electrical conductivity of electrolytic liquids
  see also electrochemical analysis; electrolytic ion mobility
  alkali halides, conc. aq. solns., struct. investig., viscosity, equiv. cond., self-diffusion meas. *(French)* 4−45941
  alkaline earth halides, conc. aq. solns., struct. investig., viscosity, equiv. cond., self-diffusion meas. *(French)* 4−45941
  electrolyte solutions, associated, ionic self-diffusion coeffs. meas., comparison with cond. data *(French)* 4−45914
  h.f. electrodeless conductometers, inductive meas. cell design 4−55144
  hydrodynamic stability under ambipolar injection of recombining ions, crit. voltages *(French)* 4−50170
  isobutyric acid-water mixture, resistance anomaly near critical point 4−48977
  meas. using four-electrode cell 4−50176
  membrane/electrolyte systems, Hall effect meas., elec. transport processes investig. *(German)* 4−68008
  non-electrolyte molecules in electrolyte, theory of transport 4−64714
  polystyrene-diphenylmethane isodielectric mixture, dielec. props. obs. 4−82441
  quaternary ammonium salts, molten, conductance, vol. meas. at high press., liq. struct. model 4−52921
  KNO_3-$Ca(NO_3)_2$, melt, glass-forming, elec. relax. investig. in liq. and vitreous states 4−76214
  Na_2O-B_2O_3 molten system, freq. depend. of elec. resist., struct. and comp. *(Japanese)* 4−50178
  PbO-B_2O_3 molten system, freq. depend. of elec. resist., struct. and comp. *(Japanese)* 4−50178
electrical conductivity of gases
  air, Y_2O_3 dust suspension, u.v. induced 4−48180
  MHD generators, induction-type, interaction with magnetic fields of plasma 4−78826
  partially ionized ternary gases in magnetic fields, generalized Ohm's law 4−60152
  Saturn V exhaust plume, rel. to lightning initiation 4−80341
  Ar, electrical conductivity measurement in wall stabilized arc 4−44419
  Ar plasma, electrical conductivity, radiowave diagnostics *(German)* 4−48451
  N_2, high temperature transport processes, calc. 4−44179
electrical conductivity of liquids
  see also electrical conductivity of electrolytic liquids
  alloy, electrical resistivity and thermoelectric parameter, conc. depend. 4−60775
  bee's wax, variation with temp. and electrical field 4−57088
  bees wax, 52 to 89°C, Schottky emission, traps, semicond., thermoelectret 4−79363
  benzene, carrier injection, model insulating fluid *(German)* 4−79390
  benzene, dark currents, bulk and electrode phenomena 4−75854
  benzene, dried with mol. sieves, pressure depend. meas. up to 5 kbar 4−60797
  biphenyl in n-hexane, time-of-flight mobility obs. 4−82418
  butene-2, electron mobiliites, cis-trans effect 4−82417
  cryogenic liquids, review 4−82666
  deep sea turbulence, electrical conductivity fluctuations *(Russian)* 4−54180
  disordered system, resistivity theory from random force correl. formula 4−57077
  droplet separation from tip of jets, associated electrification investig. 4−78694
  3-N-p-ethoxybenzilidene-amino-6-n-butylpyridine, smectic liq. cryst., electrical conductivity *(German)* 4−48987
  fluorides, molten, single and binary melts, summary of data 4−70019
  glass melt, temp. depend., free vol. theory *(German)* 4−44910
  n- hexane-neopentane mixtures liq. dielec., electron mobility rel. to conducting state energy 4−60821
  insulating oil film, for cables, activation energies 4−45250
  isobutyric acid + water critical system, elec. cond., viscosity determ. rel. to temp., anomaly investig. 4−54090
  liq., cond. state energy of electrons investig. 4−82437
  liquid crystal, nematic, low field cond. by electrodialysis 4−78908
  lubricating oil, thin film 4−48694
  MBBA, doped, molar conductivity given by Onsagers equation for electrolytic conduction 4−70249
  MBBA, inversion wall annihilation dynamics elec. cond. obs. *(German)* 4−78922
  measurement technique *(Russian)* 4−80949
  metal, fully ionised, electron transport investigation 4−60777
  metal, multivalent, temp. depend. *(Russian)* 4−57078
  metal, resistivity theory from force-force correl. function 4−57070
  metal, using modified perturbation theory 4−79330
  metal-nonmetal transition, inhomogeneities regime 4−79264
  methane liq., cond. state energy of electrons investig. 4−82437
  monatomic liquid, atomic and electronic transport props. and molar vol. 4−72581
  nematic liquid crystal, anisotropy, temp. depend. *(Russian)* 4−66828
  polymer, rel. to electrokinetic charrging during capillary extrusion 4−66679
  pyridene, dark currents, bulk and electrode phenomena 4−75854
  seawater, conversion to salinity, use of CTD sensors 4−65005

electrical conductivity of liquids continued
solution kinetics, cond. amplifier 4−61599
two-phase fluid, component volumetric concentration determination, conductometric anal. 4−48346
Ag-Sb melt, electron transfer *(Russian)* 4−70008
Al, electrical resistivity, depend. on model potential form factor, dielectric screening function and struct. factor 4−67201
Al, nonlocal model potential calcs. 4−44615
As_2Se_3, strong fields, h.f., temp. depend. 4−75881
As_2Se_3, switching, temp. depend. of activation energy 4−79386
As_2Se_3-As_2Te_3, liq. semiconductor, temp. depend. obs. 4−72779
$As_2Se_3Mn_x$ and $As_{30}Te_{48}Ge_{10}Si_{12}$ glasses, prep., elec. cond. at high temps. 4−70055
B_2O_3, I-V characts., strong electric field effects 4−57103
Cd-Zn melt, electron transfer *(Russian)* 4−70008
$CdGeP_2$, meas. at cryst.-melt phase transition, semicond.-semicond. melting scheme 4−72777
Cu-Ga melt, rel. to SRO *(Russian)* 4−70453
Cu-In melt, 500-1100°C *(Russian)* 4−45533
$CuO.P_2O_5.V_2O_5$, I-V characts., strong electric field effects 4−57103
Cu_2SnSe_3, thermal effects during melting, phase diag., temp. depend. of elec. cond. 4−44671
Dy, elec. resist. meas. from room temp. to 1600°C 4−60776
Ga-In alloys, resist., −20 to 800°C *(Russian)* 4−48955
$Ga_2(Se_xTe_{1-x})_3$, solid immiscibility and liq. struct. investigation 4−67046
Hg, struct. factor obs., elec. resist. calcs. 4−60400
Ho, elec. resist. meas. from room temp. to 1600°C 4−60776
In-Te, liquid alloys, elec. cond. and thermoelec. power meas. 4−82410
K, electrical resistivity, thermoelectric power, model potential calcs. 4−60774
La, Lorenz no. behaviour, 1200-1600K *(Russian)* 4−44893
Mo complex, Mo tetradiethyldithiocarbamate halides, ionicity 4−60452
Na, electrical resistivity, thermoelectric power, model potential calcs. 4−60774
Pb, electrical resistivity, depend. on model potential form factor, dielectric screening function and struct. factor 4−67201
Pb-Sn-Bi *(Russian)* 4−70007
Pb-Sn-Zn *(Russian)* 4−70007
Sb_2O_3, I-V characts., strong electric field effects 4−57103
Se, hole transport mechanism 4−75885
Se, Se:Te(Ge), I-V characts., strong electric field effects 4−57103
Se-Te, strong fields, h.f., temp. depend. 4−75881
Sn-Se alloys, elec. cond. and thermo-e.m.f. 4−44946
Te, meas. at temps. beyond normal b.p. 4−70055
Tl_2S, molten, solid phases, elec. cond., thermoelec. power meas., doping investig. 4−44948
Tl_2Se:Te,In(Sn), molten, possibility of carrier compensation 4−75906
Tl_2Te, pseudogap determ., diffusive transport 4−82348
U, high temp., thermodynamic equilib. to 9000K, eqn. of state, resist. meas. 4−63888
Zn, electrical resistivity, depend. on model potential form factor, dielectric screening function and struct. factor 4−67201
$ZnSiAs_2$, meas. at reversible cryst. to melt phase transition 4−72776

electrical conductivity of solids
see also ionic conduction in solids; Poole-Frenkel effect; semiconductor materials; superconducting materials
(TTF)(TCNQ) film, epitaxial on NaCl, characterisation 4−57185
alkali metal, resist. temp. depend. at low temps. anal. 4−64064
alkali metal, thermal and electrical resistivities, temp. dependence, to free electron approximation 4−64059
alkali metal, volume depend. of electron-ion coupling determ. from resistivity 4−60749
alkali metal alloys, dilute, electrical and thermal resistivity calc. 4−82385
alkali metals, temp. variation of resistivity in free-electron approx. lattice dynamical model 4−48958
alkali silicate glass, prod. by ion exchange and H_2 treatment 4−60843
alkaline earth disilicides and digermanides, resist., 20-800°C 4−60795
alloy, resist, temp. depend., apparatus for simultaneous graphical and digital recording *(Czech)* 4−80944
alloy, substitutionally disordered, tight binding model 4−53081
amorphous chalcogenide threshold switch, filament props. 4−60886
amorphous material, relax. case semicond. 4−79358
amorphous semiconductor, equations governing threshold switching 4−70053
amorphous semiconductor, localised band tail and extended states 4−75851
amorphous semiconductors, obs. of one carrier injection effect on I-V characts. 4−53104
amorphous semiconductors, review 4−75850
amorphous system, hopping cond., finite-size-system percolation 4−53097
anisotropic relaxation time, calc. for d.c. cond. 4−44904
anthracene, doped and pure, electroluminescence calcs. 4−61233
anthracene, double injection, free carrier densities 4−67220
anthracene, freq.-depend. cond., 10^{-6} Hz to 32 GHz 4−67213
anthracene, single cryst. unipolar excess bulk charge density, voltage depend. 4−72784
anthracene film, rel. to electrolum. quenching, 70-330K *(Russian)* 4−67666
Be-BeO transition layers reactively deposited by evaporation, surface resist. *(German)* 4−64461
bee's wax, variation with temp. and electrical field 4−57088
bees wax, 52 to 89°C, Schottky emission, traps, semicond., thermoelectret 4−79363
benzene, dark currents, bulk and electrode phenomena 4−75854
carbon-graphitic materials, high-porosity, 300-1700K 4−45870
chalcogenide semiconductors, glass form. 4−82416
chalcogenides vitreous semiconductors, expt. review 4−79268
choline chloride, irrad., solid-state chemistry 4−80692
conduction mechanism, semiclassical model, monoenergetic localized states 4−79339
copper phthalocyanine, position of Fermi level in δ-model 4−48970

electrical conductivity of solids continued
degenerate solid-state plasma, nonlinear conductivity calc. for strong mag. field 4−72813
dielectric, nonlinear current flow problem, higher harmonics *(Russian)* 4−70025
dielectric, time domain spectroscopy, Fellner-Feldegg's thin cell method, math. anal. 4−61086
dielectric semiconductor, insulating electrode layer influence 4−70080
dielectric thin film, current characts. under slow electron impact 4−79426
dilute alloys, nonmagnetic, effect of Umklapp process and phonon drag on low-temp. conductivity 4−53077
disordered crystal, vibrating, electron transport theory 4−64072
disordered networks, anisotropic elec. cond. investig., effective medium theory 4−70002
disordered system, resistivity theory from random force correl. formula 4−57077
double injection theory for compensated semicond. with deep acceptors in forbidden band 4−82474
double injection theory for compensated semiconductor with deep acceptors and electron traps *(Russian)* 4−57162
DPPH, orthorhombic cryst. powder disc., effect of recrystallis. solvent 4−57094
Einstein solid, elec. resist. calcs. 4−60770
electron release from dipole potentials, field depend., cond. process 4−67230
epoxy polymer, decaying and steady currents at high fields 4−64097
ferroelectric polydomain crystal, internal friction, electronic cond. influence 4−79688
ferroelectric semiconductor, thermoelectric phenomena 4−64106
ferromagnet, oscillations of a degenerate electron liquid, conductivity tensor calc. 4−79471
ferromagnet with domain struct., temp. depend. 4−75840
ferromagnetic alloy, amorphous, spin-excitation spectrum and resistivity minima 4−48963
ferromagnetic metal, spin-orbit interaction influence on elec. cond. tensor *(Russian)* 4−48965
ferromagnetic semiconductor, heavily doped, screening, uniform state instability and charge carrier scattering 4−79340
film, oblique incidence evaporated, resistivity anisotropy 4−64142
film, quantum size effect, elec. props. in presence of mag. field 4−72874
glass, devitrification detection by elec. conductance meas. 4−45838
glass-ceramic, residual glass phase behaviour 4−64598
glassy polymers, C black filled, electrical charge transport mechanism 4−67218
granular materials, composite type, effective heat cond., dielec. const. and elec. cond., steady-state conditions 4−64655
graphite, crystallite average size determ. 4−67938
graphite, neutron irradiated and unirradiated conductivity meas. 4−56779
Hall coefficient rate of change, estimation using Fermi and resist. data 4−60784
Hubbard chain, narrow band, polaron effects on conductivity 4−75849
injection current, thermal quenching 4−82429
insulator, cryst. and amorphous, a.c. photocond. and dark cond. meas. 4−44961
ionic crystal, elec. cond. and associated processes, vacancy supersaturation 4−72790
Kondo system, freq.-depend. conductivity, model 4−64054
lead phthalocyanine, effect of O_2 on elec. props. 4−79344
lunar surface conductivity inversions, Explorer 35 and Apollo 15 magnetometer obs. 4−58261
magnetic alloy, dilute, resistance minimum in absence of impurity moments 4−48960
magnetotelluric sounding curves rel. to deep Earth electrical conductivity 4−68111
metal, asymptotic soln. of Boltzmann transport eqn. 4−70004
metal, Boltzmann transport equation, asymptotic soln. 4−64055
metal, changes on dislocation ageing *(Russian)* 4−44892
metal, containing parallel screw dislocations, transport phenomena *(Russian)* 4−72742
metal, crack concentration and dimensions determ. by residual resist. method 4−63851
metal, effect of electron-phonon interactions under mag. breakdown conditions 4−72748
metal, electrical resistivity due to vacancies, influence of atomic displacements *(Russian)* 4−67196
metal, electronic struct. and deform. depend. *(Russian)* 4−53076
metal, enhancement by long-wavelength fluctuations 4−44889
metal, f.c.c., temp. depend., Boltzmann eqn. 4−44890
metal, film, discontinuous, thickness depend. using Mayadas-Shatzkes theory for d.c. and r.f. resist. 4−53158
metal, induced and intrinsic anisotropy effects, review 4−44896
metal, low temp. resist. theory *(Russian)* 4−70011
metal, Ohm's law, nonlinear correction derived from Boltzmann's eqn. 4−53074
metal, relationship between current and elec. field, low temp., influence of nature of scatt. *(Russian)* 4−72752
metal, resistivity theory from force-force correl. function 4−57070
metal film, temp. coeff. of resist., thickness and grain size depend., calc. 4−60878
metallic conductor, possibility of estimating phase transition time by self-oscill. processes *(Russian)* 4−72749
metallic thin films, variation under electric field inducing changes in surface roughness 4−53159
metals in polar insulators, tunnelling mechanism of conductivity, Bose condensation in solid solutions 4−67193
meteorites, carbonaceous chondrites, meas. 4−62074
N-methylphenothiazine-iodine donor-acceptor complexes, elec. cond. anisotropy, −180 to +40°C *(German)* 4−67212
mica, vol. and surface, temp. depend. *(Russian)* 4−57087
Moon, numerical inversions of e.m. response 4−70946
new effects in small particles 4−49024
Nimonic, PE16 alloy, ageing, resistometric study, use in nuclear reactors 4−70497

electrical conductivity of solids continued
nondegenerate electron gas, electron-impurity Coulomb collisions 4−70013
normal metal point junctions, nonlinear effects in elec. cond. of point junctions *(Russian)* 4−67273
olivine, electrical conductivity at high pressure and under controlled O_2 fugacity 4−54117
one dimensional metal, fluctuation resistivity, Peierls instability 4−70005
organic ion-radical crystals *(Japanese)* 4−79347
orthotolidin-N,N′-bis(4-aminobenzene-2-sulphonic) acid derivatives, rel. to chem. struct. 4−44950
oxide, electronic cond. rel. to activation energies for thermal oxidation of metals 4−60698
oxide semiconductors, book 4−60492
perfect conductivity, Frohlich's model from Kubo formalism 4−79431
Permalloy film, room temp., scatt. mechanisms 4−67291
photocathodic film, polarization at low temp., possible appl. to resist. meas. 4−70395
plastic films, meas. 4−79425
plastic with antistatic agents, resist. meas. and correl. with contact angle of water 4−80137
point junctions, oscillations resulting from phonon generation 4−52838
poly(N-vinylcarbazole), amorphous film, dark current, temp. depend. 4−79427
polyester resin-acetylene carbon black compounds, metallic cond. 4−72753
polyethylene, at cryogenic temp., carrier mobility, transient SCLC obs. 4−82421
polyethylene, cond. mechanisms, field depend., charge storage 4−72873
polyethylene, cross-linked, stress distrib. and J-F characteristics under d.c. voltages, calc. *(Japanese)* 4−48989
polyethylene, thermally stimulated current in high temp. region 4−82407
polyethylene 2,6 naphthalate film, surface and volume resistivity meas. *(Japanese)* 4−82655
polyimide film, dipolar rot. explanation of transient currents 4−53156
polymer, d.c., a.c., high field, mechanisms 4−72792
polymer, metal-filled, anisotropic, elec. cond. mechanism 4−64090
polymer dielectric, absorption and steady currents *(Reegal Zgmaae Retmam)* 4−79364
polymer film, memory and threshold elec. switching processes 4−67296
polymer/ferromagnetic filler system, mag. field effect on vol. elec. resist. 4−82991
polypropylene electret, cond. process, appl. of zero-current electrometer method 4−46736
polypyromellitimide, high pressures, dielectric losses and conductivity meas. *(Russian)* 4−82663
polyvinylidene fluoride, at low elec. field 4−82420
polyvinylidene fluoride, dipole reorientation, TSC obs. 4−57463
protective coatings, diffusion aluminide, nondestructive characteriz. methods 4−50072
pyridene, dark currents, bulk and electrode phenomena 4−75854
pyroxenite, synthetic lunar, electrical conductivity rel. to internal lunar temp. 4−68384
quartz glass, and depend. on heat treatment 4−44913
quasi one dimensional system, phase transition, phonon drag cond. 4−75803
quasi-one-dimensional crystals, in metallic phase electron transport processes 4−48957
rare earth copper oxides, R_2CuO_4 type 100-900°C 4−60796
rock apparent resistivity var. in seismically active Garm region 4−83064
rubber mixtures, elec. conductive carbon black distrib. 4−73371
semiconductor, changes on dislocation ageing *(Russian)* 4−44892
semiconductor, due to holes and electrons, scatt. and drag effects *(Russian)* 4−67208
semiconductor, dynamic negative differential cond. *(Russian)* 4−67227
semiconductor, heterogeneous powder system, IV characteristics, uncompensated carrier conc. depend. 4−48994
semiconductor, high freq. cond., excitation of higher harmonics by free carriers 4−72812
semiconductor, in strong crossed electric and magnetic fields, theory 4−75879
semiconductor, ionized impurity scatt., freq. depend. cond. 4−75847
semiconductor, microwave cond. in high electric fields 4−64101
semiconductor, mutual electron-phonon drag in crossed fields 4−72772
semiconductor, nondegenerate, nonohmic resistivity in quantising mag. field 4−60803
semiconductor, one-carrier current flow, injection-controlled 4−44932
semiconductor, one-dimens. superlattice, inhomogeneous structs. 4−48996
semiconductor, one-dimens. superlattice, under conditions of resonant tunnelling, elec. props., theory 4−48995
semiconductor, polar, galvanomag. coeffs., a.c. cond., iterative calc. and convergence props. 4−82431
semiconductor, polar, hot electron conductivity, theory 4−67222
semiconductor, polar, Monte-Carlo calc. of electron transport 4−67207
semiconductor, rel. to hot electron diffusion 4−57101
semiconductor, small-polaron effects on d.c. cond., thermoelec. power, density of states 4−64086
semiconductor, surface layer thickness and apparent cond. determ. method *(French)* 4−74091
semiconductor, temp. induced activation changes, localized levels 4−44919
semiconductor, thin amorphous barrier layers, I/V characts. *(German)* 4−79422
semiconductor, transport props., isolated inclusions effect 4−70012
semiconductor, transport theory of electrons in arbitrary electric and mag. fields 4−72759

electrical conductivity of solids continued
semiconductor containing deep levels, current oscills., case of carrier exclusion 4−60808
semiconductor disordered alloy, two band model, coherent pot. approx. 4−44825
semiconductor film, amorphous-polycryst. transition influence 4−60709
semiconductor film, extrinsic cond., surface regions effect 4−67294
semiconductor thin film, degenerate with diffusively scattering boundaries, h.f. conductivity calc. *(Russian)* 4−53160
semiconductor with classical superlattice, diffusion approx. 4−72758
semiconductor with hot electrons, magnetophonon oscillations 4−53113
semiconductor with spatially periodical conc. of impurities, conductivity 4−70014
semiconductors, compound, solubility of H, obs. 4−48762
semimetal, paramag. impurity effects on current state *(Russian)* 4−72750
soil, rel. to installation *(Spanish)* 4−46104
steel, eutectoid, resist. and microstruct. changes accompanying isothermal decomp. of austenite 4−49659
steel, high-speed, high temp. martempering effect on physicomech. and cutting props. 4−82921
steel wire, interaction with medium depend. 4−49819
TCNQ charge transfer complexes, temp. depend. 4−70200
TCNQ complex, struct. rel. to elec. props. 4−75518
TCNQ complexes electron transport processes 4−48957
Teflon film, electron irrad., split Faraday cup obs. 4−82442
tetracyanoquinodimethane complexes and salts, elec. cond. rel. to struct. 4−75519
tetrahedral amorphous semiconductors, transport meas. 4−79360
thermally stimulated cond. correlated with thermolum., simple recomb. model 4−45368
thin films, Umklapp surface scatter process 4−53137
triglycine sulphate, change due to fragment loss in vacuum 4−70247
TTF-TCNQ, single crystals, conductivity temp. depend. 4−70020
TTF-TNCQ, anisotropic medium, calc. and meas. 4−67209
two dimensional electron system, under strong mag. field, single site approx. 4−57083
two-valley semiconductor, space charge wave propagation 4−70033
ultrabasic rocks and serpentinites, serpentinization and elastic and electric properties 4−68073
violanthrene-iodine complexes, Meyer-Neldel rule, conduction in amorphous semiconductors 4−67211
n-YIG:Si, elec. cond., thermoelec. power, Hall effect and magnetoresist. meas., mag. effects 4−79349
Ag, dispersion strengthened with MgO, stability and elec. cond. *(Russian)* 4−49782
Ag, film, longitudinal strain coeff. of resist. 4−45023
Ag, film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
Ag, single cryst. rod., oxygen annealing for low elec. resist. 4−70491
Ag, Umklapp processes and phonon assisted defect scattering of electrons 4−44895
Ag-Au, electron scatt., virtual crystal model 4−72746
Ag-Mn, dilute alloy, impurity interaction effects, Kondo type elec. resist. minimum 4−57071
(Ag-Pd)-Yb, enhancement of Kondo scatt., elec. resist. 4−75838
Ag_3AsS_3, anisotropy obs. 4−52707
$AgGaS_2$, acceptor levels, n- and p-type 4−82403
$AgGaS_2$, characterization 4−53496
AgMg alloys, internally oxidized, oxide phase conc. depend. *(Russian)* 4−49780
Ag_2S, $Ag_2S_{0.5}Te_{0.5}$, electron mobility and effective mass, from thermo-e.m.f. and cond. meas. 4−44911
Ag_3SX, X=Br or I, elec. cond. meas. as function of hydrostatic press., activation vol. determ. 4−44951
Ag_3SbS_3, anisotropy obs. 4−52707
n-Ag_2Te, temp. and carrier density depends., carrier mobility 4−70039
Al, electron-phonon interaction model, mass enhancement, transport scattering and resistivity calc. 4−82387
Al, elongated and annealed, mutual annihilation of dislocations, obs. *(Japanese)* 4−49692
Al, He bubble formation, coalescence 4−70498
Al, Matthiessen's rule, theory of deviations 4−67198
Al, quenched, annealing effect on electrical resistivity 4−57076
Al, real structure characterisation by dislocation density, reln. to surface resistance 4−72875
Al, steel-fibre reinforced composite materials, direction dependence 4−64624
Al-3d transition metal compound, phonon resistivity investigation, temp. depend. 4−60771
Al-Cu, resistivity meas., comparison with two band model 4−60782
Al-Cu-Si, resistivity meas., comparison with two band model 4−60782
Al-Fe alloy, dil., Fe diffusion, activation energy, resist. obs. 4−67068
Al-In, isochronal recovery of quenched in elec. resist. 4−57751
Al-Mg_2Si(1.3 wt.%) alloy, resist. meas. of two-step ageing behaviour *(Japanese)* 4−45637
Al-Si, resistivity meas., comparison with two band model 4−60782
Al-Si alloy, dil., clustering processes, elec. resist. obs. 4−67800
Al-Zn (38 at.%), isochronous phase transform., 273K-643K 4−76408
Al-Zn alloy, two-step ageing, GP zone final size, resist. meas. 4−61443
Al-Zn-Ag alloy, preprecipitation characts., resistivity meas. rel. to clustering kinetics and solute-vacancy interac. 4−49680
Al-Zn-Ge alloy, Guinier-Preston zone formation rate, influence of Ge, obs. 4−70468
AlF_3 film, between Al electrodes 4−53154
$Al_xGa_{1-x}As$:Sn, Ge epitaxial layer, resistivity rel. to semicond. lasers 4−57095
AlMg. AlMn, dilute resistivity between 0 and 100°C, generalised model approach 4−82388
AlN, obs. of electronic cond., 700-1000 degrees C 4−48973

electrical conductivity of solids continued
Al_2O_3, grown on high temp. alloys, electronic and ionic cond. 4−48865
Al_2O_3, thin sputtered film, electron beam induced cond. 4−82505
Al_2O_3:Co^{2+}, defect struct. and mobility, obs. at high temps. 4−49886
Al_2O_3:Ta, film, Poole Frenkel mechanism 4−45465
$Al_{10}V$, Einstein solid, elec. resist. calcs. 4−60770
As, amorphous film, temp. depend., mechanisms 4−82503
As-S(Se), glasses, composition depend. 4−75866
As-Se alloys, amorphous, comp. depend. 4−75868
As-Te, As-Te-I, annealed glass, rel. to struct., surface and bulk effects 4−64083
As-Te-Ge-S-Si systems, amorphous, temp. depend. 4−75902
As-Te-Se system, binary glasses, temp. depend. 4−79345
As_2S_3, As_2Se_3, glass, microwave and i.r. 4−82448
As_2S_3, As_2Se_3, glassy film, time and temp. depends. 4−82342
As_2S_3, film, high field absorption current and space charge meas. 4−82507
$As_2Se_3Mn_x$ and $As_{30}Te_{48}Ge_{10}Si_{12}$ glasses, prep., elec. cond. at high temps. 4−70055
$As_2(Se_{1/3}Te_{2/3})_3$, amorphous, bulk and film comparison 4−64009
$As_2(Se_{1-x}Te_x)_3$, vireous, crystn. mechanism 4−60418
As_2Te_3, glass, gaps and localised states 4−75768
As_2Te_3, localised band tail and extended states cond. 4−75867
As_xTe_{1-x}, glasses, glass forming ability and elec. props. 4−78927
$(As_{0.4}Te_{0.6})_{100-x}Ge_x$ glass, rel. to stepwise comp. of mobility gap 4−75457
AsTeSe amorphous system, binary mol. struct. evidence 4−63763
Au, discontinuous film, deposition on cold substrate 4−67292
Au, film, change due to low energy He^+ bombard. 4−67290
Au, film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
Au, film, r.f. triode sputtered, elec. and optical props. 4−75973
Au, resistivity meas., mag. impurity conc. determ. 4−57073
Au complex, elec. cond., crystal struct. depend. 4−57091
Au film, diffusion of Pt from underlying film, resist. obs. 4−48878
Au film, discontinuous, on NaCl substrate, obs. of electrode injection mech. 4−57009
Au film backing for radioactive material, conductivity effect on radionuclide standardization 4−80996
Au-Cu(4 wt.%) solid solns., resist. obs. of decomp. processes *(French)* 4−49727
Au-Fe (60%), film, amorphous struct. above room temp., resist. obs. 4−72661
Au-Fe alloy, dil., press. effects on impurity-impurity interactions, resist. obs., 1.2-30K, 0-60 kbar 4−53214
Au-Ge(−Ni) eutectic alloy film evap. in vacuum on NaCl (100) substrate, microstrut., morphology, and elec. resistivity *(Japanese)* 4−45550
Au-Ni, electrical resistance, magnetisation, temp. depend. 4−72743
Au-Ni alloy, elec. resist. and magnetization, 4.2K-room temp. 4−64056
B, amorphous, temp. depend., 300-850K 4−49020
B_2O_3-CaO glass:Fe^{3+}, d.c. cond. changes on annealing, Mossbauer and photoelectron meas. 4−73054
$BaNb_{0.8}S_3$, prep., elec. and mag. props. 4−60455
$BaTa_{0.8}S_3$, $BaTa_{0.8}Se_3$, prep., elec. and mag. props. 4−60455
$BaTiO_3$, effect of electric fields, injection phenomena and temp. 4−64076
$BaTiO_3$ composite ceramics, two-step positive temp. coeff. of resist. 4−48986
$BaTiO_3$:CuO, semicond., PTC effect below the Curie temp. *(German)* 4−82412
$BaTiO_3$:Gd, drift mobility, doping conc. depend. 4−75863
$BaTiO_3$-MoO_3 system, dielec. const., loss tangent, ferroelec. props. and elec. conductivity 4−45226
Bi, influence of twins on elec. and galvanomag. props. 4−79351
Bi, pure, meas. of polycrystalline films on glass substrates 4−53164
Bi crystals, estimating chemical purity and quality *(Russian)* 4−66903
Bi film, thickness depend., 77-300K 4−60884
Bi_xGe_{1-x} film, amorphous, n-type semiconduction and ohmic behaviour 4−53162
$Bi_xSb_{1-x}SeI$ solid solns., temp. depend., 100-320K, cryst. and film specimens 4−70047
$(BiSb)_2Te_3$ solid soln., hydrostatic and uniaxial stress effects on elec. props. 4−79350
BiSe-SbTe system phases 4−69885
Bi_2Se_3, polymorphic transitions obs. at high press. by electrical resist. meas. 4−69908
BiSeI, 77-450K, chain like struct. anal. 4−72700
BiSeI, thin films, prep. and physical props. 4−67732
Bi_2Te_3 single cryst. resist., 1.3 to 300K 4−72764
C fabric, var. of cond. with temp. 4−67940
C fibre, electrical resistivity obs. 4−64080
C fibre, resist. depend. on orientation index 4−49940
C fibres, metal containing, and ion exchange 4−70571
C film, elec. resistivity, heat treatment effects 4−67293
C film, resist., thickness depend. *(French)* 4−45021
C film production from high-freq. discharges and ion beams, elec. props. investigation 4−49561
C materials, elec. resist., porosity depend., irrad. effects 4−69291
CaF_2, electrochem. obs. 4−48975
CaF_2:Na(Mn), dielectric props. obs., freq. and temp. depend. 4−64327
CaO-$V_2O_5P_2O_5$:Cu_2O glass, reln. to exchange interaction between V^{4+} and Cu^{2+} ions 4−75862
$CaWO_4$(:Pb), photoluminescence, radiothermoluminescence and conductivity after X-ray irradiation *(German)* 4−64436
Cd, residual elec. resist., grain boundaries influence *(Russian)* 4−73289
Cd-Mg (up to 10 at.%) alloy, temp. and comp. depend. 4−48967
$CdCr_2Se_4$, cryst., prep. and basic props. 4−79878
$Cd_{1-x}Fe_x Cr_2S_4$, single crystal mag. spinel, elec. resist. meas. at room temp. 4−44976
$CdGeP_2$, meas. at cryst.-melt phase transition, semicond.-semicond. melting scheme 4−72777
$CdGeP_2$, obs. of energy spectrum and carrier mobility, 200-400K 4−48981

electrical conductivity of solids continued
$CdInGaS_4$:Au, trapping and recomb. energy levels in forbidden band determ. 4−67254
CdS, class I crysts., photocurrent and dark current, thermally stimulated desorpt. effects 4−67249
CdS, dark stimulation *(Russian)* 4−75884
CdS, epitaxial layer, grown by close spaced technique 4−82813
CdS, inhomogeneous elec. cond., effect on Hall mobility meas. 4−44935
CdS, single cryst., electron conc., mobility, component v.p. effect 4−72768
CdS evaporated film conductivity rel. to O_2 absorption 4−48837
CdS single crysts., cond. inhomogeneity effects on elec. and optical props. 4−70015
CdS:Cu, single crystals, impurity structures, electrical properties 4−64079
CdS:In, photoluminesc. emission, elec. cond. 4−53509
n-CdSb:In(Te), obs. of anomalous temp. depend. of elec. cond. and thermopower 4−48983
CdSe, compressed powder, V-I curves, mechanism 4−44917
CdSe, VPE growth on sapphire, CdS, elec. resist. meas. 4−70422
CdSe thin films, donor ionis. energy determ. 4−60881
n-$CdSnAs_2$, pressure depend. meas. up to 10 kbar, complex band struct. 4−75856
CdTe, compressed, dislocation effects on dark cond. and photocond. 4−60826
CdTe, ion implantation, lattice disorder and elec. activity 4−79886
CdTe, ion implanted layer, electrical activity and radiation damage 4−72498
CdTe, surf. cond. after heat treatment, ion implantation studies 4−45479
CdTe:O, luminesc. and elec. props., form. of complex centres 4−76309
$CdVO_3$, preparation, characterisation, crystallographic, electrical and magnetic properties 4−66880
$CeAl_3$, obs. below 1K, evidence for transition to mag. state without mag. scatt. 4−60960
CeO:Eu, mechanism, e.s.r. determ. 4−57354
$Ce_{3-x}S_4$ (x=0, 0.06, 0.28), elec. props., depend. on composition and temp. 4−44936
Co, temp. depend. in pure polycrystalline samples 4−53087
$Co_{1-x}Fe_x{}^{2+}Fe_2{}^{3+}O_4$, image furnace growth, electrical resistivity, low temps. 4−82808
$Co_xFe_{3-x}O_4$, (x=0 to 0.63), a.c. and d.c. conductivities, 4.2 to 300K 4−44923
$CoMo_2S_4$, mag. props., elec. props., rel. to struct. *(French)* 4−67352
CoS_2-NiS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
Co_2Si-Ni_2Si, comp. depend., 80-350K, interband transition mechanism *(Russian)* 4−60725
Cob resist., temp. depend. 4−60940
Cr, rare earth metal additions influence *(Russian)* 4−79515
Cr film, visible light transmission and elec. cond., changes during oxidation 4−70380
Cr-Co nonferromag. dil. alloys, Invar and Elinvar characts. *(Japanese)* 4−61012
Cr-Fe alloy, mag. ordering, press. effects obs. 4−70151
$Cr_{5-x} V_xGe_3$, solid soln., mag. susceptibility elec. resistance, thermo-e.m.f. and Hall coeff. 4−53215
$CrMo_2S_4$, mag. props., elec. props., rel. to struct. *(French)* 4−67352
$(Cr_{0.01}V_{0.99})_2O_3$ high-temp. resistivity anomaly, 200° to 900°K 4−53114
Cu, electron irrad., 15 and 7.5K 4−72487
Cu, film, change due to low energy He^+ bombard. 4−67290
Cu, film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
Cu, recovery, one-dimens. and cyclic deform. *(German)* 4−70514
Cu, surface resist. of single crystal in mm. wave region at room temp. 4−75935
Cu, temp. depend., 4.2-27K, single cryst. 4−60772
Cu, ultrahigh-purity, effect of annealing in oxygen of low partial press. *(German)* 4−53080
Cu alloy film, vacuum-deposited, struct. form. laws and resist. meas. *(Russian)* 4−48875
Cu film, ultrathin, in multilayer sandwich struct., thermal and elec. cond. 4−60879
Cu/graphite powder composites, resist. meas. during compaction 4−82968
Cu-Al-Co (2 wt.% Co and 8 or 15 wt.% Al) decomp., precipitated phase *(Russian)* 4−67776
Cu-Cr and Cu-Ni-Cr alloys, Cr precip., resist. meas. 4−45561
Cu-Ge-Ti alloy, decomp. processes, 400 to 700 degrees C, resistance changes *(Russian)* 4−73296
Cu-Ni alloys conc. depend. of residual resistance, ageing and clustering effects 4−53078
Cu-Ni-Mn bondable fatigue gauge, elec. resist. changes during fatigue 4−80050
Cu-Ni(Co)(Fe) alloys, change due to alloying, virtual bound of states theory 4−79267
$CuAlS_2$, synthesis, elec. and opt. props., doping effects 4−61210
CuCl, exposure to Cl_2, elec. props. and acceptor levels investig. 4−54085
$CuFeS_2$, single cryst., metal-semiconductor transition, 65 kbar 4−72718
$CuFeS_2$:Al(In), characterisation 4−61319
Cu_3LnS_3(Ln=Sm, Gd, Dy, Yb, Y, Sc), physicochem. and elec. props. 300-900K 4−44520
CuMn spin glass, low temp. resist. 4−79331
Cu_2O, single crystals, electrical conduction phenomena, model 4−70022
Cu_2SnSe_3, thermal effects during melting, phase diag., temp. depend. of elec. cond. 4−44671
$Cu_{2-x}Te$, film growth, optimum thickness, Hall mobility, reactive diffusion 4−45443
$Cu_2Te_{0.68}S_{0.32}$, heat treatment and Mossbauer effect, conductivity 4−67494
Dy, elec. resist. meas. from room temp. to 1600°C 4−60776
Dy_2S_3, transport props. and mechanism, single crysts. 4−48969

electrical conductivity of solids continued
Er, film, expt. comparison with columnar model 4−75978
Er, film, O_2, CO chemisorption effect 4−44780
EuO, film, nonstoichiometry effects on props. 4−82592
EuS, doped, ferromag. semicond. nonuniform state and hysteresis in resistivity 4−82466
$EuSe_x(Te_x)$, hole cond., comp. depend. 4−60949
Fe, anomaly at Curie point 4−75841
Fe, diffusion of hydrogen, resist. recovery at low temps. 4−76446
Fe, residual resist., current depend., mag. domain mechanism 4−57072
Fe, specific heat and elec. resist. meas. near Curie point 4−64217
Fe-Al(20 at.%), depend. on qenching temp., local ordering *(Russian)* 4−66858
Fe-Al(40 at.%) alloy, recovery of irrad. produced point defects, 40K *(French)* 4−76450
Fe-Co-Cu-V alloys, semi-hard mag. material characts. and prop. changes on heating *(Japanese)* 4−45140
Fe-Co-Mn alloys, strain gauge factor and elec. props. 4−49837
$FeAs_{2-x}Se_x$, marcasite struct., characterisation 4−49154
FeB, resist., temp. depend. 4−60940
FeCo alloy, ordered, 550°C transition, sp. ht. and resist. obs. *(Japanese)* 4−45498
$Fe_yMn_{1-y}O_{1+x}$, 900-1150°C rel. to existence of miscibility gap 4−53092
$FeMo_2S_4$, mag. props., elec. props., rel. to struct. *(French)* 4−67352
FeO-P_2O_5 glasses, semicond., a.c. cond. 4−72766
α-Fe_2O_3, electrical conductivity and thermo-e.m.f. in gas mixtures, O_2, CO_2, SO_2 4−70016
Fe_3O_4, d.c. and a.c. conductivities, 4.2 to 300K 4−44923
Fe_3O_4 Cullen and Callen model 4−75932
Fe_xO $(0.99\leqslant x\leqslant 1)$, antiferromag. semicond., critical resist. 4−79519
Fe_xO-MnO system, elec. cond., 900-1150°C, and struct. props. 4−49888
$FeOCl(C_5H_5N)_{1/3}$, intercalated compound 4−72762
FeRh, FeRhPd(Ir) ordered alloys, resist., 4.2 to 1300K, 0 to 370 kOe 4−79326
FeS_2, natural cryst., evidence of n-type semicond. 4−72769
FeS_2-CoS_2, pyrite struct., ferro-, antiferro-and paramag. props., metal and insulator phases 4−76057
$Fe_4[M(CN_6)]_3$ where $M=Fe$, Ru or Os, bonding nature and semiconductivity 4−72447
Ga, amorphous film, temp. depend. 4−45040
Ga-In alloys, resist., −20 to 800°C *(Russian)* 4−48955
GaAs, band struct., influence of impurity ions under moderate doping conditions, expt. 4−48914
GaAs, conduction in disordered layers produced by ion implantation 4−57092
GaAs, effect of annealing on radiation defects, 100-800K *(Russian)* 4−67721
GaAs, epitaxial film, residual cond. meas. after photoexcitation, elec. field appl. 4−75986
GaAs, from u.s. absorpt. obs. *(Slovak)* 4−64074
n-GaAs, Hall factor and impurity band conduction 4−72796
GaAs, implanted layer elec. props. 4−75864
GaAs, ionization energy of shallow donors, mag. field effect determ. 4−60760
GaAs epitaxial layer, liquid phase grown on semi-insulating substrate 4−64088
n-GaAs film, epitaxial, peculiarities of field effect *(Russian)* 4−72878
GaAs:Cd, impurity ion capture by vacancies in implanted layers 4−75648
GaAs:Ge, Si-Te epitaxial layer, resistivity rel. to semicond. lasers 4−57095
GaAs:Te, irrad. parameters depend. 4−60790
GaAs:Te, solid soln., lattice const., elec. props., Te interstitial and vacancy conc. 4−44531
GaAs-AlAs superlattice, high field domain generation, tunnelling 4−70027
$GaAs_{0.62}P_{0.38}$:Zn, ion implantation conditions depend. 4−49577
$Ga_xIn_{1-x}Sb$, scattering processes, transport phenomena under pressure 4−57096
β-Ga_2O_3, electrical conductivity and thermogravimetric studies, 400 to 1000K 4−44924
β-Ga_2O_3, neutron damage effects on elec. cond. and thermoelectric power, defect annealing 4−69832
n-GaP, deep donor states, thermally stimulated current obs. 4−57046
GaP, n-ν and p-ν-n structs., nonlinearity 4−70068
GaSb:Li compensated, Hall effect meas., obs. of free hole and hopping props. 4−53110
GaSe, elec. cond. change due to strong microwave fields 4−70035
Gap:Ge, cond. and photoluminesc., conc. depend. of Ge behaviour 4−79348
Gd-Sm, ferromag. Curie temp. determ. 4−64210
Gd-Y alloy, mag. props., electrical resistivity, thermal expsn. 4−57272
Gd_2S_3, transport props. and mechanism, single crysts. 4−48969
GdSb, resistivity, temp. derivative, reln. to sp. ht. C_p above T_n 4−67368
Ge, amorphous film, elec. struct., microstruct. 4−75987
Ge, amorphous film, heat treatment effect 4−75745
Ge, amorphous film, pseudogap struct. determ. 4−79269
Ge, amorphous film, transport props., press. and temp. depends. 4−79423
Ge, compensated, cond. and photocond., influence of gas discharge treatment 4−72775
n- Ge, electron bombardment, recovery spectra of electrical cond. at 77K 4−64123
Ge, film, cryst. struct. and elec. props. 4−72657
Ge, film, elec. and optical props., impurity and defect effects 4−79419
n-Ge, I-V characts., instability of injected carriers subjected to strong electric fields 4−67226
Ge, intrinsic, quenched, annealing behaviour obs. 4−52754
Ge, irradiated with 30 keV Ga^+ ions, electrical characts. 4−67236
n-Ge, microwave complex cond. anisotropy due to hot electrons 4−60804

electrical conductivity of solids continued
n-Ge, microwave meas., hot carrier relax. time determ. 4−44929
Ge, pure and alloy amorphous films, tunnelling effect 4−60887
Ge, resistivity, degree of compensation 4−44918
p-Ge, strained, calc. in presence of strong non-quantising mag. field 4−67235
Ge film, amorphous, defects and crystn., resist. obs. during annealing 4−75731
p-Ge film, elec. cond., Hall coeff. and hole mobility, 20K, two-layer model interpretation 4−82502
Ge variation induced by shock wave produced on laser interaction *(Russian)* 4−77700
Ge:P, Ga, heavily doped and compensated, direction depend. 4−72773
n-Ge:Sb, neutron irradiated, electrical props. investigation 4−67216
Ge_3N_4, amorphous dielec. film, growth, physicochem. props. 4−49586
$Ge(Se_{1/3}Te_{2/3})_2$, amorphous, bulk and film comparison 4−64009
$GeSe_4Te_7$, single crystals, elec. props. meas. 4−44922
GeTe, anisotropy in elec. resist. meas. 4−79352
HgTe, electron-optical phonon reson. scatt., cond. depend. 4−72765
HgTe single cryst., growth, defects and phys. props. 4−53599
Ho, elec. resist. meas. from room temp. to 1600°C 4−60776
HoSb, resistivity, temp. derivative, reln. to sp. ht. C_p above T_n 4−67368
HoSb, resistivity, temp. derivative calc. in terms of mol. field model, tricriticality 4−67369
In, residual elec. resist., grain boundaries influence *(Russian)* 4−73289
In, residual resistivity in mag. fields, Pb impurities influence, 1.3-4.2K *(Russian)* 4−60914
In and In-Sn(Bi) alloys, resistance measurements 4.2-55K, deviations from Matthiessen rule *(Russian)* 4−82389
In-Ge-Te ternary system, rel. to phase equilib. 4−49643
$In_{1-x}Ga_xP$:Te, temp. depend., conc. var. 4−82408
n-InP, bulk and epitaxial, vel.-field characts. 4−82402
InP, high field domains, transient behaviour 4−57102
InP, ionization energy of shallow donors, mag. field effect determ. 4−60760
n-InSb, and Hall effect, 4 to 30K 4−72778
p-InSb, effective mass of holes determ. from galvanomag. meas. 4−79372
InSb, magnetoresist., effect of sample geometry on meas., conformal mapping technique 4−53112
n-InSb, mechanism of resistivity decrease by mm microwave irradiation 4−64092
p-InSb, press. effect, 4.2K, impurity conc. depend. 4−70041
p-InSb, resist., temp. and intensity depend. *(Russian)* 4−49001
n-InSb, resistivity and carrier distrib., nonlinear transport behaviour detn. 4−48993
InSb, surface cond. meas. during O_2 adsorption 4−44978
n-InSb, surface defects and mag. freezing, Hall and cond. meas. *(German)* 4−70037
InSb, thickness dependence of galvanomagnetic props. 4−79369
In_2Te_5, single crystals, growth by chemical transport, struct. and props. 4−72457
Ir complex, chelatodicarbonyliridium (I), opt. and elec. props. rel. to excitonic superconductivity *(German)* 4−79757
K, elec. resist., temp. depend. at low temps., calc. 4−64065
K, low field Hall coeff., temp. depend. 4−64060
K, phonon drag contrib. to low temp. elec. resist. 4−75837
K, resistivity 1.6 to 5.1K, various purity samples 4−53079
K-NH_3, solid soln., time depend. 4−72767
KBr, effect of ionising radiation, temp. depend. *(Russian)* 4−57015
KBr, single cryst., charge injection development, necessary contact conditions 4−72782
KCl, effect of ionising radiation, temp. depend. *(Russian)* 4−57015
KCl, formation of impurity complexes associated with appearance of U-band 4−72725
K_2CrO_4, anisotropic conductivity and phase transformations in single crysts. 4−79342
KHF_2, solid electrolyte, α- and β-phases, a.c. impedance investig., interface phenomena 4−54028
KNO_3 and benzenesulphinic acid sodium salt influence *(Russian)* 4−77115
$K_2Pt(CN)_4Br_{0.3}2.3H_2O$, alternative model for cond. behaviour 4−57151
La, Lorenz no. behaviour, 1200-1600K *(Russian)* 4−44893
La metaniobite, temp. and polarisation dependence, i.r. spectra 4−67511
LaB_6, 1300-2000 K, Wiedemann-Franz law 4−44916
LaCd, mag. props. and resistivity meas., superconducting transition region 4−60953
$(La_{1-x}Th_x)_{1-c}Ce_c$, disappearance of Kondo effect, low temp. resistivity obs. 4−57074
$(La_{1-x}Th_x)_{1-c}Ce_c$, Kondo resistivity, mag. to non mag. transition, theoretical model 4−57281
LiD, a.c. cond. and dielectric constant meas., 5 to 500 kHz 4−48979
LiF, correlated thermolum. and thermally stimulated cond., simple recomb. model 4−45368
LiF, rel. to role of Mg in thermolum. 4−70371
$LiFe_5O_8$, processing and properties, effects of sintering, temp., and stoichiometry 4−70549
LiZn ferrites, resist., comp. depend. 4−53232
Mg-Bi, amorphous film, d.c. and a.c. cond. and optical transmission 4−49092
Mg-Cd (up to 10 at.%) alloy, temp. and comp. depend. 4−48967
Mg_5Hg_3, prep. and elec. behaviour, 4.2 to 297K 4−79325
$MgMn_2O_4$-$MgAl_2O_4$, X-ray diffraction electrical cond., mag. susceptibility and Seebeck coeff, meas. 4−82409
MgO, defect surface, H_2 interaction investig., elec. cond., dielec. loss studies 4−76621
MgO, meas. by graphite tube elec. furnace 4−58764
Mn-Rh system, temp. depend. of elec. resist. 4−79521
$Mn_xFe_{3-x}O_4$, $(x=0$ to $0.63)$, a.c. and d.c. conductivities, 4.2 to 300K 4−44923
Mn_2GeO_4, electrical conductivity jump produced by the α-β-δ transformation 4−68087
MnO films, low temp. coeffs. of resist. 4−60880
MnO-CoO-CuO sinters, rel. to thermistor applic. *(Polish)* 4−57117

electrical conductivity of solids continued

- Mn_5Si_3, anisotropy, 60-360K 4−60773
- $MnTe_2$, anomaly at Neel point, doping effect 4−57285
- MnZn ferrite, In_2O_3 additions effect 4−49912
- Mo, deformed, temp. and e.m. radiation influence on elec. resist. *(Russian)* 4−79327
- Mo, precision determ. at 80 K and 273 K 4−42746
- Mo, resist. of single crysts., plastic deform. effect 4−48962
- Mo, resist. recovery, stage III and IV annealing mechanisms 4−79959
- Mo, resist. recovery, stage III and IV annealing mechanisms 4−79960
- Mo thin film, properties, prep. by pyrolitic decomp. of $Mo(CO)_6$ vapour 4−67713
- MoO_2, crystal structure, magnetic susceptibility, electrical conductivity of pure and NiO doped single crystals 4−63817
- Mo_5Ru_3 films, resist. temp. coeff. 4−45660
- $MoSe_2$-$TaSe_2$, quasibinary alloys, mechanism of electrical conductivity 4−67217
- NH_4SO_4 and $NH_4H_2PO_4$, conductivities of doped crystals, charged carrier mobility 4−63941
- $(NH_4)_2SO_4$, $NH_4H_2PO_4$, proton activated mechanism, donor impurities 4−60799
- Na-NH_3, solid soln., time depend. 4−72767
- $Na_8(Al_6SiO_{24})(OH_2).nH_2O$, hydrosodalite, cryst., piezoelectric and elastic props. 4−76219
- NaCl:$NiCl_2$ crystals, association between Ni^{2+} and vacancies 4−63824
- NaCl:S^{2-}, charge on dislocations, elec. cond. obs., 100-550°C 4−52775
- $Na_xFe_3O_{11-y}$, electronic cond., temp. depend. 4−48793
- $Na_xV_2O_5$, electronic cond., temp. depend. 4−48793
- Na_xWO_3, electronic cond., temp. depend. 4−48793
- Nb, diffusion and heat of transport of H and D, coeff. determ. by resist. meas. 4−52940
- Nb, high purity, 20K-m.p. *(French)* 4−67195
- Nb, obs. of changes due to neutron radiation effects 4−44891
- Nb-Al_2O_3 codeposited films, prep. and props. 4−70088
- Nb-V alloys, spin fluctuation depressed superconductivity 4−64153
- NbN film, temp. depend. of resistance meas. 4−57204
- $NbSe_2$:Fe, anisotropic Kondo resist. 4−64189
- Nd, resistance measurements, 87−1073K *(Russian)* 4−82137
- Nd_2O_3, oxygen partial press. depend., 900 to 1100°C 4−60794
- Nd_2S_3, transport props. and mechanisation, single crysts. 4−48969
- (Ni,Cu)Al, β-phase, rigid band model approach to electron transport props. 4−67197
- Ni, temp. and mag. field depend. of resistivity near Curie temp. 4−64062
- Ni film, CO adsorption states obs. 4−75703
- Ni film, influence of finite size on crit. phenomena, resistivity anomaly 4−57188
- Ni film, visible light transmission and elec. cond., changes during oxidation 4−70380
- Ni-Cr alloys, elec. resist. recovery, excess defect conc. and short-range order form. *(Russian)* 4−73290
- Ni-Cr steel alloys, transport properties 4−64599
- Ni-Cu, giant spin clusters contrib. to resistivity 4−53236
- Ni-Fe-C, residual resistivity, C impurity and Fe conc. effects, mag. and band struct. 4−45111
- Ni-Pt, spin coupling, variation with chem. order 4−70144
- NiB, resist., temp. depend. 4−60940
- $Ni_xFe_{3-x}O_4$, (x=0 to 0.63), a.c. and d.c. conductivities, 4.2 to 300K 4−44923
- NiO bilayered scales, on Ni, characterisation 4−53006
- NiS, hexagonal, metal-insulator para.-antiferromag. transition 4−64032
- NiS_2:Co, semicond-metal phase diagram, antiferromag. transition 4−75933
- NiS_2-CuS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
- $Ni_{1-x}S$, elec. props. exam., metal-semiconductor transition at 265K 4−75930
- NiTi, nonstoichiometric, quench hardening mechanism based on elec. resist. 4−49838
- Np alloys, localized spin fluctuation model 4−45104
- Np monopnictides, obs. of ferromag., antiferromag. props. 4−64224
- $NpOs_2$, 1.5-300K, localised spin fluctuation model 4−57075
- $NpPd_3$, resistivity obs. 1.5 to 300K 4−67359
- $NpRu_2$, 1.5-300K, localised spin fluctuation model 4−57075
- $(P_2O_5)_2(TiO_{2-x})_{4.5}$, glass, a.c. cond., 77-300K, polaron mechanism 4−64082
- PSe_x, glasses, microstruct., elec., mag. and chem. props. of different compositions 4−44474
- p-$P_{1-x}Sn_xTe$, temp. depend. of resistivity, 4.2 to 450K 4−57108
- $(Pb_{0.985}, Bi_{0.015})$, $(Zr_{0.53}, Ti_{0.42})O_3$, ferroelectric ceramic semiconductive and thermoelectret props. 4−67533
- Pb, 260-550K 4−48956
- Pb, superconducting films, two dimens., cond. above T_c 4−75974
- Pb-Sn-Se ternary system phases 4−60589
- $Pb_{0.0995}Ge_{0.005}Te$, 300-950K, heavy hole localization effect 4−72770
- PbI_2, electronic transport props., 162, 192, 245 and 291°C 4−48974
- PbO, high resist. photocond. material, traps, thermally stimulated cond. meas. 4−75878
- PbS, resist., high-field, He temps. 4−72785
- PbSe film, elec. cond. and photocurrent, Se atmosphere effects 4−75982
- $Pb_{0.82}Sn_{0.18}Te$, mag. remanence and elec. props., 78-500K *(Russian)* 4−57116
- $Pb_{0.95}Sr_{0.05}Zr_{0.53}Ti_{0.47}O_3$-PbO, solid soln., 250-500°C 4−64089
- PbTe-$AgSbTe_2$ solid soln., prep. and props. *(Bulgarian)* 4−57695
- $PbTiO_3$, effect of electric fields, injection phenomena and temp. 4−64076
- $Pb(Zr, Ti)O_3$ type solid solutions, temperature dependence, determination of type 4−53091
- $PbZrO_3$ paraelectric phase, temperature dependence and activation energy of carriers 4−53090
- $Pb(Zr_{0.40}Ti_{0.60})O_3$, current-voltage characts. in vicinity of phase transition 4−64077
- Pd, resist., high temp. effects, electron density of states calcs. 4−60769

electrical conductivity of solids continued

- Pd complex, $(perylene)_2[PdS_4C_4(CN)_4]$, semicond., prep., elec. cond. investig. 4−70017
- Pd dilute alloys, deviations from Matthiessen's rule and resistance minima, impurity resistivity 4−44887
- Pd-Ag, elec. resist. obs., localised d-state model 4−64061
- Pd-Fe, dilute alloy, exchange field distrib. effect 4−45143
- Pd-H system, rel. to degree of struct. of proton reson. line *(Russian)* 4−67469
- Pd-H system, stability, plastic deform. influence, resist. meas. *(Russian)* 4−53677
- $Pd_{80-x}Co_xSi_{20}$, amorphous alloys, electrical resistivity, low temp. minimum 4−70009
- $Pd_{90}Pt_{10}$, paramagnon effects associated with Ni impurities 4−64183
- Pr, resistance measurements, 87−1073K *(Russian)* 4−82137
- Pr-Ce alloy Kondo resistivity obs., 1.3 to 300K 4−44888
- $PrAl_3$, cryst. elec. field influence, 1.5-300K 4−67194
- Pt, light ion irradiated, resistivity meas. rel. to irradiation temp. and vacancy conc. 4−79037
- Pt, temp. depend., equilib. vacancy conc. 4−79328
- Pt film, sputtered, rel. to porosity determ. 4−67133
- Pt thin film electrode, adsorpt. studies by electrode elec. resist. meas. 4−80189
- PtCr alloys, electrical resistivity, temp. depend., 1.4 to 300K 4−72745
- PtO, reactively sputtered film 4−64493
- Pu, and alloys, rel. to evidence for antiphase type struct. 4−48754
- α-Pu, neutron irrad. in liq. nitrogen and isochronal annealing effects 4−59848
- Pu alloys, localized spin fluctuation model 4−45104
- $PuPd_3$, resistivity obs. 1.5 to 300K 4−67359
- Rb, resistivity 1.6 to 5.1K, various purity samples 4−53079
- Re, electron irradiation at 4.5K, resist. meas. 4−66937
- Re, single crystal, 1200-2400K 4−64057
- Rh-Fe, low temp. resistivity, 40 ppm to 2.2 at.% Fe 4−72744
- $SRCl_2$:$K^+(Na^+)$ single crysts., 5-200°C meas. *(French)* 4−48988
- Sb, effect of twinning on cond. and magnetoresist. 4−75894
- Sb film, on C substrate, growth, struct., low and high vac. 4−72654
- Sb thin film, elec. cond. quantum and classical size effects 4−57190
- Sb-S-Br, glass formation region characts. 4−44473
- Sb-S-I, vitrification region, elec. props. 4−44476
- Sb_2S_3, high resist. photocond. material, traps, thermally stimulated cond. meas. 4−75878
- Sb_2S_3, single cryst., bipolar effects *(Russian)* 4−75883
- Sb_2S_3 amorphous layer comp. and elec. props. 4−49091
- Sb_2Se_3, cryst., thermal activation energy, role of growth defects 4−82406
- $Sb_{1-x}Te_x$, amorphous film, p-type 4−44824
- Sb_2Te_3, Sn impurity behaviour and effects on elec. props. 4−67065
- Sc film, influence of Ba, Cs and CsCl adsorption on film resistance and work function *(Russian)* 4−52999
- Sc_2O_3, elec. cond. and X-ray diffr. anal. investigation 4−44914
- Sc_2O_3, pretreated in air at 800, 1000 and 1200°C *(Spanish)* 4−44909
- Se, amorphous film, polaron conduction, optical absorption 4−49097
- Se, heat treatment effect, structural props. 4−57090
- Se amorphous, hole transport mechanism 4−75885
- Se amorphous, very pure, crystallization under compression, conductivity obs. *(German)* 4−52888
- Se single crystals, d.c. conductivity 90 to 250K based on barrier model 4−53089
- Se-Ge(In), amorphous film characts. 4−75988
- Si, amorphous, prep. conditions effect on props. 4−79888
- Si, amorphous film, deposition conditions effect on props. 4−76407
- Si, amorphous film, field induced change, rel. to band struct. 4−64143
- nSi, Co acceptor state, temp. depend. of energy level and capture cross section 4−75812
- Si, d.c. conductivity of inversion layers, 0.4-4.2K, carrier density and temp. depend 4−48916
- n-Si, degenerately deped., low temp., dielec. screening effects 4−64085
- n-Si, high field effect on microwave conductivity 4−71216
- Si, n-type, warm electron cond. *(Russian)* 4−79365
- Si, P, B ion implantation, annealing behaviour 4−45437
- Si, quantized inversion layers with many occupied elec. subbands, interband scatt. 4−44920
- p-Si, rel. to defect cluster form. by neutron irrad. 4−79067
- Si, thermal stability of electrophys. parameters, high resist. monocryst. 4−82401
- Si, thermally cycled to 850K 4−44945
- n-Si on sapphire, elastoresistance effect 4−67210
- Si photoconductor in isolated cct., linear control of ohmic value by appl. voltage 4−46739
- Si variation induced by shock wave produced on laser interaction *(Russian)* 4−77700
- Si:As, doping conc. and mobility meas., annealing effect 4−64503
- Si:B, chem. deposited, polycryst., B analytical determ., sheet resist. meas. 4−70424
- Si:B, isothermal annealing effect on sheet resist. 4−76404
- Si:B, uniaxially deformed, valence band splitting, elec. props. 4−67238
- Si:B epitaxial film, four point surface resistivity meas., diffusion profile obs. 4−64521
- Si:Bi, charge carrier and B conc. profiles comparison 4−64504
- Si:O_2, second phase state of SiO_2 dispersed particles, elec. and optical meas. 4−73144
- Si:P, He^+ irradiated, sheet resistivity and Hall meas. to detect conductivity changes 4−82822
- Si:P, polycrystn. film, annealing effect 4−45027
- Si:P, resist. change during channelling meas. of dopant profile 4−49620
- Si:P, resistance changes induced by e.s.r. and spin relax. 4−64093
- n-Si:P, resistivity, following thermal neutron irradiation, isochronous annealing 4−75860
- Si:P film, polycryst., resistivity, thickness depend. 4−57189
- Si:Sb,As ion implantation and drive-in diffusion effects 4−49609
- n-Si:Zn, low resistivity, recombination times calcs. 4−44962
- Si-Ge, solid soln. epitaxial films, crystallisation mechanism effects on B diffusion 4−82828

electrical conductivity of solids continued
Si-Ge:P, precipitation effect, Lifshitz-Slyozov theory 4−67733
Si-Ge(20 at.%):B(P), hot-pressed ingots, prep., vacuum hot pressing 4−73336
SiC film, produced by $^{12}C^+$ ion implantation of Si 4−45473
Si_3N_4, amorphous thin film, conduction under non-uniform electric fields 4−64098
SiO film, doped with metallic impurities thermally stimulated currents obs. 4−82506
SiO:Pt films, thermally stimulated currents, relax. time distrib. of charges *(French)* 4−57104
SiO_2, degradation mechanism, ionic drift 4−45251
SiO_2, in m.o.s. struct., high cond. state mechanism 4−60875
SiO_2, m.o.s. structure, alkali ion contamination effect 4−45005
SiO_2, pyrolytic, in m.o.s. struct., C-V and I-V characts. 4−72870
SiO_2, r.f. sputtered film, transport mechanisms 4−60892
SiO_2, thermally grown, in m.o.s. struct., elec. cond. switching 4−60865
SiO_2, vitreous, obs. of mass and charge transport at high temps. 4−48792
SiO_x film, in m.i.m. struct., thermally stimulated current 4−75990
Sm, resistance measurements, 87−1073K *(Russian)* 4−82137
SmCd, ferromagnetic props. and resistivity meas. 4−60953
α-Sn, electron irrad. damage effects on carrier conc. and mobility 4−75852
Sn, residual elec. resist., grain boundaries influence *(Russian)* 4−73289
Sn, surface cond. in mag. field, H.F. technique *(Russian)* 4−75937
Sn and Sn-Cd(Bi)(Ga) alloys, resistance measurements 4.2-55K, deviations from Matthiessen rule *(Russian)* 4−82389
Sn:In, normal state u.s. attenuation, residual resist. calc. 4−75580
$Sn_{1-x}Pb_xTe$:Se, changes with impurity conc., local environment characts. 4−44557
α-$SnWO_4$ props., cryst. struct., relationship with $SbTaO_4$ type compounds investig. 4−75483
$SrTiO_3$ single crystals, trapping levels, thermally stimulated cond. meas. 4−79353
$SrTiO_3$:Al(Fe), relative energy level scheme for impurities 4−44866
Ta, deformed at 4K, resist. recovery, isochronal annealing curves 4−76506
β-Ta, film, temp. depend., N doping effect 4−75976
Ta-Au thin film couples, interdiffusion and cpd. formation obs. 4−60711
Ta_2O_5, defect structure 4−72461
Ta_2O_5, thin film, reactively sputtered, elec. cond. in sandwich structures 4−79428
$TaS_{1.6}Se_{0.4}$, intercalated layer compound, optical absorption and resistivity obs. 4−61178
$TaS_{1.6}Se_{0.4}$ $(aniline)_{3/4}$, intercalated layer compound, optical absorption and resistivity obs. 4−61178
$TaS_{1.6}Se_{0.4}$ $(pyridine)_{1/2}$, intercalated layer compound, optical absorption and resistivity obs. 4−61178
Te, crystal, a-edge-dislocated, hole mobility 4−64084
Te, undeformed and plastically deformed, ohmic and non-ohmic transport 4−82411
Te single crystals, plastic deform. influence, meas. 77 to 300K 4−60814
Te_yX, X=Cl, Br, I, electrical cond. in reln. to cryst. struct. 4−53098
ThO_2, dense polycryst., ionic-electronic cond. transition under reducing conditions 4−64081
ThO_2, electrical conductivity in air and in nuclear reactor, neutron flux of 10^{18} n/cm^2 4−57089
ThO_2, ThO_2-$YO_{1.5}$ solid solns., construction mechanisms at high oxygen pressures 4−52929
Ti, film, O_2, CO chemisorption effect 4−44780
β-Ti alloys, constitution and microstruct. influence on temp. coeff. of resist. 4−61345
Ti film, visible light transmission and elec. cond., changes during oxidation 4−70380
Ti-Al-V alloy, kinetics of annealing , hardness and resist. obs. *(French)* 4−76470
Ti-Nb alloy, Zr and Fe alloying effect on struct. and resist. *(Russian)* 4−49639
Ti-V alloys, elec. resist., b.c.c. phase stability, supercond. investig. 4−64063
Ti-V alloys, localized spin fluctuations and elec. resist. singularities *(Russian)* 4−67200
TiC_x, nonstoichiometric, temp. and vacancy conc. depend. 4−48985
TiC_xN_{1-x}, solid soln., temp. conc. depend. of thermo-e.m.f., cond. 4−44937
TiO_2, single cryst. and ceramic samples, defect obs. by thermally stimulated depolarisaton currents 4−57099
Ti_3O_5, magnetic susceptibility, electrical conductivity and structural parameters, e.p.r. meas. 4−79346
Tl_2S, molten, solid phases, elec. cond., thermoelec. power meas., doping investig. 4−44948
$TlSbS_2$, photoelectric and electrical props. 4−72819
p-$TlSbTe_2$, 300-700K, many valley valence band struct. 4−72771
$Tl_2SeAs_2Te_3$, glass, microwave and i.r. 4−82448
$Tl_2SeAs_2Te_3$, vitreous, contactless l.f. meas., determ. of inhomogeneous nature 4−57093
U alloys, localized spin fluctuation model 4−45104
UCu_5, 2-300K, nonstoichiometry effect 4−64191
UNi_5, 2-300K, nonstoichiometry effect 4−64191
V, 1500 to 2100K, simultaneous meas. with hemispherical total emittance and heat capacity, new results presentation format 4−74018
(V-Cr)Fe, resist. min., obs. of negative temp. coeff. 4−60768
VCo_3, rel. to mag. props., transformation temp. 4−57258
V_2Ga_5, temp. depend. of ideal resist., 10 to 300K 4−76003
VMo_2S_4, mag. props., elec. props., rel. to struct. *(French)* 4−67352
VO_2, metal semiconductor transition, stoichiometry influence 4−60834
VO_2, new allotropic form, hydrothermal synthesis and characterization *(French)* 4−75494
V_2O_5, defect form., cond. variation with annealing time 4−69798
V_2O_5-KPO_3 glass, evidence of hopping cond. among localized states 4−70021
VOOH, charact. and synthesis in hydrothermal conditions *(French)* 4−75494

electrical conductivity of solids continued
V_3Si, resistivity, comparison for transforming and non-transforming crystals 4−67199
W, wire, interaction with medium depend. 4−49819
W wires, quenched-in resistivity measurements 4−82386
$W_{1-x}Nb_xSe_2$ quasi-binary alloys, elec. cond. mechanism and band model 4−60791
WO_2, crystal structure, magnetic susceptibility, electrical conductivity of pure and NiO doped single crystals 4−63817
W_3Ru_2 films, resist. temp. coeff. 4−45660
Y film, influence of Bn, Cs and CsCl adsorption on film resistance and weak function *(Russian)* 4−52999
Y-Ce, dilute alloy Kondo system, mag. susceptibility and exchange resist. 4−49160
YIG:Ca(Mg), d.c. conductivity and Seebeck coeff. meas., 1200-1700K varying O press. 4−67214
YIG:Pb^{2+},Si^{4+}, film, elec. and optical props, liq. phase epitaxy 4−79420
Yb, anomaly at 590K, polymorphic transition 4−72571
Yb intermetallics with diamagnetic alloyed elements, Yb valency determ. *(French)* 4−61074
Zn, quenching effects and vacancy characteristics 4−63827
Zn, residual elec. resist., grain boundaries influence *(Russian)* 4−73289
Zn-Mn single crystals, anisotropy in resistivity measurements, 0.3 to 8K 4−44894
ZnCdS:Ag, l.v. cathodoluminesc., factors affecting efficiency *(Russian)* 4−82755
$ZnCr_2Se_4$, resistivity, Seebeck and Hall effects meas., 77 to 300K heat treatment effects 4−60793
ZnNi ferrite, temp. depend., neutron field effect 4−57280
ZnO, epitaxial film during chemisorption of N or O atoms and mols. *(Russian)* 4−82497
n-ZnO, γ-irradiated, surface activity investig. by e.s.r., reflect., adsorpt., cond. meas. 4−57887
ZnO surface, slow relax. of excess cond. *(Russian)* 4−70087
ZnS film, in Al-ZnS-Au struct., d.c. elec. cond. 4−49088
ZnS:Cu:Co, photoconductor, thermally stimulated current curves investig. 4−79343
ZnS(Se)-$CuAlS_2(Se_2)$, solid solns., conc. depend. 4−44915
ZnSe, elec. and optical props. 4−61235
ZnSe:Al ion implanted, elec. characts. 4−57085
p-$ZnSiAs_2$, effective mass of holes investigation 4−67241
$ZnSiAs_2$, meas. at reversible cryst. to melt phase transition 4−72776
p-$ZnSiP_2$, 200-1000K, hole effective mass determ. 4−72799
$ZnSnAs_2$, phase transition, melting, hysteresis effects 4−60616
ZnTe amorphous films, frequency depend. of a.c. conductivity, hopping type conduction model 4−44927
Zr-Cr-Fe, in-reactor oxidation, oxide electrical characteristics 4−70495
Zr-Nb (2.5 wt.%), in-reactor oxidation, oxide electrical characteristics 4−70496
$Zr_{0.4}Cu_{0.6-x}Fe_x$, amorphous, spin fluctuations and spin-spin interactions, susceptibility and resist. obs. 4−64185
$Zr_xNb_{1-x}C$, solid soln., temp.-conc. depend. of Hall const. and resistance, cond. mechanisms 4−44937

electrical conductivity transitions
see also metal-insulator transition
amorphous chalcogenide threshold switch, filament props. 4−60886
amorphous material, threshold switching, relax. mechanism 4−79358
amorphous semiconductor, asymmetric switching and memory characteristics 4−57149
amorphous semiconductor, critical-field switching as bulk electronic effect 4−60835
amorphous semiconductor, equations governing threshold switching 4−70053
amorphous semiconductor, photocurrent gain, blocking contacts 4−82461
anthracene single crystal, electron injection, light effect 4−70056
chalcogenide films with polymeric coatings, switching threshold reduction 4−53129
chalcogenide glass, obs. of current channels in thin film switches 4−53131
chalcogenide glass, threshold and memory switching 4−82349
chalcogenide glassy semicond., elec. instabilities of mixed electronic and thermal origin, theory 4−44973
disordered materials, metal-nonmetal transition 4−79264
melanins, amorphous semiconductor switching 4−68487
Peierls incommensurate distortion, fluctuation cond. 4−72717
polymer film, memory and threshold switching obs. 4−67296
semiconductor, compensated, metal-activation type cond., mag. freeze-out of electrons 4−67265
TTF-TCNQ, pressure effects on metal-semiconductor transition temperature 4−53132
V_2O_3:Cr, high temperature X-ray diffraction, two-phase behaviour rel. to elec. anomaly 4−63914
Al_2O_3, obs. of ionic to electronic cond. transition 4−49047
$As_{0.15}Ge_{0.13}Te_{0.73}$, glass, visual effects 4−75929
As_2Se_3, liq., semicond.-metal at high temp. 4−75881
As_2Se_3, liquid, switching, temp. depend. of activation energy 4−79386
$As_2Se_3Mn_x$ and $As_{30}Te_{48}Ge_{10}Si_{12}$ glasses, prep., elec. cond. at high temps. 4−70055
AsTe, amorphous film, switching, computer simulation and obs. 4−82504
AsTeSe amorphous system, binary mol. struct. evidence 4−63763
Au film, discontinuous, switching phenomena obs. by liq. cryst. technique 4−75972
B, amorphous film, electrothermal switching model 4−67295
BP, metal-to-insulator transition under high press. 4−44975
Bi, Lifshits electronic phase transitions 4−75787
C, amorphous film, memory switching 4−75983
C, amorphous nonmetal-to-metal transition obs. 4−57150
CdSe, with cond. memory, conc. and Hall mobility of electrons *(Russian)* 4−72838
Co_3O_4, model substance for coplanar thin film thermistor effect switching 4−44974
Cu:Ar, Mott-Hubbard type transitions 4−64122
Cu_xO, switching, expt. and model 4−53128

electrical conductivity transitions continued
EuS, doped, ferromag. semicond. nonuniform state and hysteresis in resistivity 4−82466
Fe_3O_4 Verwey transition, Cullen and Callen model 4−75932
Fe_xSe_y, cond. mechanism 100-700K 4−60833
GaAs, compensated, metal-insulator transition in mag. field 4−49048
GaP, semiconductor-to-metal transition under high press. 4−44975
p-GaSe, switching effect obs. in static and varying elec. fields 4−57152
$K_2Pt(CN)_4Br_{0.3}2.3H_2O$, alternative model for cond. behaviour 4−57151
$K_2Pt(CN)_4Br_{0.3}.3H_2O$ press. depend. of metal-semiconductor transition 4−67264
Na:Ar, Mott-Hubbard type transitions 4−64122
NbO_2, thin film, electrical switching behaviour 4−82465
Nb_2O_5, thin film, electrical switching behaviour 4−82465
NiO, thin film, switching and dielec. breakdown props. 4−53165
NiO:Li, thin film, switching and dielec. breakdown props., change of threshold field with Li conc. 4−53165
NiS, metal-semicond. phase transform., controlled temp. change 4−67263
NiS_2:Co, phase diagram, semicond. and metal phases 4−75933
$Ni_{1-x}S$, elec. props. exam., metal-semiconductor transition at 265K 4−75930
Sb-Se glass, splat cooled, memory switching 4−75931
Sb_2S_3-Sb_2S_3-Bi_2S_3 system phases, switching effect 4−69887
Se, thin film, amorphous, polarized memory switching 4−64144
Se-Te, liq., semicond.-metal at high temp. 4−75881
Si, amorphous film, electrothermal switching model 4−67295
SiC, metal-to-insulator transition under high press. 4−44975
SiO_2, in m.o.s. struct., high cond. state mechanism 4−60875
SiO_2, thermally grown, in m.o.s. struct., elec. cond. switching 4−60865
SmS semiconductor-metal transition pressure reduction for reversible laser beam writing 4−47388
TaS_2, 1T and 2H, pressure-induced semimetal-metal, metal-metal transitions 4−70054
Te, liquid, meas. at temps. beyond normal b.p. 4−70055
ThO_2, dense polycryst., ionic-electronic cond. transition under reducing conditions 4−64081
VO_2, metal semiconductor transition, stoichiometry influence 4−60834
V_2O_3, free energy model, high temperature transition 4−64034
YIG:Ca(Mg), d.c. conductivity and Seebeck coeff. meas., 1200-1700K varying O press. 4−67214
ZnNi ferrite, neutron field induced 4−57280

electrical contacts
see also contact potential; contact resistance; ohmic contacts; point contacts
contact potential meas. *(German)* 4−46745
gas discharge development, switching current below arcing minimum *(German)* 4−75332
mass transfer by short arc on switching 4−44413
paramagnetic-superconducting contact, low-lying excitations in pair-potential well 4−64172
polyethylene/Hg, contact electrification, effect of surface oxidation 4−79399
spring materials, BeNi, ductility reversal during age hardening 4−49768
surface barrier radiation detectors, metal-semiconductor contact props. 4−46821
switch, contact-breaking current, post-arc column and cathode sheath recovery strength effects 4−60375
volta capacitor of two metals, appl. limits of principle of detailed equilib. *(German)* 4−82471
work function, changes on materials in u.h.v., meas. 4−49053
Ag alloys, oxide containing, contact characts. 4−80049
Ag-n%CdO, statistical estimation of arc temperature 4−44412
Cu/graphite powder composites, resist. meas. during compaction 4−82968
GaAs-Au contact, barrier height, semicond. surface layer thickness depend., interpretation 4−53144
GeSe-Al, amorphous semicond.-metal Schottky barrier, rel. to model for relax. in Al-a-GeSe-Al struct. 4−67272
Mo-GeSe-Mo sandwiches, obs. of blocking contacts, temp. depend. of conductance and capacitance meas. 4−53146
Re-Ga, solid-liq., FIM obs. of contact phenomena 4−48820
W-Ga, solid-liq., FIM obs. of contact phenomena 4−48820

electrical engineering
nonlinear oscillations, conference, Poznan, Poland (Aug-Sept. 1972) 4−74234

electrical engineering applications of computers
see also electronics applications of computers
d.c. magnetic field in conductor, Bessel and Fourier transforms *(German)* 4−43229
d.c. transmission line corona loss calculations 4−78834
dielectric partial discharge meas., automatic scanning counter *(Italian)* 4−80943
e.m. fields teaching, use of computer graphics 4−47271
Helmholtz equation, finite element solutions, using an equilateral triangle grid 4−62708
magnetic field distrib. in cond. slab near current carrying cond., eddy currents 4−47269
precision e.m. meas., conference, London (1974) 4−65367
Na-cooled fast reactor safety instrumentation 4−43593

electrical fault location *see fault location*

electrical forming *see electroforming*

electrical impedance
see also admittance; reactance; resistance (electric)
automatic control system for TO-I Tokamak 4−44352
electrodes, capacity change with pot. investig. rel. to passivation kinetics 4−54038
electrodes, differential capacity in region of two dimensional phase transition meas. 4−54037
impedance cardiograph Minnesota theory and applic. 4−71269
loop antenna, v.l.f. input impedance in warm collisionless multicomponent magnetoplasma 4−46087
metal, surface impedance in weak mag. field theory 4−53133

electrical impedance continued
semimetal, e.m. excitation of ultrasound and resonant transparency *(Russian)* 4−67167
superconductor, type I, pure, nonlinear effects in electrodynamics *(Russian)* 4−79462
Bi, surface impedance, meas. at r.f. in mag. fields 4−49029
KHF_2, solid electrolyte, α- and β-phases, a.c. impedance investig., interface phenomena 4−54028

electrical impedance measurement
see also reactance measurement; resistance measurement
aqueous ion-solns., semicond. range, interpretation *(German)* 4−62487
complex reflection coeff. meas., balance method for shorter millimetric wavelengths 4−65493
eddy current test system for nuclear fuel cladding tubes 4−45890
electrochemical cell, study of stressed and strained metal 4−67833
muscle fibres, skeletal, of the frog 4−46370
passive two-terminal networks, separate magnitude and phase meas., substitution method 4−51111
rock complex specific impedance meas. digital phase-sensitive unit *(Russian)* 4−54299
transthoracic impedance variations rel. to thoracic diameter changes 4−83307

electrical insulation *see insulation*

electrical noise *see noise*

electrical power systems *see power systems*

electrical properties of substances
see also carrier density; carrier mobility; crystal electron states; dielectric properties of substances; electric breakdown; electrical conductivity; photoconductivity; piezoelectricity; semiconductors; superconductivity; superionic conducting materials; thermoelectricity
amorphous and liquid semiconductors, conf., Garmisch-Partenkirchen, Germany (Sep. 1973) 4−72665
amorphous solid, rel. to defect struct. 4−75549
liquid crystal, domain struct. and props. 4−82113
poly(carbon suboxide), electrical props., van der Pauwe d.c. current method *(Polish)* 4−48976
Bi, size effect and temp. depend. of transverse elec. field *(Russian)* 4−72807

electrical resistance measurement *see resistance measurement*

electricity
see also atmospheric electricity; electric charge; electric current; electrical impedance; electrical properties of substances; electromagnetism; terrestrial electricity; triboelectricity
power-transfer experiment, (educational) 4−68598

electro-optical devices
see also liquid crystal devices; optical modulation; Q-switching
alignment system, laser-based, field appl. 4−47383
error detect. system for location of circular holes in flat plates 4−74044
heat pipe/radiator, passive cryogenic cooling of electrooptics, spacecraft appl. 4−77049
laser apparatus for data recording on mag. film 4−59461
laser integrated deflector, operation 4−51078
laser pulse production of 10.6μ, electro-optical fast gating 4−46706
memory, optical working, based on injection laser and m.i.s.i.m. struct. 4−81361
m.i.s.i.m. structure for optical memory, electro-optical readout 4−82688
modulator, $LiNbO_3$ Pockels type, operation 4−68712
modulator crystals, optical method of loss tangent meas. 4−58779
phase modulator, multifringe as reference for laser interferometry 4−54945
Pockels readout optical modulator, Itek, imaging characts., possible appl. 4−77097
random-access holographic memory, electro-optic/electronics interface features 4−46695
shutter, using nematic twisted layers with variable dielectric anisotropy 4−42775
switch, for picosecond laser pulse generator 4−62474
CdTe, modulator, extinction ratio meas. 4−46703
GaAs, modulator, extinction ratio meas. 4−46703
p-Ge modulator, 10μ, by elec. field heating of carriers 4−72809
KH_2PO_4, incompletely deuterated, high-speed electro-optical switch, laser appl. 4−80936
$LiNbO_3$ film, modulator for guided waves 4−57501
$LiNbO_3$ phase modulator as reference for laser interferometry 4−54945
$Pb(Zr,Ti)O_3$ electro-optical modulators for 100 Mb/s holographic recording 4−46694

electro-optical effects
see also birefringence; electroluminescence; electroreflectance; Kerr electro-optical effect
alkali halide crystals, shell model calc. 4−76236
anisotropic crystals, electrooptical signal shape 4−67557
n-azoxyanisole, nematic, dynamic light scatt. 4−75447
charge-transfer complexes and autocomplexes, electrochromism spectra and dipole moments 4−67554
cholesteric-nematic mixture, structural oscillations 4−69709
colloid particles, changes in light scattering intensity *(Bulgarian)* 4−49327
deviation of light using converging beam structure 4−70282
disordered solid, exciton absorption, Franz-Keldysh effect 4−70317
electrogyration magnitude, susceptibility calc. 4−45273
electrooptical parameters, sign determ. from dipole moment data 4−74975
gyrotropic crystal, polarisation plane rotation *(Russian)* 4−70278
liquid crystal, dynamic scatt., texturing effect 4−82686
liquid crystal, nematic, birefringence, anisotropy depend. 4−82685
liquid crystal, nematic, birefringence, transient behaviour 4−75443
liquid crystal, nematic, dielec. anisotropy 4−79702
liquid crystal, nematic and nematic-cholesteric mixtures, relax. of light scatt. 4−78906
liquid crystal, rel. to display device applic., review *(Japanese)* 4−72426
liquid crystal, twisted nematic layer, transient effects 4−70281
liquid crystals, nematic, polarity depend. flexoelec. process 4−60401

electro-optical effects continued
MBBA, nematic, transient laser phenomena in a.c. electric fields 4−63752
MBBA, scatt. light irradiance statistics, EHD fluctuations 4−73101
MBBA-EBBA, liq. cryst., light scatt. depend. on applied voltage *(Russian)* 4−82104
methanes, halogenated, d.c. electric field induced second harmonic generation meas., hyperpolarisability determ. 4−47969
methyl alcohol, molecular bond parameters *(Russian)* 4−60062
monochromatic light, spectral structure modification by modulation 4−59443
phase transitions, optically distinguishable states, pot. appl. 4−62871
photoemission, of electrons from electrodes into soln., influence of plane of polarisation 4−45917
photoferroelectric, photoinduced birefringence variations *(French)* 4−49326
polyatomic molecules, parameters, computer calc. by least squares method *(Russian)* 4−43852
rare gas, field induced translational absorpt. theory 4−81711
reflector, electro-optic, with roof prism, temp. characts. 4−54871
semiconductor, bilinear optical susceptibility, nondispersive part, Jha-Bloembergen approach 4−57502
semiconductor, exciton effect influence on electroabsorpt. *(Russian)* 4−76238
semiconductor, GaAs-type, deform. effect on polariz. of luminesc. and absorpt. in tunnel transitions 4−49453
n-semiconductor, intraband optical absorption in crossed d.c. electric and mag. fields 4−45274
semiconductor, radiation modulation using Gunn effect, appl. for laser beams 4−82689
semiconductor with anisotropic energy bands, magnetoabsorpt., longit. elec. field influence 4−79751
solid-state, e.m. wave phenomenon, review 4−53115
As_2S_3, amorphous, temp. and field depend. of optical absorption edge 4−45317
As_2SeTe_3, amorphous, extrinsic electroabsorption, 0.47-0.9 eV 4−61179
$Ba_2NaNb_5O_{15}$, second harmonic generation, electrooptic props. 4−77716
$BaTiO_3$, spontaneous electrooptical absorption 4−76237
$Cd_2(NH_4)_2(SO_4)_3$, improper ferroelec., temp. depend. 4−70280
CdSe, electrical characts. of free surface determ. by method of electroabsorption 4−67266
CdSe, electroabsorpt. and electrodispersion, obs. in exciton region at 90K 4−49384
$CsCuCl_3$, antiferromag. piezoelectric, field depend. 4−57503
CuBr, temp. depend., nonlinear optical coeffs. 4−61159
CuCl, exciton contrib. to nonlinear optical susceptibility 4−69083
$CuGaS_2$, const. strain meas. 4−53398
Cu_2O crystal, polarised light electroabsorpt. in yellow exciton series region, theory 4−67607
GaAs, absorption edge, hot electron effects 4−45322
GaAs film, electroabsorption, influence of built-in electric field 4−67610
$KAl(SO_4)_2.12H_2O:Cr$, electric field induced optical activity and circular dichroism 4−82687
$KCl:OH^-(OD^-)$ obs. of F-like paramag. and paraelec. defect, $H_2O^-(D_2O^-)$ 4−48943
KH_2PO_4, deuteration effect, half-wave voltage 4−79704
KIO_3, 120° shift in ferroelectric polarisation, and characteristics 4−82676
$KNbO_3$, ferroelec., half-wave voltages, electro-optic and polarisation-optic coeffs. 4−67555
$KNbO_3$, orthorhombic phase characterisation 4−70248
$LiNbO_3$, thick phase hologram form. mechanism 4−43265
$LiNbO_3$ film, electro-optic coeffs. for guided wave 4−57501
MgO, elec. field induced dichroism of V^--centre 4−73102
$NH_4H_2PO_4:(NH_4)_2Cr_2O_7$, dielectric and electrooptic props. 4−45272
$Nd_2Ti_2O_7$, characterization 4−76223
Ni-CdP_2 Schottky barriers, optical modulation spectra, optical transition energies determ. 4−70049
$(Pb,La)(Zr,Ti)O_3$, ceramics, polymorphic phase 4−63924
$Pb_5Ge_3O_{11}$, ambidextrous crystals, optical rot. appls. 4−53396
$PbMg_{1/3}Nb_{2/3}O_3$, electro-optical effect dispersion in visible spectrum 4−57574
$PbMg_{1/3}Nb_{2/3}O_3$, optical radn. control, electro-optic effect 4−53397
$(Ph,La)(Zr,Ti)O_3$, optical recording of digital data 4−67532
Se, amorphous, electroabsorption investigation 4−45318
Si, polarisation effects in electroabsorption, theory 4−67556
$Sr_xBa_{1-x}Nb_2O_6$, low voltage modulation, video frequency 4−62475
$ZnGeP_2$, const stain meas. 4−53398
ZnO, exciton contrib. to nonlinear optical susceptibility 4−69083
ZnS, faulted, Franz-Keldysh effect and internal fields 4−79703

electroacoustic devices
electromechanical filter, audio-frequency, modes of vibration 4−58665

electroacoustic effects *see acoustoelectric effects*

electroacoustic generators *see acoustic generators*

electroacoustic transducers
see also loudspeakers
acoustic testing, digital processing applic. 4−42734

electrocaloric effects *see pyroelectricity*

electrocardiogram *see electrocardiography*

electrocardiography
see also cardiology
generators, equivalent, of lower degree, applicable hexadecapolar shift equations 4−76948
inverse, time dependent models, feasibility of 4−83301
ventricular fibrillation, threhold 60 Hz current 4−83303

electrocataphoresis *see electrophoresis*

electrochemical analysis
see also electrochemistry
anticoagulant drugs, electrochem. behaviour, voltammetric and potentiostatic obs. 4−51195
chronoamperometry, appl. to diffusion coeff. determ. for Co(II) ion in LiCl-KCl melt *(French)* 4−44690
chronopotentiometry, instrumental non-destructive starting and switching programming unit design 4−46948

electrochemical analysis continued
detector and gate integrator for electrochem. meas., design 4−68007
electro-immuno-assay plate, for clinical immunology 4−65589
ferromagnetic film on dielec. substrate, chem. comp. and thickness determ. 4−58984
h.f. electrodeless conductometers, inductive meas. cell design 4−55144
instrumentation, circuit designed for phase selective and harmonic polarography, trace anal. applic. 4−46968
isoelectric focusing, of proteins in polyacrylamide gel 4−65590
oxygen, low partial pressures meas. device 4−68841
protein in serum, automated determ. using ion-selective membrane electrodes 4−77266
solid-state coulometric titration, applic. to wustite 4−58991
steel, maraging, precipitated phases analysis by DTA-EGA after ageing treatment 4−49688
thin-layer isoelectric focusing, use of protein markers 4−65591
thin-layer isoelectric focusing, zymogram method 4−65588

electrochemical batteries *see cells (electric)*

electrochemical electrodes
see also electrochemistry
absolute electrode potential, thermodynamic, physical concept applic. to standard H_2 potential 4−54031
a.c. polarography measurements, theoretical principles 4−59006
carbonate ion-selective membrane electrode 4−80190
charge transfer at electrode-solution interfaces, theory 4−54024
chemisorbate binding energies and sites, quantum-chemical calc. 4−53000
differential electrode capacity in region of two dimensional phase transition meas. 4−54037
dimensionally stable anodes, conducting oxide, morphological props. 4−50174
electrode potential, current, temp., heat flow meas., Pt resist. thermometer 4−68632
electrolytic conductance, meas. using four-electrode cell 4−50176
liquid membrane ion selective for biomedical research 4−65574
metal-surface oxidation states, identification by electron spectroscopy 4−53005
passivation of anodically dissolved metals, electrode capacity change with pot. investig. 4−54038
photoemission of electrons from electrodes, influence of plane of polarisation 4−45917
production method 4−83028
reference electrodes for use with anhydrous HF *(French)* 4−57852
rotating electrode system, 600 to 11000 r.p.m., mech. and elec. design *(German)* 4−46744
rotating hemispherical, turbulent regime mass transfer rate eqn. 4−69558
semiconductor-electrolyte interface charge transfer reactions, role of energy levels 4−54023
stationary Hg electrode, for hf polarography, characts. investig. 4−51231
stepwise electrode processes, eqns. derived for d.c. polarographic waves, kinetics determ. 4−51222
surface molecular structure determ. by LEED and thin-layer electrochemistry 4−54026
transition metal electrocatalysts., optical surface spectroscopy 4−54025
tubular, digital simulation of electrochem. response in stationary and flowing soln. 4−76604
tubular, use in mass transfer investig. for flowing electrolyte system 4−54036
voltage-current meas. without ohmic losses in electrolyte 4−61625
wire, partially immersed, influence of diameter on relationship between meniscus height and pot. 4−54029
Ag electrode, adsorption of pyridine, Raman spectra 4−57844
Ag/AgCl reference electrode in liquid NH_3, potential determ. 4−73437
CdS/indifferent electrolyte system, electron transfer involving tunnelling from surface states 4−68009
Ga-Ga_2O_3, oxygen transfer with solid electrolyte CaO-stabilized ZrO_2, kinetics 4−45913
H_2, thermodynamics of *(Spanish)* 4−54015
Hg cathode for NaCl aqueous soln. electrolysis 4−54021
Hg/concentrated salt solution interface, effect of metal, soln. on elec. double layer 4−45920
Li-Mg in propylene carbonate 4−61619
O_2, sensor, multicathode, fabricated using IC techniques 4−81094
Pb/concentrated salt solution interface, effect of metal, soln., on elec. double layer 4−45920
Pt, protein coating to inhibit unwanted surface reactions 4−45919
Pt thin film electrode, adsorpt. studies by electrode elec. resist. meas. 4−80189
Ti-Al-V alloy, stress corrosion cracking in NaCl aqueous soln. obs. 4−53749

electrochemical machining *see electrolytic machining*

electrochemical polishing *see electrolytic polishing*

electrochemistry
see also Debye-Huckel theory; electrical conductivity of electrolytic liquids; electrochemical analysis; electrochemical electrodes; electrodeposition; electrolysis; electrolytic devices; electrophoresis
absolute electrode potential, thermodynamic, physical concept applic. to standard H_2 potential 4−54031
adsorbed ion monolayers, phase separation 4−57849
anodic metal dissolution, effect of nonequilib. electric double layer on ionic mass exchange rate 4−54040
charge transfer at electrode-solution interfaces, theory 4−54024
conducting spheres in electrolyte solns., electrochem. polarisation 4−64711
Coulomb Green's functions at diffuse interfaces 4−61621
coulostatic photopotential, meas., electron capture by N_2O in electrolyte investig. 4−54030
cyclic a.c. voltammetry, with phase-selective detect., second harmonic techniques, applic. 4−46949
detector and gate integrator for electrochem. meas., design 4−68007
diffusion relaxation downstream from rot. disc and ring active in laminar region, microelectrode obs. *(French)* 4−78681
digital simulation, of system with compact react. layers, using 'heterogeneous equivalent' concept 4−50175

electrochemistry continued
dye-lipid-electrolyte lamella, pH sensitivity of fluoresc. in mol. circuit 4−56263
electrode potential, current, temp., heat flow meas., Pt resist. thermometer 4−68632
electrode surfaces, optical absorption phenomena 4−61623
electrode/solution interface, electrical double layer perturbation by light absorption investig. 4−54033
electrodes, partially immersed wire, influence of diameter on relationship between meniscus height and pot. 4−54029
electrogenerated chemiluminescence pumped dye laser cavity 4−51587
electronucleation, probability density function for number of events 4−73436
electrorheological disperse system in constant electric field, effect of dielectric axisymmetric rotation *(Russian)* 4−45856
electrorheological effect, behaviour of Pt and silica gel spheres in electric field *(Russian)* 4−45855
element classification, electrochemical-thermochemical series, comparison 4−55984
energy-deficient electrogenerated chemiluminescence in mixed systems, potential scan method of analysis 4−53487
interface stability, with ion or dipole layers 4−44749
ionizing monolayers and pH effects, review 4−54018
metal, stressed and strained, cell for electrochem. study 4−67833
metal-solid electrolyte interphase, model 4−54032
organic, biological and physical, conf., San Francisco, USA (May 1974) 4−45912
organic electrode reactions, voltammetric investigs. using programmable waveform generator 4−68839
passivation of anodically dissolved metals, electrode capacity change with pot. investig. 4−54038
photoemission of electrons from electrodes, influence of plane of polarisation 4−45917
proton-transfer reaction, kinetics, model 4−54027
pyridine, adsorption at Ag electrode, Raman spectra 4−57844
rubrene systems, electrogenerated chemiluminesc., solvent and mag. field effects 4−57845
semiconductor-electrolyte interface charge transfer reactions, role of energy levels 4−54023
semiconductors, catalysis of electrochemical reactions by surface states 4−54022
suspended particle potential effect on adsorption kinetics of ions with similar sign charges 4−73384
thionine, stable radical, spectral investigation and role in electrochem. processes *(Russian)* 4−45922
tubular electrode response, digital simulation in stationary and flowing soln. 4−76604
voltage-current meas. without ohmic losses in electrolyte 4−61625
voltamperometric techniques in anhydrous HF *(French)* 4−57852
Al, anodic galvanoluminescence spectrum *(Russian)* 4−76608
β-Al_2O_3-Na_2O ionic conductivity and electrochem. polarisation obs. 4−52931
Ca-$CaCl_2$, thermodynamic props. including e.m.f. meas. 4−50173
CaF_2, elec. cond., electrochem. obs. 4−48975
$CaSnO_3$, stability, 973-1423K, electrochem. determ. 4−44656
Ca_2SnO_4, stability, 973-1423K, electrochem. determ. 4−44656
CdS/indifferent electrolyte system, electron transfer involving tunnelling from surface states 4−68009
Fe, in crevices in chloride solns., corrosion rate 4−76466
Fe alloys, in solns. of electrolytes cathodic polarisation effect on cavitation resistance 4−80191
H_2-air fuel cell, electrochem. processes *(German)* 4−50172
HF, anhydrous, volt-ampere curves *(French)* 4−57852
Hg, spreading on Pb, Cd, Cu and Zn surfaces under cathodic polarisation conditions 4−64712
HgI concentrated salt solution interface, effect of metal, soln., on elec. double layer 4−45920
$KNO_3 + Ca(NO_3)_2$ system, molten, transport props. investig. of Ag^+, Cl^-, Br^- ions by chronopotentiometry 4−52920
NaCl in contact with metal electrodes, electrode polarisation phenomenon 4−67518
$Na_xFe_7O_{11-y}$, thermodynamic and transport props., electrochem. obs. 4−48793
$Na_xV_2O_5$, thermodynamic and transport props., electrochem. obs. 4−48793
Na_xWO_3, partial molar thermodynamic quantities for Na, galvanic cell obs. 4−48775
Na_xWO_3, thermodynamic and transport props., electrochem. obs. 4−48793
Pb/concentrated salt solution interface, effect of metal, soln., on elec. double layer 4−45920
Pt thin film electrode, adsorpt. studies by electrode elec. resist. meas. 4−80189
n-Si, photoelectrochem. passivation and activation at stationary polarisation rel. to temp. 4−53634
TiO_2, electrochromism *(Japanese)* 4−73438
U-Co, phase composition, thermodynamic props. investig. by emf method 4−53666
WC-Co heterogeneous system, anodic polarisation and passivity *(Russian)* 4−53794

electrodeposition
see also electroforming; electroplating
electrolytic nucleation, atomistic theory 4−68014
electrolytic nucleation, atomistic theory 4−68015
metal, double layer capacitance meas. at solid metal electrode *(Japanese)* 4−45921
metal surfaces, of metal atoms, excess binding energy rel. to work function difference 4−56995
nucleation and growth computer simulation 4−82797
thin foils, electrolytic sawing and thinning technique *(French)* 4−82796
Ag, from $AgNO_3$ with NH_3 and KCN heat effects obs. 4−61614
Co-Re alloys, evaluation of electrolytes and deposit props. 4−67707
Co-W alloys, mechanism, expt. data *(Russian)* 4−76605
Cu, on Cu single cryst., nucleation, orientation and morphology 4−63996
Cu, onto single crystal a.c. effect on morphology 4−61615
Ge, electrolytic amorphous film, growth etching behaviour,optical and electron microscope obs. 4−82337

electrodeposition continued
Hg on glassy C electrode, reflectance change meas. 4−54034
Li on Mg in propylene carbonate 4−61619
MoO_3 thin film preparation by anodization using sodium tartrate electrolyte 4−57679
Ni, on Cu, epitaxial growth conditions 4−44808
Pb, epitaxial electrocrystallization on Cu faces, current density effects 4−44796
Pt-Co alloy, physical and chemical properties *(Russian)* 4−53270
Sn on steel, kinetics of spreading in molten salts during anodic and cathodic polarization *(Russian)* 4−70479
Zn on Fe, kinetics of spreading in molten salts during anodic and cathodic polarization *(Russian)* 4−70479

electrodes
see also anodes; cathodes; electrochemical electrodes; microelectrodes
air, effect of electrode surface on breakdown voltage 4−75407
arcs, plasma flows in, for different electrode materials *(Russian)* 4−60371
dielectric covered electrodes, gas breakdown optical studies 4−75416
differential intraceochlear, recording of summating pot. components, stimulus biasing 4−80711
e.e.g., using microwave IC, thermal performance 4−74157
electron optics, transmission properties of slit-slit system *(French)* 4−77723
erosion by particle ejection in low current arcs 4−52639
macro, rel. to noise in bioelectric potential meas. *(Danish)* 4−68829
pH measurement, three-electrode design 4−81075
platinum metals electrode crater and discharge zone processes in spectral determ. carrier effects *(Russian)* 4−68848
point to plane air gap effect of floating barrier 4−75415
polyester film, propane-air ignition in discharge 4−82054
porous, for thermoelectric device using beta-alumina type solid electrolyte membrane, preparation 4−75905
refractory, recovery of arc electrode region, effect of probing current risetime 4−78840
rod-rod air gap lightning impulse breakdown, electrode parameter depend. 4−75414
salt water, propane-air ignition in discharge 4−82054
SEM scintillation collector, secondary electron collection efficiency *(Russian)* 4−71248
spark conditioning, rel. to electric breakdown in vacuum 4−66785
for spectrographic analysis of nonaqueous solns. 4−58989
steel, stainless, vacuum breakdown conditions 4−43913
surface effects upon gas breakdown 4−75409
vacuum arc props., hot and cold cathodes *(German)* 4−78837
wick carbon, characts. for spectrochem. analysis *(German)* 4−62588
Al, O_2 adsorption, effect of electrode separation on contact potential difference 4−49059
Al surface, sparked areas investig. with SEM and energy dispersive X-ray analyser 4−62624
C, arc heated, high speed temp. meas. following current interruption 4−48458

electrodynamics
see also electron beams; electron optics; electron tubes; ion beams; ion optics; ion sources; quantum electrodynamics
betatron oscillations, corrections to g-2 frequency in weak focusing storage devices 4−46779
charged particle beam motion in ionised medium with uniform mag. field 4−81211
charged particle in static electric field, radn. emission 4−51507
classical, deterministic, mathematical simplification using external calculus 4−47141
classical theory, derivation of angular momentum transport to bounded vol. 4−65717
commutative operators of classical e.m. fields, transition from free quantum fields 4−69129
conformal invariance of Fokker-Wheeler-Feynman action-at-a-distance theory 4−74364
conservative dynamic system, autonomous second order point mapping, stochastic soln. 4−74259
covariance groups from topological extension of space-time by e.m. gauge groups 4−71623
dielectric cylinder excitation, integral eqn. of 1st kind 4−81269
dielectric media, space- and time-dependent fluctuations, mol. theory 4−55300
differential difference eqns. containing advance and retardation 4−47035
electromagnetic two-body problem in special relativity 4−74382
e.m. wave reflection at moving ferrite-dielectric interface, oblique incidence 4−65868
energy-electric charge equivalence 4−77537
fibres, changed and polarized, displacement in a.c. electric field 4−51506
fluctuating magnetic fields, behaviour of classical spin, magnetic moment decrease 4−47224
helical media, e.m. wave diffr., boundary problems *(Russian)* 4−62790
holistic electron theory 4−51411
induced radiation of electrons in homogeneous crossed fields 4−77769
induced radiation of electrons moving in field of two e.m. waves *(Russian)* 4−77768
interactions between curved parallel surfaces, Van der Waals forces investig. 4−74363
isotropic and anisotropic inhomogeneous media, eqns. soln. by electrical analogue modelling ccts. 4−62780
Lorentz-Dirac equation, solution in presence of external e.m. field 4−71350
Lorentz-Dirac equation of motion derivation 4−59221
magnetic field produced by a slowly moving point charge on the other side of a conducting surface 4−62773
magnetic traps, stellarator-type, toroidal system electrodynamic force compensation 4−60310
Mo-Papas equation of motion for classical charged particles, comment on solutions 4−71349
neutron star, rotating with aligned magnetic field electrodynamic equilibrium of space charge region 4−65157

electrodynamics continued
- nonrelativistic moving particle, electric and mag. velocity fields 4−47274
- point charge moving in anisotropic medium, radn. field, Fourier integrals 4−47283
- position-time relationship for inverse distance squared force, analytical soln. 4−74362
- principle of virtual works, reply to criticisms, physical reasonableness of results 4−55301
- relativistic charged particle motion in mag. field, drift approximation 4−55344
- relativistic electrons radiation in undulator with helical magnetic field *(Russian)* 4−81210
- resonance effects in charged particle motion in e.m. wave field and mag. field in medium *(Russian)* 4−65719
- semiclassical, uniqueness and limits of applicability 4−69129
- spinless charged particle motion, Klein-Gordon, Hamilton-Jecobi eqns. *(Russian)* 4−55553
- stochastic, applic. to interpret. of quantum mechanics *(French)* 4−51418
- stochastic, general formalism and free radiation field 4−65720
- stochastic, natural line-breadth calc. 4−47154
- time standardisation by electron beam velocity in crossed elec. and mag. fields 4−80826
- two body problem, specifications of well posed initial value problem 4−65982
- vector potential and Riemannian space 4−55352
- world line of charged particle moving in e.m. field geometric features from Frenet-Serret formulae 4−59267

electrodynamometers *see dynamometers*

electroencephalograms *see electroencephalography*

electroencephalography
- *see also brain*
- alpha activity, local suppression by pattern in half the visual field 4−76947
- alpha rhythm, wavelike props. 4−83302
- alpha rhythm densities, human, inter-session stability 4−54646
- alpha rhythm model, thalamic 4−62281
- auditory averaged evoked response, influence of stimulus level and sleep stage 4−68505
- auditory evoked responses, objective evaluation 4−83314
- auditory response, averaged, of aphasics, to linguistic and nonlinguistic stimuli 4−68508
- averaged evoked potentials, in auditory pathway and reticular formation of the cat during waking and sleeping 4−73889
- brain scintophotographic abnormalities 4−68524
- cerebral dominance, associated e.e.g. asymmetries 4−58501
- cerebral ischemia, in rabbits, computer anal. 4−58500
- computer applic., quantitative analyses 4−51192
- cortical potentials, coupling meas. to study functional relationships 4−68489
- electrode using microwave IC, thermal performance 4−74157
- emitted cerebral events, in absence of stimulus 4−58498
- evoked potentials, recording techniques 4−51191
- hemisphere asymmetries, during speech, assessment 4−68493
- l 4−58502
- maturation and interrelationship with auditory evoked responses, in premature infants 4−54643
- monkey, e.e.g. responses to 2500 rads of whole-body gamma-neutron radiation 4−76976
- neural coding, through mass action, in the olfactory system 4−80704
- neuron masses, forming feedback loops, steady-state and limit cycle activity, distributed parameter model 4−83304
- occipital theta rhythm, control affects performance of monotonous monitoring tasks 4−68488
- pulmonary venous flow patterns obs., using radiological method 4−58558
- statistical analysis, methods and applic. *(Japanese)* 4−80701
- visual evoked potentials, semi-automatic, multi-channel Fourier analyser 4−55124
- visual evoked response, average, in man, varability 4−58506
- visual evoked response, to rapid random flash, clinical studies 4−58505
- visual evoked response dispersion pattern, normative data 4−76963

electroendosmosis *see electrophoresis*

electrofluidynamics *see electrohydrodynamics*

electrofluorescence *see electroluminescence*

electroforming
- *see also metalworking*
- cavity resonators for 3 GeV double-ring storage facility, manufacturing techniques 4−77144
- NbO_2, thin films, conduction mech. of electrical switching effects after electrical forming process 4−82465
- Nb_2O_5, thin films, conduction mech. of electrical switching effects after electrical forming process. 4−82465

electrogasdynamics *see electrohydrodynamics*

electrohydrodynamics
- *see also magnetohydrodynamics*
- acetone drops, evaporation into N_2 stream, electric field effects on transfer rates 4−75180
- channel with electrodes, variable section, internal resistance *(Russian)* 4−63609
- charged drop in viscous dielectric, EHD oscillations, stability 4−66659
- cholesteric liquid crystals with negative dielectric anisotropy, electrohydrodynamic instabilities 4−69719
- conducting drop of emulsion between electrodes, transmission factor *(Russian)* 4−75179
- conducting fluid in electric magnetic fields, convective instability *(Russian)* 4−60231
- conducting fluid in vertical channel, convection excitation by h.f. electric current 4−66646
- dielectric film, on flat plate, crit. electrostatic field strength 4−52476
- diffusion relaxation downstream from rot. disc and ring active in laminar region, microelectrode obs. *(French)* 4−78681
- electroconvection of electroconductive drop in elec. field of dielec. liq. *(Russian)* 4−63948

electrohydrodynamics continued
- electrolyte, dielectric drop vel. in crossed electric and mag. fields *(Russian)* 4−44129
- exploding wire, in vacuum, radial elec. field influence 4−60347
- fluid mixtures, magnetisable dielectric, thermodynamic anal. 4−60227
- heat pipe, capillary struct., performance limitation 4−63593
- ionised gas flow, nonmagnetic kinetic energy-electricity conversion, theory and appl. 4−44408
- liquid, electrically polarisable, macroscopic model *(Russian)* 4−63594
- liquid crystal, nematic, convective instabilities 4−72427
- liquid crystal, nematic, ion mobility meas., crit. voltage for EHD instability *(French)* 4−44689
- liquid sheet/hot atmosphere, flow and disintegration 4−56444
- MBBA, scatt. light irradiance statistics, EHD fluctuations 4−73101
- modified Korteweg-de Vries equation *(Russian)* 4−69602
- monomolecular film on liquid surface, dynamic interactions with imposed electric field 4−66647
- plane EHD wall jet, propagation above conducting plate, boundary layer 4−48336
- plasma flow, shock induced, unsteady interaction with mag. and elec. fields 4−72363
- Rayleigh Taylor instability with Hall currents 4−72335
- rigid spheroids in flowing dielectric Newtonian fluid, microrheology 4−56450
- SATOH probe, electric field density determ. *(Russian)* 4−75166
- shock waves, struct. in many-component many-phase mixtures for arbitrary interaction parameter *(Russian)* 4−75172
- sonoluminescence, pulsed, accompanying high-voltage discharge 4−75173
- space charge coupled interfacial waves 4−75170
- spatially varying electromechanical flow structures, hydrostatics and steady dynamics 4−60232
- suspension, electrorheological, dispersed phase moisture effect on dielectric star rotation speed and rheological props. 4−78707
- suspension of conducting cylinders, electric field effect 4−56451
- viscous flow of current-carrying fluid cylinder, electrical conductivity effect on stability 4−44104
- viscous liquid, interfacial waves, space charge dynamics 4−75171
- wave propagation in fluids in e.m. fields 4−60228

electrojets
- *see also ionosphere*
- disturbance field in region of westerly electrojet 4−68403
- equatorial electrojet, daily var. of induced effects, comments 4−68220
- field aligned currents and auroral electrojet 4−83111
- geomagnetic horizontal field depression during daytime due to westward equatorial electrojet 4−50344
- instability, stabilisation of type I instabilities nonlinear theory 4−58073
- irregularities, type I, auroral and equatorial obs. 4−58072
- strength, equatorial, estimation method, appraisal 4−50326
- type 2 irregularities in equatorial electrojet, numerical simulation 4−64937

electrokinetic effects
- *see also electrodynamics; electrophoresis*
- charged capillary tubes, volume- and charge-transport coeffs. 4−68012
- colloidal particles, delta potential meas. using electrophoretic cell with electronic attachment 4−58864
- double layer effect on liq. flow through micropores *(German)* 4−48382
- polymer charging during capillary extrusion 4−66679
- rheopexy of solid-liquid disperse system *(Japanese)* 4−80145
- spectrometer, laser Doppler, for meas. of diffusion and electrophoresis 4−42804
- CdSe, dispersion, electrokinetics of semiconducting material 4−76607
- Co-Mn-O_2, dispersion, electrokinetics of semiconducting material 4−76607
- Cu-Co-Mn-O_2, dispersion, electrokinetics of semicond. materials 4−76607
- Ni-Co-Mn-O_2, dispersion, electrokinetic potential, semicond. doping kinetics 4−76607

electroluminescence
- *see also phosphors*
- anthracene, doped and pure, electroluminescence calcs. 4−61233
- anthracene, recomb. electrolum. and enhanced double injection 4−67660
- anthracene film, electrolum. quenching, 70-330K *(Russian)* 4−67666
- blue l.e.d.s, potential materials for 4−49466
- dielectric, elec. field excited, new method of light generation *(Russian)* 4−73199
- electrochemiluminescent liquid laser development 4−51584
- materials and displays, progress review 4−70368
- molecular crystal, electroluminescence theory with filamentary double injection 4−61233
- multiphoton effects and electron relax. times 4−57636
- organic compounds, freq. intensity characts., and depend. on mol. struct. *(Russian)* 4−45366
- organic dielectric liquids, pressure dependence, experimental results 4−49467
- polyethylene terephthalate, pulse voltage, rise time depend. 4−61234
- semiconductor, elec. field excited, new method of light generation *(Russian)* 4−73199
- semiconductor, heavily doped, low temp. characts. in l.e.d. struct. 4−82752
- semiconductor, heavily doped theory of electroluminesc. 4−67663
- semiconductor diodes, radiation in red range *(Czech)* 4−64438
- Al, anodic galvanoluminescence spectrum *(Russian)* 4−76608
- p-$Al_xGa_{1-x}As$:Ge-n-$Al_yGa_{1-y}As$:Te, heterojunction l.e.d., electrolum. kinetics 4−76319
- $Al_xGa_{1-x}As$:Si diode, emission spectra in transition range between direct and indirect bandstruct. 4−67662
- $Al_xGa_{1-x}As$-$Al_yGa_{1-y}As$, p-n heterojunction, on GaAs substrate, $(y>x)$, electrolum. characts. 4−49468
- AlN, technology and applications *(Czech)* 4−64439

electroluminescence continued
Al_2O_3, prebreakdown electrolum. stimulated by active centres of sorption nature *(Russian)* 4−73197
$Ba_2ZnS_3:Mn^{2+}$ phosphor efficiency obs. 4−57603
CdS_xSe_{1-x}, elec. field excited, light generation at intensity of 10^9 W/cm² *(Russian)* 4−73199
CdSe, luminesc. from acoustoelec. domains 4−53534
$CdSnP_2$/InP heterojunctions, LPE growth from Sn soln. and props. 4−61304
$CdSnP_2$-InP heterojunction, prep. by liquid phase epitaxy from Sn soln. 4−57708
$CuGaS_2$, vap. grown, minority carrier injection 4−70366
GaAs, optically pumped, emission under drifting field 4−73138
GaAs m.o.s. structure *(Russian)* 4−73195
n-GaAs:Cu, field-induced deform. of impurity luminesc. spectrum 4−49457
GaAs:Ge, LPE, electrolum., photolum. and minority carrier diffusion length, dislocation effects 4−53008
GaAs:Na, electroluminesc. theory 4−67663
GaAs-AlAs heterojunction-based l.e.d.s 4−82753
$GaAs_{0.62}P_{0.38}$, effect of reactant gas vapour pressure during growth 4−57709
$GaAs_{1-x}P_x$, obs. at 77 and 295K with x corresponding to indirect band struct. 4−67665
$GaAs_{1-x}P_x$, uniaxial stress effects on red emission characts. of l.e.d. 4−53535
$GaAs_{1-x}P_x$:N, quasidirect recomb. and l.e.d. performance, cryst. comp. effects 4−70365
$Ga_{0.5}In_{0.5}P$, p-n junction 4−76320
GaN, band struct., props. and possible applications, review 4−75783
GaN, technology and applications *(Czech)* 4−64439
GaN:Mg point contact diodes, violet electrolum. 4−76316
GaN:Zn-In, metal-insulator-n-type diode, electrolum. model 4−70367
GaP, electrolum. spectra, 77-293K *(Russian)* 4−53537
GaP, green emitting diodes, electrolum. decay time, quantum efficiency 4−64441
GaP, radiative exciton recomb. on isoelectronic impurities *(Russian)* 4−79803
GaP crystals, luminesc. quality, optical techniques for characterisation, review 4−73194
GaP:N, diode, hydrostatic press. effect 4−45365
p-GaP:Zn,O, dope-dependent luminescence efficiency degradation, obs. 4−49465
Ge:As,Sb, far i.r. recomb. radiation from impact-ionized donors 4−76315
In-GaAs:Cr-In, recomb. radiation, high-freq. instability in strong elec. fields *(Russian)* 4−73198
KCl, KBr, KI, X-ray irrad. effect, thermal ionisation process 4−73196
KCl:In,Na, thermolum. peaks with photon activation, thermal field ionisation of electron traps 4−79806
KI:Tl, X-ray radioelectroluminesc. obs., brightness waves 4−79794
Na_2ZnGeO_4:Mn, properties of ionisation domains, luminous spots obs. 4−67664
SiC m.o.s. structure *(Russian)* 4−73195
SrS:Cu, electroluminescence, voltage and freq. depend. of brightness 4−57635
$ZnGa_2S_4:Mn^{2+}$, obs. and comparison with Ga_4S_3 and ZnS 4−57602
ZnO m.i.s. structure, u.v. electrolum. obs., 100 and 300K 4−76317
ZnS film, ageing mechanism and lifetime improvement *(Russian)* 4−79822
ZnS:Cu, Br, electroluminophors, electron traps rel. to ageing *(Bulgarian)* 4−53533
ZnS:Cu, Cl, ageing of electroluminophors *(Bulgarian)* 4−53532
ZnS:Cu, correlation between photodielectric effect and Gudden-Pohl effect *(Russian)* 4−53536
ZnS:Cu, field distribution effect on comets, partial dislocations explanation 4−67661
ZnS:Cu,Cl,Nd, thin film, excitation mechanism 4−64440
ZnS:Cu,Mn, freq. depend., trap spectrum 4−82750
ZnS:Cu,Mn,Cl films, electrolum. and photoelectrolum. *(Japanese)* 4−76318
ZnSe, elec. and optical props. 4−61235
ZnSe, elec. field excited, light generation at intensity of 10^9 W/cm² *(Russian)* 4−73199
ZnSe:P, ion-implanted, p-n junction, injection electroluminescence 4−61231
ZnTe-CdS heterojunction, emission mechanism, expt. 4−61232

electrolysis
see also electrical conductivity of electrolytic liquids; electrolytic dissociation; electrolytic ion mobility; electrolytic machining; electrolytic polishing
alkali halides, dielec. breakdown electrochem. aspects 4−61109
anodic metal dissolution, effect of nonequilib. electric double layer on ionic mass exchange rate 4−54040
EDTA-Cr complexes, electrode glow 4−68010
electrodialysis using ion exchange membranes, polarisation characteristics obs., desalination application 4−73454
electroplating of Zn on Al, electrolyte composition rel. to transition layer struct., props. investig. 4−54039
heavy water production methods, review *(Italian)* 4−51873
ion-solvent cluster near electrode, semiempirical SCF model with image forces 4−61618
microelectrodes for biostimulation, resistance to electrolysis of metals, expt. 4−81056
α-quartz, effect of Ag electrolysis on spectral props. *(German)* 4−49415
reaction kinetics at high currnet densities investig., using current efficiency approach *(German)* 4−45911
water, flow visualisation by electrolysis, behaviour of tracer particles 4−75116
Al, trace element analysis by atomic absorpt. spectrometry after matrix enrichment *(German)* 4−62629
Al, using solid-state power convertor *(French)* 4−70607
Cl production using thyristor *(French)* 4−70608
Cl_2 recovery from HCl, theory and cell design 4−54019
Cl_2 recovery from waste gas, pilot expt. 4−54020
$CuSO_4$, flowing electrolyte, Cu^{2+} ion electroreduction, mass transfer rate investig. 4−54036

electrolysis continued
D_2 production, from D_2O, high isotopic purity 4−81031
Fe, Armco, electrolytic hydrogen charging, 0-300°C *(French)* 4−45587
^3H counting, improved sensitivity through high electrolytic enrichment 4−50411
$HgNO_3$, flowing electrolyte, Cu^{2+} ion electroreduction, mass transfer rate investig. 4−54036
NaCl aqueous soln., pressurised electrolytic cell with Hg cathode 4−54021
Na_2O-SiO_2 glasses, ammonium ion diffusion *(Japanese)* 4−49916

electrolytes
see also electrolysis
acetone solutions, i.r. spectra interpret. by CNDO treatment 4−48004
acoustic wave attenuation, bulk viscosity determ. 4−73928
adsorbed polymers, effect on dispersion stability, review 4−80140
alkali halide solutions, magneto-optical rotary dispersion, 350-650 nm 4−67606
alkali halides, aq. solns., i.r. reflect. meas., refractive indices determ., struct. of water investig. 4−70292
aqueous solutions, self-diffusion coeff. conc. depend. eqn. 4−79176
chemical shifts, calculation of shift due to solvent solute interactions in electrolyte solutions 4−67473
dielectric drop in electrolyte, vel. in crossed electric and mag. fields *(Russian)* 4−44129
diffusion in capillar system, porosity determ. method 4−50205
diffusion in capillaries, for dimens. determ. 4−54080
drops of conducting liquids, dispersion and charges in dielec. medium during recharging on electrodes 4−45846
electrokinetic effects in charged capillary tubes, volume- and charge-transport coeffs. 4−68012
electroplating of Zn on Al, electrolyte composition rel. to transition layer struct., props. investig. 4−54039
e.m.f. measurement on solid and liquid electrolytes at high temperatures 4−62489
Hall effect in electrolyte solns., semiconductor model interpretation 4−50177
interphase between metal and superionic conductor, model 4−54032
ionizing monolayers and pH effects, review 4−54018
mean spherical model for mixture of charged spheres and hard dipoles 4−56596
muon⁺ depolarisation in electrolyte solns. *(Russian)* 4−79086
optimised cluster expansion, primitive model 4−48492
osmotic coeff. of aq. solns. containing more than one electrolyte, simple method of prediction 4−72580
perchlorate-methanol(ethylenediamine) solutions, OH(NH) band splitting in vib. spectra 4−48005
phase transition behaviour, selection of solid electrolyte material 4−67042
polar media, phenomenological description on basis of effective Hamiltonian 4−61099
polyacrylic acid:^{23}Na, nucl. mag. relax. 4−57847
polycondensate between L-lysine and 1,3 benzene disulphonyl chloride, dielec. behaviour and conform. 4−82656
polyelectrolyte networks, weak, thermoelasticity 4−53870
polyelectrolytes, spherical, in dil. soln., excess chem. pot. 4−57848
sodium tartrate as electrolyte for anodisation of MoD_3 thin film 4−57679
solid, fast cation transport 4−53130
solid, ionic polarons, activation energy of cationic hopping calc. 4−82426
solid phase, utilization for obs. of III-V semicond. alloy thermodynamics 4−52906
solutions, associated, ionic self-diffusion coeffs. meas., comparison with cond. data *(French)* 4−45914
solutions, Hall effect meas., elec. transport processes in membrane/electrolyte systems investig. *(German)* 4−68008
Soret effect interpret. w.r.t. unbalance distrib. functions 4−45916
sound absorption, effect of ionic relaxation phenomena 4−56811
strong, potential theory using BBGY integral eqns. 4−61622
strong electrolytes in polar solvents, mean spherical model exact soln. 4−61617
surface, image-like potentials 4−49056
water/heavy water solutions, proton and deuteron mobility meas. polarographically, diffusion coeffs. calc. 4−45918
β-Al_2O_3, alumina electrolyte material, dislocation behaviour 4−61492
β-Al_2O_3, solid electrolyte membrane, applic. in thermoelectric device 4−75905
β-Al_2O_3 electrolyte nucl. mag. relax. of ^{23}Na meas., 120 to 800K 4−79625
Au reclamation from citrate electrolytes by ion exchange liquid extraction *(Russian)* 4−83029
Au-electrolyte interface, electroreflectance spectra, phenomenological interpretation 4−53467
Co-Re alloys deposition, evaluation of 4−67707
$CuSO_4$, soln., laminar flow, Hg^{2+} electroreduction, viscosity, diffusion investig. rel. to temp. 4−54036
D_2O-diamagnetic electrolyte solutions, effect of press. on deuteron spin-lattice relax., struct. breaking investig. 4−61015
HNO_3-ethyl alcohol, electrolyte for etching and electropolishing Al, Co and Cu thin films 4−67113
1-1HOH-proton acceptor complexes, near-i.r. absorption spectra in ternary mixtures *(French)* 4−52145
$HgNO_3$, soln., laminar flow, Hg^{2+} electroreduction, diffusion investig. rel. to temp. 4−54036
KCl-$SrCl_2$-H_2O mixtures, osmotic and activity coeffs., 298.15K 4−61642
KHF_2, solid, α- and β-phases, a.c. impedance investig., interface phenomena 4−54028
$KNO_3 + Ca(NO_3)_2$ system, molten, transport props. investig. of Ag^+, Cl^-, Br^- ions by chronopotentiometry 4−52920
NaCl, dendritic freezing of aqueous solns., mag. and elec. field effects 4−67027
Na_2O-B_2O_3 molten system, freq. depend. of elec. resist., struct. and comp. *(Japanese)* 4−50178
$Na_2SO_4:Au^{3+}$ soln., in contact with n-Ge, anisotropy of surface props. *(Russian)* 4−72855

electrolytes continued
$NiCl_2$ in D_2O, ion distrib. and long range order, neutron diffr. obs. 4−44457
$Pb(ClO_4)_2$ aq. soln., ^{207}Pb relax. field depend. rel. to hydration sphere penetrability 4−53332
PbO-B_2O_3 molten system, freq. depend. of elec. resist., struct. and comp. *(Japanese)* 4−50178
RbBr(I) aqueous electrolyte solns., autodiffusion of water mols., hydration of Rb^+, spin echo obs. 4−70621
ZrO_2, CaO-stabilized, solid electrolyte, oxygen transfer with Ga-Ga_2O_3 electrode, kinetics 4−45913

electrolytic capacitors
energy storage power source, for quasi-steady magnetoplasmadynamic arc 4−82043
Al, electrolytic capacitor grade, Fe microsegregation, effect on etchability 4−45546

electrolytic conductivity of liquids *see electrical conductivity of electrolytic liquids*

electrolytic deposition *see electrodeposition*

electrolytic devices
integrating cells, use in microwave dosimetry 4−50892
Ag/$RbAg_4I_5$/Au vacuum-deposited thin-film coulometers 4−51109
Ag/$RbAg_4I_5$/Te vacuum-deposited thin-film batteries 4−51109
Hg capillary coulometer, chemotronic instrument, noise characts. 4−51114

electrolytic dissociation
see also electrolytic ions
o-phenanthrolium cation in soln., dissoc., absorbance meas., apparatus 4−58994
salicyclic acid, dissoc., absorbance meas., apparatus 4−58994
$CaCO_3°$ ion pair, thermodynamic props., 10 to 50C 4−64724
D_2O enrichment, H_2/D_2 separation factor by electrolysis, Hg cathode, CoS_2 catalyst 4−43636
$MgCO_3°$ ion pair, thermodynamic props., 10 to 50C 4−64724

electrolytic ion mobility
see also electrophoresis
electrolyte solutions, associated, ionic self-diffusion coeffs. meas., comparison with cond. data *(French)* 4−45914
fast cation transport in solid electrolytes and mixed conductors 4−53130
MBBA, nematic, ion mobility meas., crit. voltage for EHD instability *(French)* 4−44689
transport processes in solutions 4−57846
water/heavy water solutions, proton and deuteron mobility meas. polarographically, diffusion coeffs. calc. 4−45918
BiF_3 solid electrolyte, ionic cond. 4−53102
CaF_2 solid electrolyte, ionic cond. 4−53102
CeF_3 solid electrolyte, ionic cond. 4−53102
$KNO_3 + Ca(NO_3)_2$ system, molten, diffusion coeffs. of Ag^+, Cl^-, Br^- ions meas., transport props. investig. 4−52920
LaF_3 solid electrolyte, ionic cond. 4−53102
$LiCl$-$CdCl_2$, molten, thermodynamic props., transference numbers and ionic mobilities, e.m.f. meas. 4−70606
LuF_3 solid electrolyte, ionic cond. 4−53102
PbF_2 solid electrolyte, ionic cond. 4−53102
YF_3 solid electrolyte, ionic cond. 4−53102
ZrO_2, Ca-stabilized, solid electrolytes, partial conductivity at 900° to 1200°C, obs. 4−52932

electrolytic ions
see also electrical conductivity of electrolytic liquids; electrolytic dissociation; electrolytic ion mobility
aqueous solns. of alkali metal halides, relation between association and short-range hydration of ions 4−68029
imidazobenzoquinone anion radicals, e.s.r., dianionic structure 4−48097
relaxation phenomena, role in sound absorption 4−56811
$CaCO_3°$ ion pair, thermodynamic props., 10 to 50C 4−64724
$MgCO_3°$ ion pair, thermodynamic props., 10 to 50C 4−64724
$NiCl_2$ in D_2O, ion distrib., neutron diffr. obs. 4−44457
$^{205}Tl(I)$, n.m.r. in aqueous soln., O dependence of relaxation rates 4−50219

electrolytic machining
see also electrolytic polishing
$NaNO_3$ applic. 4−83028

electrolytic polishing
see also electrolytic machining
foil, use of masks, electron microscope specimen prep. 4−44449
Al, use of masks, electron microscope specimen prep. 4−44449
B_4C, metallographic preparation 4−67117
Fe-Ni-Sn, soln. development 4−67118
HNO_3-ethyl alcohol, electrolyte for etching and electropolishing Al, Co and Cu thin films 4−67113
Ti 4−82323

electromagnetic absorption *see electromagnetic wave absorption*

electromagnetic corrections
ED, relativistic, simple derivation of partial differential equations for radiative corrections 4−81386
eikonal-type approximations, derivation, extension and renormalization 4−47417
electron magnetic moment, sixth order radiative corrections calc. 4−69134
hadron scattering, elastic, radiative corrections 4−59548
hyperon non-leptonic decays, departures from $\Delta I = ^1/_2$ rule, e.m. effect 4−77796
leptonic and semileptonic amplitudes, radiative corrections in $SU(2)_l \otimes U(1)$ gauge model 4−43411
non-Abelian gauge theories for hadrons, radiative corrections 4−74560
Primakoff effect and polarization effects, coherent production of unstable particles *(Russian)* 4−71669
radiational corrections to charged particle scatt. amplitudes *(Russian)* 4−66030
relativistic hadron scattering, using S-matrix methods 4−66029
semileptonic decays, finiteness of radiative corrections in unified gauge theories 4−47499
semileptonic decays in SO(3) gauge model including vector-gluon field 4−71671

electromagnetic corrections continued
Tsytovich radiative corrections to ionisation loss of high energy electrons in nuclear emulsion 4−47498
Weinberg's gauge field model, comparison of muon and neutron lifetimes 4−51707
e, g-factor, sixth order, mass-operator approach, vertex diagrams 4−71665
e g-factor, sixth order, mass-operator approach 4−71664
$e^+e^- \to \mu^+\mu^-$, hard photon correction based on current conservation in QED 4−43416
e^+e^- pair prod. induced by photons incident on electrons or nuclei, radiative corrections *(Russian)* 4−77815
$K_{\mu 3}{}^0$ decays, corrections to μ polarisation 4−62933
μ decay in SO(3) gauge model, radiative corrections 4−59534
μ decay spectrum *(Russian)* 4−47479
$\pi \to 1^- \nu$, anomalies, short-distance behaviour and radiative correction 4−77793
$\pi^0 \to \gamma\gamma$, radiative corrections to low-energy theorem in non-Abelian gauge theory 4−47500
$\pi^+ p$ elastic scatt. Coulomb corrections to phase shifts below 300 MeV 4−69190
$\pi^\pm p \to \pi^\pm \pi^+ n$, determ. of dominant radiative corrections 4−74691

electromagnetic decays
hadron, calcs. based on properties of current-constituent quark transformation 4−55634
meson, pseudoscalar and vector, relativistic quark model 4−47502
orthopositronium decay into four photons, test of charge-conjugation invariance 4−81412
$\eta \to \gamma\gamma$, η-X mixing angle in chiral symmetry breaking model 4−62905
$\eta \to \gamma\gamma$, following $\delta^- \to \eta\pi^-$ process in $\pi - p \to \delta^- p$ reaction 4−47587
$\eta \to \gamma\gamma$, from $\Pi^- p \to \delta^- p$, $\delta \to \eta\Pi^-$ reactions 4−59603
$\eta^0 \to \gamma\gamma$, branching ratio, direct determ. 4−47483
$\eta^0 \to \gamma\gamma$ radiative decay width, from photoproduction cross section 4−47501
$K_l \to \gamma\gamma$ in PCAC theory, non-cancellation of Schwinger and seagull terms 4−66031
$\pi^0 \to \gamma\gamma$, exact sum rules for decay constant 4−62934
$\pi^0 \to \gamma\gamma$, radiative corrections to low-energy theorem in non-Abelian gauge theory 4−47500
$\pi^0 \to \gamma\gamma$ spectrum for π^0 produced in central plateau 4−66110

electromagnetic energy *see electromagnetic waves*

electromagnetic field theory
see also electromagnetic waves; electromagnetism
analytic continuation of 2-dim. e.m. fields 4−62776
Bessel-Hagan conservation laws, resulting from geometric invariance groups 4−59220
boundary-value problems, absorbing and radiating cylinders, hybrid TE and TM fields 4−62777
diffraction by random phase screen, thin one-dim., near field statistics 4−47286
frequency content of e.m. field seen by atom passing through focus 4−74455
fundamental theory text 4−77588
gravitational wave impact, weak field soln. of Maxwell equations for mag. sphere 4−65795
Huggins term, existence in curved space 4−65774
inductor in linear homogeneous space, toroidal coil *(Russian)* 4−47273
irreducible representation of e.m. fields, non-zero mass system in free space 4−55422
Lienard-Wiechert solns. of Maxwell eqns. rel. to Robinson-Trautman solns. of Einstein eqns. 4−43159
line and strip sources over plane imperfect conductor, inverse problem 4−74456
logical arrangement of postulates and deductions 4−47256
magnetic dipole excited cylinder, iterative perturbation soln. 4−77590
Maxwell's eqns., boundary and eigenvalue problems *(German)* 4−62782
Maxwell's eqns., C-field contribution to action fundamental 4−51445
multipole expansions and plane wave representations 4−47140
nonlinear e.m. field propag., self-interaction 4−51690
nonlinear fields in cylindrical cavity excited by ionising radiation 4−47268
null fields, spaces of high symmetry, Einstein-Maxwell eqns. soln. 4−71399
optical equivalence theorem, for e.m. fields 4−43274
perturbation of slowly varying e.m. fields by 3-dimens. conducting bodies 4−62775
photoelectric effect, quantum and classical field-theoretic predictions, exptl. distinction using coincidence counting rates 4−59376
scattering, random medium, coherent field in terms of coherent Green function 4−78733
scintillation parabolic wave eqn., Born and Rytov approximations compared 4−71470
surface polaritons, elementary props., energy flow, density vel. 4−82380
transient dipole radiation, absorbing uniaxial crystal, analysis 4−68992
transmission of transient e.m. plane wave through grating of circular cylinders 4−74460
uniform asymptotic integral representation of fields in smoothly inhomogeneous media *(Russian)* 4−77593
variable electric fields in absence of mag. fields 4−65863

electromagnetic fields
a.c. automobile generators, e.m. parameters selection *(Russian)* 4−47264
a.c. faceplate motors, e.m. field in gap determ. 4−47265
a.c. motor, end-type, e.m. torque in gap *(Russian)* 4−47263
Alfven waves, long cylindrical satellites 4−52477
arc furnaces, power leads *(German)* 4−43225
axially symmetric, at caustical surfaces in homogeneous dielectric media *(Russian)* 4−65864
biological body, induced, tensor integral equation 4−65276
biological effect, 50 Hz a.c. field on human beings *(German)* 4−58599

electromagnetic fields continued

cable of finite length, appl. in geophysical exploration *(Russian)* 4−81268
capacitors, high-freq. sinusoidal voltage *(Russian)* 4−47260
conductivity as function of position, e.m. field above half-space 4−81265
d.c. magnetic field in conductor, computation, Bessel and Fourier transforms *(German)* 4−43229
deep e.m. sounding, resolution in two-layer and multilayer models 4−68114
dipole antenna, electric, horizontal, laid on the surface of a two layer medium 4−68987
distribution at aperture in conducting plane illuminated 4−43234
e.h.v. substations, crossing bus conds., field intensity calc. *(Russian)* 4−55419
electrodynamic problems, isotropic and anisotropic inhomogeneous media, eqns. soln. by electrical analogue modelling ccts. 4−62780
emitting molecule lifetime near partially reflecting surface 4−56268
energy relation, between elec. and mag. field or discontinuity 4−62781
in image space of stepped lens, as function of lens profile 4−71509
injection laser radiation, e.m. theory *(Polish)* 4−69066
interactive forces between two spheres and two cylinders in uniform e.m. field *(Russian)* 4−51503
Klein-Gordon equation, separation of variables *(Russian)* 4−65862
laser beam, plane wave spectrum, general theory 4−77694
laser produced e.m. field near focus as seen by moving electron 4−77693
lightning, multiple return stroke, radiated elec. and mag. field profile calc. 4−50288
magnetic amplifiers, three-phase, at rectifier input, analysis *(Russian)* 4−47257
measurement for hygienic purposes 4−68536
motor, rolling rotor, split mag. field, pulsating field and torque *(Russian)* 4−47262
multipole, numerical calc. *(German)* 4−81267
near-field measurement, probe backscattering effect, scalar model 4−43230
neutron stars, rot. mag., elec. and mag. fields, general relativity 4−80576
optical coherent beam focal plane 4−47272
plane layer, cond. temp. depend. effect on temp. distrib., current and e.m. field 4−51482
pulsar rotating e.m. fields, Lorentz force-free problem 4−46252
rail crack detection, defect dynamic field contributions of magnetisation and eddy currents, expt. 4−47278
rail crack detection, defect field eddy-current component calc. 4−47277
rectangular slab of homogeneous linear conducting material, in repetitive-pulsed external mag. field, calc. 4−51505
space-times admitting constant e.m. fields, solution to Einstein-Maxwell equations 4−71398
spatial field lines computations, numerical method *(German)* 4−59327
standard, generation using TEM transmission cell 4−80825
system of two spheres and two cylinders in uniform e.m. field, potential calcs. *(Russian)* 4−51502
teaching, use of computer graphics 4−47271
terrestrial variable e.m. fields, separation and identification 4−68264
time independent, uniqueness theorem 4−68988
transformers, conformal transformation calc. *(Dutch)* 4−47276
of twisted cable cct. 4−43228
Van der Waals forces between dielectric and permeable plates 4−62772
GaAs-(AlGa)AS, injection laser, radiation fields 4−71558

electromagnetic interference
see also crosstalk; radiofrequency interference
h.v. impulse meas. systems 4−48391
nuclear precession magnetometer interference reduction *(Russian)* 4−51121
nucleonic instruments, immunity tests 4−77137
shielding, filters and screens, effect of 4−55438

electromagnetic lenses *see magnetic lenses*

electromagnetic oscillations
see also cavity resonators; lasers; masers; ring lasers
ferromagnetics, uniaxial, dispersion relns. for bound ferroelectric, spin, elastic and e.m. waves *(Russian)* 4−53247
generator, one-resonance parametric, theory *(Russian)* 4−81356
observable stored energies of e.m. systems, supplementary definition 4−71461
quasi-TE$_{0,1,1}$ mode in resonator with losses, field analysis and complex reson. freq. 4−77592
spherical cavity in plasma *(Russian)* 4−69628
transient dipole radiation, absorbing uniaxial crystal, analysis 4−68992

electromagnetic radiation *see electromagnetic waves*

electromagnetic theory of light
wave-equation solns. with phase velocity greater than light *(Spanish)* 4−47284

electromagnetic wave absorption
see also gamma-ray absorption; light absorption; spectra; X-ray absorption
atmospheric absorption of solar radiation, parametric analysis 4−54228
atmospheric attenuation at 15.3 GHz and rain rate statistical distributions 4−70756
atmospheric attenuation prediction for millimetric waves 4−70755
atmospheric transmission losses *(French)* 4−58000
boundary-value problems, absorbing and radiating cylinders, hybrid TE and TM fields 4−62777
ceramic, foamed, dielec. characteriz. at mm wavelengths, cut-off filter potential 4−76215
dielectrics, very low loss, meas. and recording at submillimetric wavelengths 4−65443
dry atmosphere, radiowaves in submillimetre band *(Russian)* 4−69500
equatorial ionospheric absorption during half solar cycle (1964-70) 4−68236

electromagnetic wave absorption continued

ferromagnet, nonlinear energy dissipation near phase transition *(Russian)* 4−67375
h.f., ionospheric, at oblique incidence, prediction method, computer applic. 4−46128
human body h.f. power absorption meas. by thermography of scaled phantom models 4−68534
ionospheric absorption decreases rel. to geomagnetic field negative sudden impulses 4−46067
ionospheric absorption of m.f. radio waves, wave-like structures in variations 4−64950
ionospheric polar riometer absorption data for 1972, August period 4−61843
i.r. absorpt., detection of instantaneous gas-liquid phase changes 4−74193
limiting absorption principle, uniformly propagative systems, appl. of Agmon's method 4−77338
mesospheric NO concentration from 4.05 MHz absorption meas. 4−68213
metal, Landau damping, nonlinear effects on magnetic field induced interband tunnelling 4−49045
non-gray gas, radiative transfer, inverse transmission function 4−66540
phenylacetic acids, substituted, in dilute solns. of dioxane, dielectric absorption of microwaves 4−45239
plasma, dense collisionless, microwave absorpt. 4−44296
plasma, microwave power absorpt. near second harmonic of electron cyclotron reson. *(German)* 4−52595
plasma, toroidal system, localisation of e.m. wave absorpt. processes 4−44304
plasma anomalous absorpt. of intense RHCP wave, high mag. field 4−66699
plasma positive-column, r.f. field absorpt. 4−44264
polymers, low-loss, radiometric meas. of submillimetric wavelengths 4−67509
rabbit tissue microwave absorption meas. from typical sources 4−68535
radiowave absorption in Gum Nebula, 9 MHz survey 4−54575
radiowave transmission, due to rainfall, theoretical calcs. *(French)* 4−58001
rainfall, at 20 GHz, cross-polarisation correlation, meas. 4−43236
resonance fluorescence, nonlinear absorpt. of weak e.m. field in intense field 4−72221
riometer, D/A minimum detector applic. 4−76761
semiconductor thin film, e.m. wave self-absorption *(Russian)* 4−49504
synchrotron radiation, absorption coeff. comp. from emission coeff. universally applicable rule 4−65052
tetraphene, fluorescence decay time, environmental effects, structural opacity band 4−48061
tissue, meas. using liquid crystal fibre-optic sensor 4−65275
two level system, saturation effect for non zero average dipole elec. or mag. momenta 4−47327
u.h.f./microwave radiation effects obs., using multi-layered sphere models, absorption characteristics 4−68540
Cu, Doppler shifted resonance with circularly polarised transmission, new e.m. mode 4−82443
$H_2O + N_2$ and $H_2O + H_2O$ molecular collisions, continuous absorpt. in 8-14 μ range *(Russian)* 4−81825

electromagnetic wave attenuation *see electromagnetic wave absorption*

electromagnetic wave diffraction
see also light diffraction; X-ray diffraction
asymptotic of scattering matrix for diffraction by elliptic cylinder *(Russian)* 4−51513
boundary value problems, eigenvalues functions 4−62794
conducting cylinders in inhomogeneous medium 4−69001
conducting half plane with light shadow boundary 4−51512
conducting wedge, loaded with radial dielec. slab, radial eigenfunction method 4−77601
cylinder edge diffraction of creeping waves 4−71474
cylindrical obstacle in resonance region, scattering matrix 4−62793
dipole field diffraction by half-plane in uniaxially anisotropic medium, uniform asymptotic soln. 4−71488
distributed phasing network 4−43237
echelette grating diffraction of plane waves 4−71476
edge diffracted caustic fields, equivalent current concept calc. 4−59340
electron beam diffraction radiation, quasi-optical theory *(Russian)* 4−77727
far field diffraction pattern of slit, uniform asymptotic soln. for integral eqn. 4−71487
Gaussian beams 4−62786
helical media, boundary problems *(Russian)* 4−62790
h.f., by smooth objects, separation of variables soln. 4−62784
ice sphere, internal field pulse diffraction 4−55435
infinitely long cylinder *(Russian)* 4−81275
infinitely long elliptical cylinder *(Russian)* 4−81276
ionospheric randomly moving diffractive screens, computer simulation 4−73582
l.f., by objects with edges, integral eqn. soln. 4−62784
linear Fredholm eqn., improved successive approximation method 4−71485
low temperature thermal insulator using diffr. effect 4−42757
low-loss open resonators, diffraction formulas compared 4−71478
microwave, aperture antennas, finite ground planes 4−43233
multi element arrays, oblique incidence *(Russian)* 4−77600
multiple obstacles, graphical representation of numerical results 4−74463
near field of infinite conducting strip, computation method 4−71484
nonclosed screens, unique soln. 4−47288
nuclear medicine, Fresnel zone plate imaging systems, noise analysis 4−54705
numerical method for scatt. from periodic dielectric structures 4−71490
oblique ionospheric sounding, recording equipt. for obtaining diffraction pattern 4−68279
open resonator embedded in uniaxially anisotropic medium 4−71475

electromagnetic wave diffraction continued
plane waves, on array comprising two layers of anisotropic magnetodielec. *(Russian)* 4−74462
pulse signals, homogeneous media, electrical analogue modelling ccts. 4−62785
quarter plane, perfectly conducting, exact general soln., special cases 4−43235
random phase screen, thin one-dim., near field statistics 4−47286
reflector antenna, edge diffraction at curved screen 4−47285
small aperture in planar conductive screen, integral eqn. formulation 4−81277
small apertures, upper and lower boundaries of electrical polarizability 4−69002
small apertures, upper and lower variational estimates of integral scattering characteristics 4−69000
sphere with apertures, boundary problem 4−51511
spherically polarised waves from magnetic point source, diffraction by two-part sphere 4−51510
strong random phase-amplitude screens, diffraction theory 4−71489
transparent edge, fringe pattern for plane polarised microwaves 4−71473
wedge shaped obstacles, plane wave diffr. 4−77604
RbI, mosaic struct., press-induced changes, 412 keV γ-ray diffr. 4−72573

electromagnetic wave diffusion
see also electromagnetic wave scattering; light diffusion
optical fibre, multimode, diffusion losses meas. *(French)* 4−69005

electromagnetic wave interference
see also atmospherics; electromagnetic wave interferometers; electromagnetic wave interferometry; light interference
Maxwell's theory, applications in optics *(Dutch)* 4−47318
polarised radiation beams 4−55436
quantum-classical disparity, photon-wave interference effects, review *(German)* 4−55437
shielding, filters and screens, effect of 4−55438
Ag, cyclotron waves, interference effects, extraordinary wave oscillatory dispersion relation 4−79279

electromagnetic wave interferometers
see also electromagnetic wave interferometry; light interferometers
70 GHz, for making plasma density meas., modifications 4−54946
Fabry-Perot resonator, excitation props. of e.m. fields 4−77093
radioheliograph, Royal Observatory of Belgium 4−80673
radiotelescope construction details, phase switched interferometer system 4−83263
r.f., quasi-linear intensity, response 4−62259
Rozhdestvenskii interference apparatus, image convertor attachment 4−51062
scanning Michelson interferometer, phase correction in Fourier transform spectroscopy 4−62235
v.h.f. spacecraft tracking system 4−77090
X-ray, double-crystal narrow beam *(Russian)* 4−66799

electromagnetic wave interferometry
see also light interferometry
aperture synthesis with non regular distrib. of interferometer baselines 4−62240
atmospheric gases, refractometry in submillimetric wavelength region 4−65456
polar motion resonance effects, radio interferometry and laser ranging determ. 4−54122
radioastronomy, hybrid correlator for interferometric obs. 4−62237
r.f., lunar subsurface probing, Apollo 17 theory 4−62049
r.f., quasi-linear intensity interferometer, response 4−62259
space-frequency synthesis, applications to interferometers 4−62246
three element optical systems, sub-mm wavelengths 4−65451
time-varying plasma microwave emission, two-beam interference spectrometry 4−66774

electromagnetic wave propagation
see also atmospheric electromagnetic wave propagation; atmospheric light propagation; backscatter; electromagnetic wave absorption; electromagnetic wave diffraction; electromagnetic wave diffusion; electromagnetic wave interference; electromagnetic wave propagation in plasma; guided electromagnetic wave propagation; radiowave propagation
absorbent materials, re-radiation properties evaluation *(Italian)* 4−55429
absorbing and amplifying media, linear effects, inequality $vg>C$ 4−62789
black hole, charged, beat freq. oscill. of gravitational and e.m. radiation 4−46243
Brewster law for moving dielectric medium 4−55430
coherent e.m. wave interaction in medium with relativistic electrons 4−69027
conductor, cylindrical, quantum e.m. waves *(Russian)* 4−82538
conversion in stratified media with hyperbolic tangent nonuniformities 4−65729
degenerate resonant medium, distortionless propagation of zero degree pulses 4−55512
dielectric film, e.m. surface waves, dispersion props., phenomenological method *(Russian)* 4−67681
double-layer matching system, rel. to transparency of plane surfaces *(Russian)* 4−77599
in Earth's crust, USSR theory and expt. 4−76669
electron interaction with plane e.m. wave, quantum mechanical motion *(Russian)* 4−51419
ferromagnetic insulator, anisotropic, surface e.m. waves investigation 4−79568
frequencies of two running circular e.m. waves in rotating frame of reference 4−65885
Gaussian beams 4−62786
grating of circular cylinders, transient e.m. plane wave transmission 4−74460
groundwave propagation, over cylindrical surfaces, microwave modelling 4−59333
h.f. perturbation propag. in absorbing and active media 4−77598
inhomogeneous surfaces 4−62783
inverse problems, reduction to Cauchy initial value problems 4−47034
isotropic material, nonlinear far field theory 4−77596

electromagnetic wave propagation continued
Maxwell equations solutions, lens-like media, first order perturbation theory 4−71466
metal, weakly damped e.m. wave propag. under strong spatial dispersion conditions *(Russian)* 4−82772
metal film, e.m. surface waves, dispersion props., phenomenological method *(Russian)* 4−67681
metal in magnetic field, dispersion equation for e.m. waves *(Russian)* 4−82446
nonlinear e.m. field propag., self-interaction 4−51690
nonlinear medium, wave packet self constriction 4−69082
nonlinear self-focusing media, TM type soliton 4−65869
nonparabolic band conductor, nonlinear pulse propag. 4−75914
nonstationary radiation fields in absorbing and nonabsorbing media *(Russian)* 4−71463
periodically nonuniform media 4−62787
photon propagation in const. parallel e.m. fields *(Russian)* 4−62718
polarized resonance radiation, point source in infinite medium *(Russian)* 4−59332
pulse signals, homogeneous media, electrical analogue modelling ccts. 4−62785
pulses in time-varying random media 4−71469
radiation and scatt. problems, computational aspects 4−74457
through random media, moment eqn. 4−77597
random medium, depolarisation, Stokes parameters 4−69015
random medium, pulse train propagation 4−59334
Rarita-Schwinger charged field, spin 3/2, electrodynamics and propag. 4−51691
scalar waves, h.f. scatt. in stratified medium, two-part problem 4−62792
scalar waves, h.f. scatt. in stratified medium 4−62791
semiconductor, nonlinearity, nonstandard electron dispersion law 4−55524
semiconductor, phonon heating effect on propag. of h.f. e.m. waves 4−57126
semiconductor, polar, uniaxial, spatial dispersion of optical phonons effect on e.m. wave propag. 4−70042
semiconductor film, e.m. surface waves, dispersion props., phenomenological method *(Russian)* 4−67681
semiconductor in magnetic field deflection by spatial dispersion near cyclotron resonance *(Russian)* 4−82369
short wave interaction with gravitational waves in arbitrary external e.m. fields *(Russian)* 4−68936
tensor impedance, anisotropic media *(Russian)* 4−65874
thermal microwave emission from halfspace containing scatterers 4−51509
transient plane wave-lossy half-space interaction 4−55431
transmission coefficients for h.f. and l.f. diffraction 4−62784
transmission through a resonant dielectric, macroscopic theory 4−59341
turbulent air media, applied to calculate Stokes parameters *(Russian)* 4−65867
Bi, mutual drag effect of hot carriers and phonons on propag. of strong e.m. waves 4−70029
Cu, Doppler shifted cyclotron reson. and e.m. waves *(Russian)* 4−79282
Cu, thin slab, Doppler shifted cyclotron resonance with circularly polarized transmission, new e.m. mode 4−82443
InSb, in crossed elec. and mag. field, microwave propagation 4−64111
Sb, mutual drag effect of hot carriers and phonons on propag. of strong e.m. waves 4−70029

electromagnetic wave propagation in plasma
aerospace, reentry simulation, r.f. interference, hot shot wind tunnel 4−48405
amplification and absorption in overdense plasma, HCN laser radiation 4−48402
anisotropic plasma, radiation from flanged parallel plate waveguide 4−66694
anisotropy in magnetic field, invariant theory 4−64229
anomalous absorpt. of intense RHCP wave, high mag. field 4−66699
antenna characteristics 4−69621
backscattering from laser produced plasma 4−72360
beam-plasma system, e.m. dispersion relations for two counterstreaming ion beams, whistler mode turbulence 4−44218
beam-plasma system, nonmonoenergetic relativistic beam effects, collisions role 4−75269
beam-plasma systems, stability props. 4−75246
Bernstein wave propagating obliquely to mag. field in streaming plasma, obs. 4−48396
bounded isotropic layer, second harmonic generation and emission in wave conversion 4−75230
cold anisotropic lossy half space, reflected field 4−66695
collisionless shock, CO_2 laser beam scatt., long-wavelength turbulence meas. 4−44220
conversion into ion-acoustic wave in inhomogeneous plasma 4−75231
conversion of longitudinal waves into e.m. radn. 4−44197
counterstreaming plasma, with mag. field, instability characts. 4−60278
counterstreaming plasma half-space, surface wave propagation 4−48392
Crab Nebula effect Faraday rotation on circular polarization 4−50714
cyclotron e.m. waves, magnetoactive plasma, excitation by electron stream 4−78761
cyclotron harmonic waves, oblique propag. 4−72359
dense system near ω_p, CO_2 laser beam absorpt. anomaly 4−44307
diagnostic application of dielectric rod waveguide, theory 4−60319
diffusing reentry plasma, high power e.m. transmission characts. 4−48395
diode antennas, radiation fields, electron temp., and density estimation 4−44389
electron waves, dipole antenna diagnostics 4−69618
electron-ion magnetoplasma, anisotropic pressure, coupled wave eqn. and dispersion relation 4−63647
electrostatic mode excitation by mode conversion between extraordinary and Bernstein modes 4−66697

electromagnetic wave propagation in plasma continued
  - electrostatic wave transformation into whistlers *(Russian)* 4−44222
  - e.m. instability in high-β plasma 4−66725
  - e.m. to electrostatic conversion, hyperbolic tangent nonuniformities 4−65729
  - e.m. wave excitation by nonrelativistic electron beam in dielectric medium *(Russian)* 4−78738
  - e.m. wave excitation in magnetised cylindrical solid state plasma column 4−79375
  - e.m. wave propag. in moving plasma in mag. field 4−52552
  - e.m. wave scattering due to intermittence turbulence effect 4−56472
  - e.m. waves, opposed, space-time interaction 4−75259
  - gyroresonant wave-particle interactions, phase-bunching and nonlinear processes 4−50350
  - heating, parametric instability effects 4−56491
  - heating of plasma near lower hybrid resonance, e.m. behaviour 4−82022
  - helical antenna, radiation fields in compressible electron plasma 4−48393
  - h.f. heating, toroidal current theory 4−65717
  - high-β plasma, purely growing e.m. modes 4−56479
  - h.v. impulse meas. systems, e.m. interf. 4−48391
  - inhomogeneous anisotropic layer, reflecting props. 4−78737
  - inhomogeneous nonlinear medium, TE mode propag. *(Russian)* 4−63643
  - inhomogeneous plasma slab moving parallel to magnetostatic field, e.m. wave transmission and reflection 4−44192
  - instabilities excitation by fusion products 4−44251
  - instability, parametric, e.m. wave obs. in mag. field free region 4−56490
  - ion beam-plasma system, r.f. propag., charge density meas. 4−66769
  - ionosphere, analogies for plasma heating, conf. Edinburgh, Scotland (1973) 4−58084
  - ionosphere, F-layer model, steady state plasma parametric device 4−58103
  - ionospheric, threshold and growth rate for Brillouin scatter 4−58091
  - ionospheric D-region, numerical solution of non linear propagation 4−58107
  - ionospheric v.l.f. wave generation near lower hybrid resonance 4−54260
  - laser heated, stimulated backward Brillouin scatt. 4−44189
  - laser light scatt., temp. meas. 4−82033
  - laser radiation propagation in pinch plasma column 4−48403
  - laser scattering, determ. of spatially resolved impurity conc. and effective charge Z 4−63691
  - laser scattering, relativistic correction, appl. electron density meas. 4−72391
  - magnetic field generation due to radiation press. 4−44187
  - magnetised plasma, stimulated scatt. of e.m. waves of electrostatic modes 4−48401
  - magnetoactive plasma, circular antenna input impedance, calcs. *(Russian)* 4−63645
  - magnetoactive plasma, frame antenna radiation resistance, calc. *(Russian)* 4−63646
  - magnetoactive plasma, r.f. field distrib., single turn coil 4−81986
  - magnetoplasma, e.m. field radiated by alternating electric dipole antenna 4−48400
  - Maxwellian plasma, e.m. oscills. caused by external h.f. radiation *(Russian)* 4−78774
  - microwave absorption by dense collisionless plasma, bleaching phenomena 4−44296
  - microwave radiation modulation in periodically nonstationary magnetically active plasma, expt. 4−69622
  - microwave scattering, by plasma waves, diagnostics 4−63697
  - microwave-probe, electron velocity distrib. function, determ. 4−78817
  - moving plasma, propag. along, plasma motion normal to, mag. field 4−78734
  - nonhomogeneous layered waveguide, surface wave emission *(Russian)* 4−63644
  - nonlinear effects, 2 modified ordinary monochromatic waves, quantum field theory 4−78735
  - nonlinear excitation of longit. waves by e.m. waves at boundary *(Russian)* 4−56484
  - nonlinear penetration of inhomogeneous system by e.m. wave, nondecay mechanisms of energy dissipation *(Russian)* 4−69636
  - nonlinear plasma, e.m. wave interaction, spherical geometry *(Italian)* 4−81988
  - nonlinear reflection, stimulated laser scatt. by electron and ion-acoustic waves 4−75228
  - nonlinear scattering dipole measurements 4−60324
  - open-ended circular cylindrical waveguide in plasma column with central conductor 4−52556
  - parametric instabilities, nonlinear saturation, turbulence, enhanced collision freq. 4−44216
  - parametric instability excitation and e.m. wave self-action *(Russian)* 4−72371
  - parametric pump radiation, inhomogeneous plasma, nonlinear wave optics 4−44188
  - penetration into weakly ionised plasma, electron temperature with nonlinear skin effect 4−52593
  - phenomenological description of effect of e.m. wave incident on plasma boundary 4−78723
  - photon gas, Compton cooling, Compton-Fokker-Planck eqn. 4−59301
  - Pioneer 6 2300 MHz telemetry signal perturbations during solar occultation 4−46168
  - plane layer, TE and TM wave emission, freq. spectra 4−75207
  - plane stratified magnetoplasma, generalised reciprocity theorem 4−72361
  - plasma antenna system, multiple narrow beam, calcs. 4−63639
  - plasma production and heating in magnetic field, beam self focusing 4−78787
  - plasmapause density and gradient from oblique plasma resonance satellite obs. 4−64971
  - polarization of inverse plasmon scattering 4−60276
  - positive-column absorption of r.f. field 4−44264
  - Poynting vector turning region, normal incidence 4−78722

electromagnetic wave propagation in plasma continued
  - propagation through two-dimensional inhomogeneous plasma 4−44191
  - pulse propagation in dispersive region, charged particle motion 4−60275
  - radio wave self-action near plasma resonance 4−78736
  - Raman scattering instability, e.m. wave reflection in inhomogeneous plasma 4−75227
  - random medium, coherent field in terms of coherent Green function 4−78733
  - refractive index for relativistic plasma rel. to pulsar emission 4−71026
  - resonance freq. of ionized layer, thickness depend. 4−56473
  - resonance regime of cold plasma, transmission and refl. coeffs. 4−66700
  - resonant absorption of e.m. waves, gradient modifications, 2-D simulations 4−78788
  - resonant interaction, lower hybrid reson. *(German)* 4−63638
  - r.f., topside plasma reson., oblique echo model 4−80376
  - r.f., topside upper hybrid reson., oblique echo model 4−80377
  - ring current region, wave-wave coupling in multiple-ion plasmas 4−64970
  - rotating system, constitutive relations 4−66696
  - s-polarised e.m. wave incident on plasma layer, second harmonic generation 4−75225
  - second harmonic generation, inhomogeneous hot plasma 4−63640
  - second harmonic generation at upper hybrid layer 4−81987
  - self-focusing, nonstationary 4−44194
  - self-focusing, thermal instability striations induced in ionosphere by radio waves 4−52555
  - self-focusing instability, theory 4−52554
  - self-modulation, self-focusing 4−63641
  - sheath effects on propag. from antenna immersed in warm isotropic plasma 4−48397
  - s.h.f. wave incident on plasma, oscills. in flow of fast electrons, expt. *(Russian)* 4−72375
  - short dipole antenna impedance in warm magnetoplasma rel. to ionospheric radiation resistance 4−44193
  - skin effect, nonlinear, of microwaves incident on collisionless magnetised plasma 4−75229
  - slot antenna radiation pattern, in moving magnetoplasma, Doppler effect 4−44186
  - stimulated scattering effects on incidence of e.m. pulse on finite layer *(Russian)* 4−82013
  - stratified cold plasma, impulse response to collisions and magnetic field 4−78721
  - stress wave propagation at microwave freq. 4−60277
  - strong circularly polarized wave propagation in magnetized plasma 4−83170
  - surface waves at vacuum-plasma interface 4−75226
  - synchrotron, electron, radiated and received power relations, isotropic or magnetoactive plasma 4−73599
  - synchrotron radiation, absorption coeff. comp. from emission coeff. universally applicable rule 4−65052
  - thermal electron pressure effect, in warm plasma with anisotropic pressure 4−78746
  - Tokamak, r.f. interaction near lower hybrid resonance 4−52629
  - Tokamak ST, poloidal field meas. by harmonic generation at upper hybrid layer 4−44398
  - topside ionosphere upper hybrid resonance oblique echo model, ray tracing 4−76738
  - toroidal system, localisation of e.m. wave absorpt. processes 4−44304
  - transformation in inhomogeneous plasma, linear and kinetic nonlocal effects 4−63642
  - turbulent stream, changes in frequency and angular spectrum 4−69620
  - t.w. multi-turn circular loop antenna, radiation characts. in compressible electron plasma 4−48394
  - Vlasov equation, integration by vector method 4−48386
  - v.l.f. input impedance in warm collisionless multicomponent magnetoplasma 4−46087
  - wave packet self-constriction, geometrical treatment, evolution and modulation 4−69082
  - wave scattering, density fluctuation three-wave interaction at zero mag. field 4−52542
  - wave-particle interactions, effect of ambient medium 4−59907
  - waveguide, circular, e.m. field stratified anisotropic plasma *(Russian)* 4−75224
  - waveguide mode conversion and wave scattering 4−69619
  - whistler instabilities, propagation characteristics 4−44190
  - whistler mode packet in inhomogeneous plasma, nonlinear theory 4−66698
  - whistler wave oblique propagation in plasma, computer simulation 4−48398
  - whistler waves, computer simulation, comparison with quasi-linear diffusion theory 4−52553
  - whistlers, banded chorus, nonlinear resonant particle trajectories 4−48399
  - whistlers, negative ion, crossover freqs. in multicomponent plasma 4−48404
  - C arc plasma, scattered laser light spectra 4−52613
  - C plasma, CO_2 laser produced, light refl. coeff. 4−72358
  - D-T plasma, laser pulse shaping, LASNEX code calcs. 4−78783
  - He, high-power microwave pumping, delayed emission of cyclotron harmonics 4−69642
  - OH sources, plasma hypothesis for amomalous emission 4−54519

electromagnetic wave reflection
  - *see also light reflection; X-ray reflection*
  - absorbing medium, non-normal incidence 4−71465
  - boundary-value problem including spatial dispersion, polariton mixing 4−70288
  - Brewster law for moving dielectric medium 4−55430
  - complex reflection coeff. meas., balance method for shorter millimetric wavelengths 4−65493
  - double layer, reflection function 4−47290
  - earth's surface, gently-sloping, rough, polarisation characts. *(Russian)* 4−77595
  - F-layer, reflective properties altered by high power pump irradiation 4−50348

electromagnetic wave reflection continued
Gaussian beam at planar dielectric interface 4−81271
gyrotropic media optics in presence of external mag. field 4−81270
heterogeneous waves, at surface of transparent monaxial crystal *(Russian)* 4−69014
inhomogeneous plasma slab moving parallel to magnetostatic field, e.m. wave transmission and reflection 4−44192
ionosphere, r.f., plasma oscill. generation 4−54271
ionosphere heating effect, obs. using partly refl. probing wave 4−58098
ionospheric propagation of shortwave signals, propagation time calculation error 4−76739
ionospheric reflected radiowave arrival angle distrib. under vertical and inclined sounding, theory and expt. 4−73581
ionospheric reflection coefficient matrix for radio waves 4−64949
ionospheric reflections, group path difference from spaced frequency reception 4−50333
microwave beam at total internal reflection, longit. shift 4−46620
moving ferrite-dielectric interface, oblique incidence 4−65868
plasma, cold anisotropic lossy half space, parturbation method 4−66695
pulse compression, by reflection from inhomogeneous ionised media 4−68993
radio wave self-action near plasma resonance 4−78736
steel, surface cracks detection by microwave methods 4−50074
transient plane wave-lossy half-space interaction 4−55431
InSb semiconductor plasma surface grooves, grating reflection and surface plasmon dispersion theory 4−71472

electromagnetic wave refraction
see also light refraction
air-sea interface, radiorefractive index meas. fluctuation 4−57975
atmosphere, calibration technique 4−70747
atmospheric boundary layers 4−46042
Gaussian beam at planar dielectric interface 4−81271
pulsar scintillation and pulse shape, interstellar refraction effects 4−54528
refractive index profile reconstruction by Fourier transform method 4−71471

electromagnetic wave scattering
see also backscatter; gamma-ray scattering; light scattering; X-ray scattering
ambient medium effects on wave-particle interactions 4−59907
apertures in conducting plane 4−43234
asymptotic of scattering matrix for diffraction by elliptic cylinder *(Russian)* 4−51513
atmospheric energy transmission path attenuation *(French)* 4−58000
biological tissues, numerical analysis 4−65270
bound isotropic media in waveguide, scatt. coeffs., reln. to elec. characts. *(Russian)* 4−77603
bounded medium, scattering by random dielectric constant fluctuations 4−77602
condition number soln. of scatt. near internal resonant frequencies 4−77607
conducting cylinder, slightly rough, and with impedance boundary condition 4−55432
corrugated surface transient response for radar sensing of sea wave structure 4−80419
cylinder, Green's function and Waterman and Rayleigh theories, numerical comparison 4−68999
by dielectric cylinders, finite element computation 4−71477
dielectric gratings, general numerical method 4−77605
dielectric sphere, backscatt. short pulse response of surface waves 4−74461
dielectric surface, statistically irregular, spherical wave *(Russian)* 4−59338
discs, perfectly conducting circular coaxial, e.m. field calc. 4−81273
Dow latexes EP-1358-38, size, size distribution and refractive index by Mie scattering method 4−82989
E-region, tidal oscill. from 935 MHz incoherent scatter obs. over Saint Santin 4−64958
elliptic cylinder with continuous and discrete surface impedance loading 4−77608
Gaussian beam interaction with planar dielectric interface 4−59337
by gravitational fields, weak, refractive index 4−68932
Green's function for scattering from random rough surface 4−47287
by many gyrotropic cylinders of different kinds 4−68997
h.f. backscattering from elliptic metal plate, asymptotic expansion determ. 4−55434
h.f. scattering from finite circular cylinder 4−71483
incoherent, ionosphere, fine regular struct., random irregularities *(Russian)* 4−80385
inelastic, unified macroscopic description 4−79735
inhomogeneous dielectric bodies of revolution, numerical soln. 4−74464
integral equations for numerical soln. 4−71482
ionospheric, obs. of plasma instabilities 4−58086
ionospheric disturbances, transient obs. using high intensity RF transmissions 4−58088
ionospheric modification enhanced ion line frequency spectrum, incoherent scatter radar obs. 4−58087
macroscopic theory of scatt. from resonant dielectrics 4−59341
mesospheric v.h.f. backscatter studies using Jicamarca incoherent-scatter radar 4−64939
microwave forward scatter near ocean surface semi-empirical model 4−80369
multiple obstacles, graphical representation of numerical results 4−74463
multiple scattering from finite inhomogeneous media 4−55433
near-field measurement, probe backscattering effect, scalar model 4−43230
by neutron with mag., elec. moments *(Russian)* 4−71674
nonlinearly loaded wire, time-domain scattering 4−59339
numerical method for scatt. from periodic dielectric structures 4−71490
plane wave, scalar scattering on small arbitrary shaped bodies *(Russian)* 4−81272
plasma, microwave radiation scatt. by l.f. oscillations *(Russian)* 4−72372
plasma wave, microwave scatt. diagnostics 4−63697

electromagnetic wave scattering continued
polyconductor slab, nonlinear electrothermal soln. 4−77606
profile characteristics inversion of conducting spheres, applic. of e.m. inverse boundary conditions 4−68995
quasistatic method generalised for open regions 4−71480
radiation and scatt. problems, computational aspects 4−74457
radio emission scattered from solar coronal sources 4−65076
rainfall, at 20 GHz, absorbt., cross polarisation correlation, meas. 4−43236
rectangular cylinder with surface impedance 4−77609
scalar waves, h.f. scatt. in stratified medium, two-part problem 4−62792
scalar waves, h.f. scatt. in stratified medium 4−62791
sea echo, two-scatterer theory 4−70670
s.h.f. plane e.m. waves by axisymmetric raindrops 4−68994
shielding of a plane wave by an array of infinitely long thin wires 4−68996
short pulse response for surface waves from dielectric spheres 4−71481
small aperture in planar conductive screen, integral eqn. formulation 4−81277
spatially dispersive sphere, soln. by Maxwells theory 4−81274
spectra of resonance combinatorial scattering and fluorescence excited by powerful e.m. pulse *(Russian)* 4−78345
and surface currents, Rayleigh region applic. 4−68998
teletherapy unit output variation, collimator scatter model 4−50852
thermal microwave emission from halfspace containing scatterers 4−51509
thin circular disc over lossy dielectric half-space 4−71486
transport eqn. for multiple scatt. in medium of randomly distributed particles 4−71479

electromagnetic waves
see also bremsstrahlung; Cherenkov radiation; electromagnetic field theory; electromagnetism; gamma-rays; light; microwaves; radiofrequency cosmic radiation; solar radiofrequency radiation; sunlight; synchrotron radiation; transition radiation; whistlers; X-rays
absorption and emission, angular momentum transport 4−65717
black hole, Schwarzschild, Debye pot. analysis for e.m. waves in exterior 4−68430
black hole amplification, numerical calcs. for Kerr metric 4−68323
black holes, amplification and refl. from Kerr type 4−68428
combined electromagnetic-gravitational radiation, generated by unified field theories, Weiss domain 4−65803
coupled thermo-, acousto-, galvanomagnetic-flexural wave excitation 4−77497
cyclotron radiation from low voltage electron beam 4−77124
electron evanescent wave, interaction with matter, appl. to Cherenkov effect *(French)* 4−74478
electron moving in uniform elec. and mag. fields with rhombic symmetry *(Russian)* 4−65985
evanescent, photon impulse density substitution for energy flux *(French)* 4−81227
fluctuation, Einstein-Lorentz formula 4−51542
Fresnel evanescent wave, force exerted on sphere, Maxwell-Minkowski tensor *(French)* 4−43231
generalized WKB method for rapidly varying media with critical-coupling 4−77594
gravitational field equations, soln., appl. *(Russian)* 4−59257
Helmholtz equation, finite element solutions, using an equilateral triangle grid 4−62708
Helmholtz equation, smoothing process on mode-matching technique 4−71462
interaction with bodies of revolution, induced surface currents 4−68991
propagation, and interaction with matter, book of radiation and quantum physics at pre-university level 4−59377
Reissner-Nordstrom geometry, perturbation anal. for gravitational and e.m. radiation 4−59278
resonance effects in charged particle motion in e.m. wave field and mag. field in medium *(Russian)* 4−65719
Smith-Purcell radiation from charge moving uniformly parallel to reflection grating 4−74459
undulator modulation theory *(Russian)* 4−65754
URSI symposium, London (1974) 4−71460

electromagnetism
see also electric fields; electrodynamics; electromagnetic field theory; electromagnetic oscillations; electromagnetic waves; inductance; magnetic fields; magnetism
axisymmetric induction in thin uniform sheets rel. to geomagnetic problems 4−64830
bar magnet in noise loop, Maxwell's equations application *(Dutch)* 4−47279
charged particle radiation in arbitrary laminated media, Maxwell eqns. 4−82209
finite difference eqns., fast direct soln. methods 4−74458
foundations, undergraduate level book 4−59326
Helmholtz and Maxwell equations asymptotic solution, smoothly inhomogeneous media *(Russian)* 4−77593
interactive forces between two spheres and two cylinders in uniform e.m. field *(Russian)* 4−51503
magnetic field origin, invariance of ε_0 to Lorentz transform 4−55342
magnetic force equation, electrostatic derivation using relativistic principles 4−77583
magnetic media, e.m. forces, magneto-charged dipole model *(Russian)* 4−65861
Maxwell's equations, detection of advanced radiation using time asymmetric chopper absorber 4−76776
Maxwell's equations, magnetic monopole absence basis of topological symmetry, flux quantisation 4−74577
Maxwell's equations, reduction to first order differential equations for polarised radiowave amplitudes 4−51508
Maxwell's theory, applications in optics *(Dutch)* 4−47318
Maxwell equations, strength calcs., comparison with other eqns. of physics 4−47039
Maxwell equations solutions, lens-like media, first order perturbation theory 4−71466
photon impulse inside dielec., couple produced on extraordinary ray excitation, Maxwell-Minkowski tensor *(French)* 4−43223

electromagnetism continued
- Planck's constants, units 4−77018
- point charge, slowly moving, field produced on the other side of a conducting surface 4−62773
- quantum-related reference frames and local physical significance of e.m. pots. 4−55307
- radiation reaction problem solution for uniform magnetic field 4−71351
- standardization of e.m. symbols 4−62362
- student experiment demonstrating force between two current carrying wires 4−50942
- two-body problem in special relativity 4−74382

electromagnets
- *see also coils; superconducting magnets*
- conductor surface heating by pulsed mag. field, minimization 4−55424
- containment magnet flat-topping power supply 4−59878
- continuously operated self supported with mechanical stress approaching ultimate strength 4−68741
- control current stabiliser for 8 mm radiospectrometer 4−80948
- Doublet IIA Tokamak field shaping coil design and diagnostic access 4−60331
- mirror containment magnet and associated equipment, electrical aspects 4−59879
- production of pulsed fields up to 440 kOe, 1 msec duration, unit design 4−51504
- truncated conical pole, general eqn. for axial field 4−77584

electromechanical effects
- acoustic wave second harmonic generation in materials with strain-depend. dielec. consts. 4−60555
- elastic electrically conducting layer, time-periodic e.m. field effect on temp. and stress distrib. *(Russian)* 4−77427
- ferroelectric polydomain crystal, internal friction, electronic cond. influence 4−79688
- wires, vibrations, magneto-thermo-viscous-elastic, anal. 4−61014
- $BaTiO_3$:Al, electromechanical props., transverse coupling coeff. 4−49305
- SbSI, influence of nonequilib. carriers on single cryst. strain 4−64345

electromechanical filters
- audio-frequency, modes of vibration 4−58665

electrometers
- *see also charge measurement*
- amplifier for, f.e.t. and IC applic., cct. to measure 5 x 10^{-16} A 4−77120
- high-resistance tube cct. for e.s. field meas. in air 4−46747
- levitation, dynamically regulated, search for fractional charges 4−54983
- self-compensating differential electrometer 4−80946
- temperature-compensated for environmental measurements 4−51108
- three-terminal shielded resistors for fast electrometers 4−68737
- zero current method, and its appl. to charge decay meas. 4−46736

electrometry *see electrometers*

electromotive force *see electric potential*

electron absorption
- *see also beta-ray absorption; nuclear reactions and scattering due to electrons*
- alkali metal halide layers, electron attenuation length from photoelectron absorption coefficient 4−53570
- composite Cherenkov total-absorption electron spectrometer for 30 to 40 GeV 4−81025
- doses, central axis depth, dependence on field size, for 35, 40 and 45 MeV electrons 4−46487
- Kikuchi pattern formation, theory for 3 inelastically scatt. waves, absorpt. effects 4−75429
- C portable calorimeter, meas. of electron stopping power at 19.5 GeV 4−65521

electron accelerators
- *see also betatrons; electron ring accelerators; microtrons*
- electrostatic, electron loading in accelerator tubes *(Russian)* 4−62499
- e.m. field in focal region of aplanatic lens, conditions for electron acceleration 4−59465
- EPIC machine design, present status 4−77150
- high power nanosecond accelerator with inductive storage 4−77149
- high-current relativistic beam generator for fusion applications 4−68761
- inclined-field tubes, mag. energy of secondary elecs. 4−55008
- linac, unsteady current loading *(Russian)* 4−62498
- Neptune, radiography applic. *(French)* 4−71225
- plasma induced field emission, high current relativistic flow 4−66776
- pulse measurement using high voltage divider, with picosecond rise-time 4−71222
- pulsed, compact, with independent power supply 4−77140
- relativistic beam production, coaxial Marx generator 4−65510
- Serpukhov accelerator, prod. of electron beams with 46 GeV/c momenta 4−71223
- synchrotron radiation, production and properties, experimental laboratories 4−77154
- triperiodic structure, high power standing wave, for positron accel. 4−62496
- TRITON electron beam accelerator for plasma heating expts. 4−60332
- tubular flux production, gyromagnetic compression 4−46781
- X-ray therapy beams, from 19 to 45 MeV machines, fast neutron contamination 4−46423
- Ni oxide pressed porous cathode emission capacity and contamination resistance obs. 4−80968

electron affinity
- *see also ionisation*
- acetylene $^2\pi_u$ and $^2\pi_g$ ionic states, near Hartree-Fock assessment of reorganisation effects 4−52233
- atomic negative ions, mass spectra 4−66315
- atoms, comparison of expt. and extrapolation methods of determination 4−66312
- benzene, low energy electron attachment investig. in N_2, ethylene and ethylene-N_2 mixture 4−66509

electron affinity continued
- binary compound workfunctions, extension of Gordy-Thomas electronegativity theory 4−63468
- closed-shell atoms and molecules, direct calc. method 4−56025
- closed-shell system, many-body Rayleigh-Schrodinger perturbation theory calc. 4−66374
- complex conjugated systems, use of empirical data on fragments in determ. of ionisation potential and electron affinity 4−43877
- diatomic molecule, first-row, FSGO open-shell calcs. 4−66379
- element classification, electrochemical-thermochemical series, comparison 4−55984
- free radicals, determ. using ion equilibria meas. technique, involving radical neg. ion 4−48100
- heteronuclear bonds, length, polarity and electronegativity 4−60031
- hexafluoroglutaric acid, electron attachment and Cs collision ionisation 4−56305
- methyl halide + alkali atom collisions, chemiionisation cross sections investig., mol. electron affinities determ. 4−67993
- methyl radical, ab initio calcs. inc. electron correl. 4−56063
- negative in semiconductors application to vacuum tubes 4−73238
- negative ion excited states and energy determ. by electron detachment in elec. field *(Russian)* 4−78354
- pentacene, photoelec. props., energy level spectra, photogeneration mech. and electron affinity meas. 4−82453
- solvents effect on spin-orbit coupling in aromatic amines *(Russian)* 4−45929
- TCNQ molecule, electronic and ionic props. 4−52231
- tetrafluorosuccinic acid, electron attachment and Cs collision ionisation 4−56305
- trap spectroscopy by thermally stimulated exo-electron emission including electron affinity *(A)* 4−72723
- TTF molecule, electronic and ionic properties 4−52231
- AlF_2^-, AlF_4^-, heats of form., electron affinities determ., effusion-mass spectrometric method 4−78507
- B, configuration interaction method 4−47828
- BF_2^-, BF_4^-, heats of form., electron affinities, determ., effusion-mass spectrometric method 4−78507
- C, configuration interaction method 4−47828
- C^-, doubly excited Feshbach states 4−74865
- F, configuration interaction method 4−47828
- GaAs, directional photoelectron emission from negative electron affinity 4−49530
- GaAs negative affinity X-ray photocathode for imaging detectors 4−50728
- GeF_3^-, dissoc. electron attachment of GeF_4, meas. 4−48117
- H^-, electron radial correlation energy, electron affinity 4−59902
- He, electron radial correlation energy, electron affinity 4−59902
- He-like ions, electron radial correlation energy, electron affinity 4−59902
- Mg and Mg^{n+}, s, p, d valence states, energy evaluated, electron affinity estimated *(French)* 4−55985
- N, configuration interaction method 4−47828
- N_2, eqn. of motion calc. of electron affinities and vertical ionisation pots. 4−56289
- NH_2, NH, laser photodetachment determ. of electron affinities 4−43872
- NO_2^-, laser photodetachment 4−75026
- O, configuration interaction method 4−47828
- O^-, doubly excited Feshbach states 4−74865
- OH, laser photodetachment determ. of electron affinities 4−43872
- OH^-, OD^-, high resolution photodetachment, threshold region 7000-6560 Å 4−43873
- S_2, laser photodetachment determ. of electron affinities 4−43872
- SF_4, statistical calcs. for polyatomic mols. 4−48114
- SO_2, laser photodetachment determ. of electron affinities 4−43872
- Si, directional photoelectron emission from negative electron affinity 4−49530
- Si(100), adsorption, of Cs and O_2, struct. obs. 4−56982

electron annihilation *see positron annihilation*

electron avalanches
- *see also avalanche diodes; discharges (electric); IMPATT devices; Zener diodes*
- air, optical breakdown freq. depend. 4−78850
- avalanche-corona transition in long point/plane gap 4−75374
- bulk semiconductors, rel. to negative resistance effect 4−70026
- ionic crystals, h.f. breakdown, Fokker-Planck formulation 4−53372
- p-n junction, capacitance jump at start of avalanche ionisation range *(Polish)* 4−57160
- Si p-n step junction, avalanche breakdown voltage prediction 4−79406
- Si-Si_3N_4 interface, factors affecting 4−45009
- Si-SiO_2 interfaces, factors affecting 4−45009
- Xe, liquid, electron avalanche obs. 4−73069

electron beam absorption *see electron absorption*

electron beam applications
- *see also electron beam welding; radiation therapy*
- alloy, thickness distrib. of film from high rate electron beam source 4−76378
- atmospheric wave-particle interaction expt. using electron beam injected from sounding rocket 4−68285
- cancer treatment with accelerated electrons and ultrahand X-rays 4−71108
- collective ion acceleration by relativistic electron beam in neutral gas 4−46778
- floating zone furnace, vey high vacuum 4−57690
- gas lasers, electron beam controlled, h.v. pulse generator and other design problems 4−59408
- IC fabrication by scanning electron beam method, post-lens deflection system 4−51660
- IC patterns recording 4−69101
- ion production by electron bombardment, ion current stabilisation 4−46795
- Josephson microbridges, electron-beam fabricated, exam. of props. 4−76021
- lithography, energy dissipation models for thin polymer film 4−66951
- lithography, high speed beam deflection and blanking system 4−42866

electron beam applications continued
low-density gas flow meas. with electron diffraction camera *(Russian)* 4−81105
microfabrication, digitally controlled SEM system 4−42926
m.o.s. electron beam addressed store, diode detection 4−57168
p-n junction, minority carrier diffusion length, scanned light or electron beam detn., spot size effects 4−44992
photoconducting materials, trap investigation using electron beam contact 4−75878
plasma heating and gas laser excitation for nuclear fusion 4−59881
polymer carrier mobility meas., pulsed beam time of flight obs. 4−82419
pulse method of thermal diffusivity measurements 4−62441
radiation therapy, conservative treatment of retinoblastomas with 4 to 6 MeV electrons 4−71106
Schottky-barrier particle detector surface anomaly analysis 4−42876
technology, conf., San Francisco, USA (May 1974) 4−45912
therapy, beam characteristics comparison for Siemens betatron 6 to 18 MeV and Sagittaire linear accelerator 7 to 32 MeV 4−46417
thermomagnetic writing on MnBi films, energy requirement 4−65469
thermonuclear fusion energy production 4−74795
thin film bridges, production using pattern generator and electron microscope 4−57225
thin layers, vapour deposition, gun *(Czech)* 4−70081
time of flight spectra obs., effect of electron gun pulse width 4−46890
time standardisation by electron beam velocity in crossed elec. and mag. fields 4−80826
TRITON electron beam accelerator for plasma heating expts. 4−60332
ultra thin conducting Au film production on Pt nucleating layer by electron beam evaporation 4−45421
u.v. gas laser efficiency improvement by electron and light beam velocity matching 4−47339
v.h.f. generators using induced Cherenkov radiation of relativistic electron beams *(Russian)* 4−42833
zone melting, electron gun for optical meas. of zone 4−49576
C fibre field emitter for electron beam devices, scanning electron microscope appl. 4−79853
CO_2 laser, 15 atm. He-Co_2-N_2 mixture, electron-beam controlled, operation 4−74486
CO_2 laser, cold-cathode electron-beam-controlled, parametric expt. and theoretical study 4−59390
CO_2 lasers, electron beam controlled, 1 kJ and 10 kJ systems 4−59407
^{57}Fe thin film deposition, evaporation source 4−46603
KH_2PO_4 crystal, light modulator, resolving power and image contrast *(Russian)* 4−80876
N_2 molecule excitation method, mol. scatt., fluoresc. 4−48135
SF_6-D_2 chemical laser, repetitively pulsed electron beam initiated 4−55460
SF_6-H_2 chemical laser, repetitively pulsed electron beam initiated 4−55460
Sn films, oxide barrier formation by electron bombardment *(German)* 4−60877

electron beam effects
see also beta-ray effects
alkali halides, epitaxial growth of metals 4−44800
alkaline earth fluorides, H-centre prod. e.p.r. obs. 4−66912
alkaline earth fluorides, radiolysis prod. coloration, perturbed F and compensating V_k, H-centres 4−66911
alumina, solid and powder, impulse generation induced by pulsed electron beam 4−63839
anthracene, electron microscopy, reduction in electron irrad. damage by conducting coatings 4−82094
beam-plasma, equilib. config. effect on electron density 4−52578
beam-plasma system, heating due to modulated beam at lower hybrid reson. freq. *(Russian)* 4−63671
beam-plasma system, nonlinear stage of excitation of monochromatic oscillations by charged particle beam *(Russian)* 4−63659
beam-plasma system, nonlinear wave excitation by charged particle beam *(Russian)* 4−63658
beam-plasma system, parametric excitation of oscillations 4−60291
carbonaceous materials, Gruneisen coeff. meas. by electron beam induced stress waves 4−53944
cellulose acetate α-particle detectors 4−68775
channelling and blocking effects on motion through crystals, review 4−56786
chromosome aberrations in human lymphocytes after 3 MeV electron in vitro irrad. 4−58603
coronene, electron microscopy, reduction in electron irrad. damage by conducting coatings 4−82094
cyclotron radiation from beam instability 4−77124
discharge initiation, ionis. and recomb. coeffs. meas. method 4−78853
dissociation, half-collisions, computational viewpoint, boundary conditions 4−68019
DNA bases and derivatives, electron and u.v. irradiation, i.r. spectra 4−54629
dry eggs of Artemia, biological effectiveness of high-energy electrons at ultrahigh dose rates 4−58602
dynamic stress generation by pulsed relativistic electron beams, meas. 4−50067
energy dissipation, 15-30 keV, obs. by beam-induced currents in m.o.s. capacitor 4−52794
ferrites, square-loop, radiation stability 4−69824
ferroelectric, Frenkel exciton generation by electron beam *(Russian)* 4−67191
film on thick substrate, Monte Carlo simulation 4−48660
gas at high pressure, space charge excitation by electron beam *(Russian)* 4−60369
gas discharge fast electron excitation, field distrib. 4−78849
gas laser, fast electron beam preionisation in elec. discharge pumping 4−43301
gas laser, u.v., relativistic electron beam pumping 4−43302
glass, electron irradiated, vol. elec. charge, relax. rel. to struct. 4−52782
Haudsmith-Saunderson theory, 1-20 keV 4−52783
heating, correction to Kossel pattern lattice spacing results 4−78865

electron beam effects continued
h.v. electron microscopy, material exam. capabilities and applics. at Chalk River Nucl. Labs. 4−75430
impulsive heating profiles meas., vaporisation expansion wave 4−48746
induced current meas. of bipolar transistor junction depth and base width 4−49063
ionosphere, plasma wave generation by artificially injected electron beam 4−50334
isobutene, rearrangement reactions in electron impact fragmentation 4−60102
laser beam optical heterogeneity and induced extinction during org. solvent exposure to electrons *(Russian)* 4−77701
leucosapphire luminescence, fast electron excitation *(Russian)* 4−73201
LiF thin crystals, defect formations caused by electron irrad. 4−60517
metal, CO desorption, electron and photon induced 4−79238
metal, plastic deform. and tensile strength, irrad. effects, review *(Russian)* 4−80019
metal flow from melting bar during electron beam refining, hydrodynamics *(Russian)* 4−53737
metal plate, acoustic vibr. excitation by electron, proton beams 4−79101
metal surface, thermal explosion assoc. with electron beam focusing *(Russian)* 4−53736
metal surface heating, localized temp. meas., ionic current detection 4−61265
microwave generator, modulated beam coherent emission up to 30 MW 4−43232
m.o.s. capacitor, p-type, self consistent energy band scheme for electron impact flat band shift 4−60861
m.o.s. capacitors, thick-oxide, C-V curves determ. 4−82484
m.o.s. structure, electron irrad., thermal annealing behaviour 4−49077
multilayer target, penetration and energy deposition 4−44575
phosphor particle deposits, optical props. and electron excitation output, statistical model 4−57639
photoelastic stress patterns fixation by electron irrad. 4−73993
piezoelectric semiconductor, u.s. wave amplification on interaction with electron beam 4−82463
plasma, Bernstein wave oblique propagation excitation 4−66728
plasma, decay instability of Langmuir and ion-sound oscillations 4−44243
plasma, excitation of electron cyclotron burst, stat. analysis 4−44240
plasma, excitation of electron cyclotron instability, phase and group vel. meas. 4−44239
plasma, excitation of nonlinear vol. wave by low-density beam 4−78771
plasma, heating by intense relativistic beams 4−44292
plasma, heating by relativistic beams 4−44293
plasma, high density, electron beam heating at high current 4−48438
plasma, magnetoactive, cyclotron e.m. wave excitation, by electron stream 4−78761
plasma, modulated beam interaction, fund. and satellite waves generation 4−44237
plasma, modulated beam interaction, vel. distrib. function transform. 4−44242
plasma, relativistic beam injection into warm plasmas with collisions 4−44236
plasma, relativistic electron beam interaction, mag. field effect 4−44235
plasma, stochastic oscillation excitation mechanism 4−44241
plasma−stream system, signal structure in multifrequency regime *(Russian)* 4−56477
plasma accelerator, ion acceleration by relativisitc electron beam 4−52628
plasma diagnostics, pot. well struct. of inertial electrostatic confinement device 4−44393
plasma fusion, comparison between laser and relativistic electron beams *(French)* 4−78785
plasma heating, TRITON expt. 4−60300
plasma heating, turbulent *(Russian)* 4−78798
plasma heating by relativistic electron beam 4−69643
plasma interaction, inhomogeneous beam transverse effects, hydrodynamic model calc. 4−44205
plasma interaction of relativistic beams, energy spectrum meas. 4−44294
plasma ion heating, near cyclotron harmonics by r.f. modulated electron beam 4−44259
plasma ion-acoustic wave stabilisation by electron beam trapping 4−66720
plasma non-isothermal, l.f. surface waves *(Bulgarian)* 4−52559
plasma oscillation excitation in waveguide 4−52574
plasma oscillations, correlation meas., spiral beam interaction in trap with mag. plug *(Russian)* 4−56485
plasma production in N_2, collision theory and obs. 4−44258
plasma-cold electron beam injection, instability anal. 4−66731
plastic track detectors, chem. defects *(French)* 4−71234
PMMA, scatt. models, expt. evaluation 4−48659
poloidal heliotron, electron injection 4−52579
polyethylene, graft-copolymer, radiation-induced, yield strength, impact strength and melt index *(Japanese)* 4−49963
polyfluoroethylenepropylene foil, electron irrad., electret charge dynamics 4−79671
polymer film, energy dissipation due to scattering 4−66951
polymer grafting in sealed controlled environment chamber 4−46773
polymethylmethacrylate, electron irradiated, space-charge distrib. determ. 4−57475
polyolefinsulphones, vaporisation, olefin struct. effect 4−49977
preflashover and electron-stimulated desorption in high electric fields 4−56985
PTFE, electret foil, electron bombard., thermally stimulated current spectra 4−67516
PTFE, irrad., stress relax. 4−80130
PTFE, Teflon, electret, radiation hardening and pressure actuated charge release 4−53361
pyrene solutions in cyclohexane, charge transfer reaction obs. *(Russian)* 4−54043

electron beam effects continued
pyrene solutions in cyclohexane, electron scavenging, temp. depend. *(Russian)* 4-54044
relativistic, high level E layer trapping, astron. expt. 4-44257
relativistic electron beam, fully ionised, plasma interaction 4-48436
ruby, luminescence, fast electron excitation *(Russian)* 4-73201
secondary electron emission comparison for electron positron and ion bombardment 4-45396
semiconductor, rate of production vacancy-donor complexes resulting from electron irradiation, calc. 4-66939
single crystal, bremsstrahlung interference, dynamic suppression 4-79818
sodalite synthesis, photochromic and cathodochromic 4-61597
soft X-ray appearance potential spectroscopy, review 4-79808
solid-state plasma, surface e.m. wave excitation by magnetised electron beam 4-60823
space-charge release in dielectrics 4-53375
steel, effect of elec. beam remelting and neutron irradiation on high-temp. ductility 4-82938
steel, stainless, grain boundary migration during 1 MeV electron irrad. 4-52785
steel, stainless, segregation of alloying elements to free surfaces during irradiation 4-81649
steel, stainless, void prod. by h.v. electrons, simulation of neutron damage 4-43667
sucrose, radiation induced decomposition, radical form., e.s.r. studies 4-80197
superconducting superheated grains, electron-induced T_c, particle detection 4-60903
Teflon film, cond. and breakdown, split Faraday cup obs. 4-82442
thermoelastic absorber, dose characts., holographic interferometry 4-75539
thermonuclear fusion concept, comparative eval. 4-63284
toroidal plasma, electron beam injection, stationary shock-like struct., enhanced diffusion 4-66747
triglycine sulphate, incident electron energy effect on ferroelectric props. 4-64338
vacancy supersaturation and its effect on void formation 4-48651
vitreous silica, electron dose distribution and range from dilatation determ. photoelastically 4-74125
volume discharge excited by 10^{-5} sec electron beam *(Russian)* 4-82060
X-ray production by modulated beam, absorpt. edge of light elements 4-45381
Ag-Zn alloy, irradiated with 2.3 MeV electrons, effect of temperature on rate of formation of defects and recovery *(Russian)* 4-69825
Al, appearance potential spectrum, struct. anomaly 4-64444
Al, dose characts., holographic interferometry 4-75539
Al, Frenkel defects, production 4-72491
Al, multi-faulted dislocation loops, helium preinjection influence 4-53679
Al, near threshold electron damage, purity effects 4-69827
Al absolute electron energy deposition profile meas., calorimetric method 4-42873
Al alloy 6061-Tb, dynamic yield strength at elevated temps. after pulse heating 4-70590
Al-Li, radiation generated prismatic loops around gas bubbles 4-69826
Al_3 absorber, positron and electron emission, comparison keV region 4-53559
$Al_xGa_{1-x}As$, electron beam pumped laser, parameters in visible spectrum 4-81339
Al_2O_3, thin sputtered film, electron beam induced cond. 4-82505
Ar, solid, efficient fluoresc., 10 to 30 kV electron excitation 4-61198
Au, bombardment induced defects, substruct. of state III annealing *(Russian)* 4-48650
Au, electron and positron scattering by thin crysts., intensity distrib. 4-69838
Bi, film, energy loss spectra, rel. to optical consts. 4-66952
Bi and Bi-Pb alloys, structural changes on irrad. 4-66935
C film, heated by electron beam irrad., temp. distrib. obs. 4-66936
CO_2 laser discharge, electron beam spreading, effect on sustainer current and field distrib. 4-43303
n-CdS, radiation damage, annealing kinetics, isothermal Hall effect obs. 4-44564
Co, electron irrad. at low temp., atomic displacement 4-75544
CsCl, effective escape depth of photoemission from colour centres 4-49529
Cu, electron irrad., 15 and 7.5K, elastic bulk effect 4-72487
Cu, polycryst., dislocation-dragging effects after quenching and electron irradiation 4-63840
Cu, polycryst., plastic deform. *(Russian)* 4-73319
D-T mixture, compression by heating shell with relativistic electron beam, fusion reaction initiation 4-44290
D-T pellets, supercompression using high current density electron beams 4-44289
Fe, irrad. softening effect of single crysts., asymmetry in yield stress 4-80040
Fe-C alloy, electron irrad. effect on precip. phenomena, excess point defect obs. *(Japanese)* 4-45551
GaAs, defect form., annealing effect, elec. props. meas. *(Russian)* 4-67721
GaAs, electron impact ionisation, threshold energy calcs. involving band struct. 4-79825
n-Ge, annealing of electron radiation induced defects, 360K, impurity effects 4-82201
n- Ge, electron bombardment, recovery spectra of electrical cond. at 77K 4-64123
n-Ge, group V doped, low temp. recovery of irrad. defects, annealing investig. 4-63841
n-Ge, rate of production of vacancy-donor complexes resulting from electron irradiation, calc. 4-66939
Ge, thin single crystals, energy loss and straggling, 24.8 MeV electrons 4-72503
p-Ge converted by electron irrad., transformation of simple defects at 200K 4-69801
H plasma, heating by relativistic electron beam 4-44291
H plasma, ion heating by intense relativistic electron beam 4-78791

electron beam effects continued
H_2 laser, electron beam excitation, spectral line breadth 4-71538
HF laser, initiated by 300 keV electron beam, performance 4-59392
He-Au mixture prep. by co-deposition using d.c. bias sputtering and electron beam evaporation 4-79864
He_2 excited states, stimulated emission, recombining afterglow of electron-beam discharge in He at 3 atm. 4-43287
Hg plasma, velocity space diffusion of electrons 4-81983
In, creep effect after irradiation *(Russian)* 4-69850
KBr single crystals, metallic colloidal particles growth under electron irrad. *(Russian)* 4-52784
KBr_xCl_{1-x}, ionizing radiation effect on hardening 4-66961
Kr, solid, efficient fluoresc., 10 to 30 kV electron excitation 4-61198
LiF, cryst., colloidal centre generation, kinetics *(Russian)* 4-75541
LiF, electron irrad., 250 MeV, dislocation initial stresses, etch pattern obs. *(Russian)* 4-72475
LiF, Li ion displacement by low energy electrons, absorpt. in I band 4-56777
MgO, form. and stability of V^-, V_{al} centres, ENDOR identification 4-44535
Mo, single cryst., electron irrad. damage for different orientations 4-75545
NH_3, liq., pulse radiolysis, transient u.v. absorpt. spectrum determ., solvated electron investig. 4-70609
NaCl, cryst., colour centres, conversion, annealing *(Russian)* 4-75523
NaCl, polygonization phenomenon after electron bombard. and illumination, temp. influence 4-66913
NaCl single crystals, metallic colloidal particles growth under electron irrad. *(Russian)* 4-52784
Na_2O-B_2O_3, glass, optical absorption, electron irrad. dose depend. 4-70330
Nb, irrad., intrinsic stage III annealing 4-66938
Ni, ferromagnetic after effect, due to interstitials 4-72998
Ni, obs. of mag. anisotropic defects during stage I recovery 4-53249
Pb, electron-irrad. at 1.5K, isochronal annealing 4-79064
Pb, irrad. at 80K, yield stress behaviour *(Russian)* 4-53727
$Pb_{0.3}Sr_{0.7}TiO_3$, $Pb_{0.95}Sr_{0.5}$. $Ti_{0.7}Zr_{0.53}O_3$, electron irrad. effect on permittivity *(Russian)* 4-67510
Re, electron irradiation at 4.5K, resist. meas. 4-66937
Se-As, vitreous alloy, energy losses, dielec. const. determ. 4-64324
Si, electron irradiation damage, 50 MeV, i.r. absorpt. obs. *(Russian)* 4-82198
Si, junction f.e.t., n- and p-channel, electron and neutron irrad. damage 4-67275
Si position-sensitive detectors, pulsed optical and electron beam excitation 4-46822
Si:$[B^-(s)-Li^+(i)]$, high pair concentration, electro irradiation damage 4-82200
Si:Al(Ga), electron irradiated, impurity effects on photoluminesc. 4-76305
Si:C and diffused ^{18}O, electron irrad., i.r. absorption meas. of local vibr. modes of defects 4-82203
SiC film, recrystallisation on electron-beam pulse annealing in microscope 4-64001
α-Sn, damage effects on carrier conc. and mobility 4-75852
Sn, irrad. at 80K, yield stress behaviour *(Russian)* 4-53727
Sn films, oxide barrier formation by electron bombardment *(German)* 4-60877
Ta, irrad., intrinsic stage III annealing 4-66938
Ta absolute electron energy deposition profile meas., calorimetric method 4-42873
Ti and TiO surface comparison using AES and soft X-ray APS 4-73223
Ti foil, irradiation damage, dislocation loops 4-72489
V, defect prod., low energy 4-72490
VO, superstruct. disordering by electron beam, electron microscope obs. 4-56685
W, adsorption, of O_2, at (110) face, electron stimulated desorption 4-56975
Xe, solid, efficient fluoresc., 10 to 30 kV electron excitation 4-61198
Xe megawatt vacuum u.v. laser, coaxial electron beam excitation 4-74494
Zn, irrad. at 80K, yield stress behaviour *(Russian)* 4-53727
ZnSe, electron irradiated, e.p.r., close Frenkel pairs 4-66906
Zn_2SiO_4:Mn surface, electron-induced desorption of $O_2 \propto$ cathodoluminescent efficiency change 4-48849
electron beam ionisation *see electron ionisation*
electron beam welding
thermocouples joints 4-62435
Al alloys, forces acting on weld pool during melting *(Russian)* 4-70520
electron beams
see also electron optics; Schwarz-Hora effect
atmospheric scatter broadening calcs. 4-55544
beam-plasma system, helicon mechanism of relativistic electron beam relax. *(Russian)* 4-66739
beam-plasma system, injection of relativistic beam into spatially restricted system *(Russian)* 4-72369
beam-plasma system, longit. mag. field influence on relativistic charged particle beam *(Russian)* 4-63662
beam-plasma system, nonmonoenergetic relativistic beam effects, collisions role 4-75269
beam-plasma system, relativistic beam interaction in mag. field *(Russian)* 4-69633
bunching in nonuniform drift field hydrodynamic model *(Russian)* 4-43366
characteristics comparison for Siemens betatron 6 to 18 MeV and Sagittaire linear accelerator 7 to 32 MeV 4-46417
coherent synchrotron radiation emission in mag. field, microwave power 4-62818
collimated beam prod. using hindered glow discharge 4-75338
collisional series resistance, rel. to mm wave tubes 4-55543
counter streaming electron beams, explosive instability limitation 4-72366
counter streaming instability, onset condition 4-43368
dielectric thin film, current characts. under slow electron impact 4-79426

electron beams continued
diffraction radiation, finite dimension electron beam, quasi optical theory *(Russian)* 4−77727
diode, microinstabilities, proton emission 4−78812
electron positron collisions, time of flight method using scintillations 4−42879
electron trajectories in helical beams, formed by axisymmetric magnetron-injector guns 4−51661
electron-optical system, multiple reflection from sensitive surface 4−51662
energy meas., rapid process film 4−74110
energy-spread structure in electron beams for optical-freq. modulation expts. 4−47404
excitations of optical uniaxial dielectric slab for relativistic electrons *(German)* 4−72515
formation considering initial velocities 4−69102
formation in linear discharge, investigation of dynamics *(Russian)* 4−78855
gating circuit for Auger electron spectroscopy 4−58954
high energy, energy dependence with respect to absorbed dose in water 4−46486
high-energy, separation using synchrotron radiations 4−55020
instabilities in spatially varying magnetic fields, automation of derivation of dispersion relations 4−63651
intense, pulsed, self-focusing diode for fusion heating 4−43375
magetosphere, wave particle interaction, French-Soviet ARAKS project, 1975 4−68289
metal surface positron large angle scatt., Landau-Lifshitz anal. 4−49515
modulation technique to obtain high resolution energy differentiated electron transmission spectra 4−55109
monoenergetic (17 meV) production by laser photoionization of Ba beam 4−58913
Neptune-C pulse generator electron beam, expt. 4−47401
opposite-moving beams, polarisation stability *(Russian)* 4−69099
optical frequency modulation, single crystal film 4−79066
Pierce-type gun, radial flow of conical beams, theory 4−59466
plasma-beam system, coherent radiation by quasiperpendicular electrostatic waves *(French)* 4−56476
plasma-beam system, neutralization wave calc. *(French)* 4−48414
polarised intense pulses prod. by Fano effect on Cs 4−71228
polarised source, through electron-hydrogen spin exchange, teflon containment and longitudinal mag. trap 4−55028
polarized, prod. from polarized atoms, using tunable dye laser 4−77724
polymer film, electron energy deposition profiles, Monte Carlo simulation 4−79088
pulse formation by beam division using two deflecting cavities *(French)* 4−55016
pulsed, high-power, spatiotemporal distrib. meas. by new analysis method *(French)* 4−54868
pulsed, meas. of absorbed energy distribs. in water using holographic interferometer 4−74075
pulsed, nanosecond, adaptation to electron gun to produce 4−55548
rectangular cross section, theoretical limitations 4−65951
relativistic, current limitations, self-consistent equilibria 4−65952
relativistic, equilib. trajectory self-mag. field depend. 4−43378
relativistic, in cavity, virtual cathode form. 4−47399
relativistic, intense, with current feedback through ring cathode, generation transport and compression 4−43369
relativistic, ion acceleration model *(Russian)* 4−81363
relativistic, pressure gradient focusing in neutral gas 4−43379
relativistic, propag. in metallic neutral gas drift tube 4−71593
relativistic beam production, coaxial Marx generator 4−65510
relativistic electron beam microwave generation in waveguide with rippled mag. field 4−74542
relativistic energy spectrum, multichannel delay cable system 4−42911
relativistic planar diode with space-charge neutralization, limiting currents 4−65950
relativistic stability and problem of critical currents *(Russian)* 4−55542
ring production, gyromagnetic compression, relativistic flux 4−46781
scanning system for electron-optical image convertor with high time resolution *(Russian)* 4−62876
solid surface, energy distrib. of fast backscattered electrons, calc. *(Russian)* 4−67693
spatial splitting after multiple reflections from potential barrier 4−71383
spectrometer, time-resolved, kinetic energy of intense, relativistic beams 4−46889
spiralling in beams, meas. tech. 4−55545
stimulated scattering by standing light wave, adiabatic switching on hypothesis, Kapitza-Dirac effect 4−81384
student experiment, energy loss of electron beam in thin target 4−54788
synchrotron beam parameters *(Russian)* 4−80965
therapy, port modification, for a medical betatron 4−46415
therapy applic., use of Pb for field shaping blocks 4−46414
thin, current density distribution meas. through cross section using plane film probe *(Russian)* 4−77725
transmission and reflection by foils 4−62513
virtual photons, dense channelling electron beam, exchange patterns, diamond like crystal 4−66954
Al, electron energy loss at 600 eV *(Russian)* 4−44574
Al-Ag, high energy electron transmission, obs. of plasma energy loss increase with Ag conc. 4−44577
Be film, energy distrib. of inelastically reflected electrons 4−73231
GaAs, channelling, obs. of anisotropic scatter 4−48663
Pb film, energy distrib. of inelastically reflected electrons 4−73231
Si, channelling, obs. of anisotropic scatter 4−48663

electron capture
see also charge exchange
air, electron attachment and detachment 4−56559
alkyl bromide, dissociative electron attachment, diabatic capture 4−66490
benzene, low energy electron attachment investig. in N_2, ethylene and ethylene-N_2 mixture 4−66509

electron capture continued
bromomethane electron scatt., thermal attachment and excited inert gas atom electron capture 4−66510
cyanomethane, nitromethane electron scatt., thermal attachment and excited inert gas atom electron capture 4−66510
difluorodichloromethane, electron attachment below ~2 eV 4−56304
hydrogen halide, dissociative electron attachment, diabatic capture 4−66490
inert gas + $H^+(D^+)$, 3s, 4s electron capture cross section 4−47908
iodomethane electron scatt., thermal attachment and excited inert gas atom electron capture 4−66510
nitromethane electron scatt., thermal attachment and excited inert gas atom electron capture 4−66510
perfluorocyclobutane, electron attachment below ~2 eV 4−56304
polar molecule-electron scatt., temporary electron capture, Feshbach reson. 4−69531
$^{11}B(d,d)$ elastic scatt., charge-changing cross sections of 7 MeV ^{11}B recoils 4−64463
CO_2, dissociative electron attachment, O_2^- and C^- production, mass spectra, Renner-Teller effect 4−52270
H, collisional electron detachment, 22-45 MeV 4−66313
H, electron photoattachment 4−47862
$H+e \rightarrow H^- + h\omega/2\pi$, rate coeff. calc. electron temp. range 0 to 10000K 4−74896
$H+H^+$ collision, H^+ electron capture, continuum distorted wave approx. 4−74909
H^+, H_2^+ impact on N_2, Ar, CO_2, H_2, 0.3-3.0 keV, electron capture to n=3,4 states 4−63374
H^+ + Xe, electron transfer, highly excited H atom prod., multiphoton ionisation 4−69426
He, muonic, liquid polarized neutral atom investigation, hyperfine struct. possibilities *(German)* 4−78386
$He(Is^2)+H^+$, electron capture cross section 4−66347
N_2O, electron capture rate consts. determ. in electrochem. photocurrent system 4−54030
O_2, slow electron attachment at very high pressures of N_2, ethane and ethylene 4−52273

electron capture, nuclear *see nuclear electron capture*

electron density
see also carrier density; current density; plasma
afterglow plasma, space and time vars. 4−75304
arc plasma, influence of matrix anions of CdO and $CdCl_2$ on electron density 4−60336
atom, Thomas-Fermi theory derivation for students 4−62380
auroral zone ionosphere, quiet and disturbed electron density profiles 4−54269
beam-plasma, ion change composition 4−52619
chromosphere-corona transition region, electron density from Be-like ion line ratios 4−73614
Crab Nebula, model, distrib. and motion of relativistic electrons 4−58376
Cygnus A, magnetic field and electron density, 2.04 cm obs. 4−54520
D region, wind obs. in mesosphere and lower ionosphere *(German)* 4−68284
D-region, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68248
D-region, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68249
D-region cross modulation, determ. of electron density and collision freq. by echo method 4−58105
D-region effective recombination coeffs. from wave interaction studies 4−46080
D-region electron density profiles, radiowave interaction expt. 4−46076
D-region ionisation at v.l.f. reflecting heights after solar flare SID, zenith angle depend. 4−83124
d-region mean electron density profile, radiowave propagation meas. *(German)* 4−70791
D-region modelling from VLF propagation parameters 4−50345
D-region semi-empirical model, electron density, positive ion density, ionic composition 4−46077
D-region vertical electron density profile calc. using grid nomograms 4−68278
D-region wave interaction processes 4−58104
discharge, microwave, in diffusion regime, stability and stationary fields 4−60357
discharge in overvolted parallel plane gap, Poissons eqn. 4−60349
discharge plasma, nonself-reversed line profiles, electron density meas. 4−52616
disturbed ionosphere, ion and electron kinetics 4−54263
E_s-layer vertical electron density profile, middle latitudes, nighttime 4−54275
E-region, midlatitude nighttime, geomagnetic disturbance effect 4−68242
E-region, nighttime midlatitudes, ionisation by energetic electrons, rocket obs. 4−83121
E-region vertical electron density profile, middle latitudes, nighttime 4−54275
equatorial F_2-region, simplified calc. method for transequatorial electron flux effects 4−68281
equatorial topside ionosphere, ionisation ledges from cusp obs. 4−54266
Es-layer at Istanbul, foEs, fbEs and hEs for summer months 4−80386
exploding wire, holographic interferometry, electron density meas. 4−78843
F_2-layer, N(h) parameter annual variations at noon 4−68241
F_2-region, low latitude behaviour 4−80387
F-region, f_0F_2 increase due to upward plasma drift during a solar eclipse 4−83125
F-region, total electron content during 1971, December 17 storm 4−64959
F-region electron density and temp. at Malvern, relationship from incoherent scatter meas. 4−68246
F-region ionisation and geomagnetic activity index correl. 4−83122
F-region vertically travelling disturbance, changes in electron number density 4−68243
flame plasma diagnostic techniques, review 4−46944

electron density continued
galactic centre, electron density and magnetic field strength 4−68452
gas, flowing weakly ionised, electron distrib. function in time-depend. elec. field 4−63649
glow discharge, i.r. absorpt. meas. technique 4−82073
glow discharge, transitional region, props. 4−52647
glow discharge at atm. pressure, preionisation requirements physical model 4−75329
hot cathode discharge characts. in crossed fields *(Russian)* 4−66773
IC 443, spectroscopic obs., physical conditions in filaments 4−58367
inert gas, plasma afterglow, microwave and mass spectroscopic obs. 4−60321
interplanetary electron concentration var., Mars-2 dispersion interferometry meas. 4−76814
interstellar electron density from pulsar 21 cm line absorption 4−62199
ion beam-plasma system in klystron 4−66769
ionograms, corrections and error estimates of electron density profiles 4−70841
ionosphere, effect of solar X-ray flare of August 1972 *(Japanese)* 4−70895
ionosphere, electron concentration, accuracy of rocket meas. 4−46071
ionosphere, Faraday rotation, solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68239
ionosphere, large scale field aligned irregularities in heating expts. 4−58091
ionosphere, periodic electron content disturbances, simultaneous Faraday rotation and angle of arrival obs. 4−50340
ionosphere, using Intercosmos 8 with intermediate semiconductor store *(German)* 4−50407
ionosphere, vertical profiles, comparison of rocket and ground based obs. 4−50329
ionosphere at middle latitudes, diurnal var. of electron density at quiet times 4−68230
ionosphere during 1968 October 26-31 magnetic storm 4−68227
ionospheric electron content over Ibadan for 1965-8 period 4−64954
ionospheric reaction rate coeffs. from electron density values 4−50327
ionospheric total electron content and changes in atmospheric O/N_2 ratio 4−64905
ionospheric total electron content and horizontal gradient from satellite signal recordings at scattered points 4−46062
ionospheric total electron content determ. from differential Doppler records 4−64997
ionospheric total electron content response to magnetic storms, longitudinal effect 4−50342
ionospheric vertical electron distrib. profiles, unification of computing methods 4−50398
ionsophere, during 1973 June 30 solar eclipse from Faraday rotation obs. 4−61842
Jovian ionosphere, Pioneer 10 electron density predictions 4−70942
Jovian radiation belt, electron number density and energy determ. 4−62048
laser thermonuclear target, compression region density meas. using nucl. physics methods *(Russian)* 4−69653
low latitude whistler duct enhancement factors from dispersion meas. and magnetospheric electron density 4−76746
lower ionosphere, m.f. pulse sounding for electron density determ. 4−70782
lunar plasma, spacecraft microwave meas. 4−50513
magnetoplasma, bounded, effect on reson. radiation temp. meas. 4−78821
magnetosphere, plasma densities, thermal and suprathermal 4−64965
magnetosphere, plasma flow and electric fields from whistler obs. 4−61875
magnetotail at 60 R_e, plasma and particle populations 4−61874
Mars, neutral atmosphere model from electron density profile 4−54417
measurement by laser absorption 4−72396
Mercury, Mariner 10 obs. plasma science expt. 4−68367
Mercury's atmosphere, Mariner 10, dual frequency radio signal obs. 4−68371
microtron, double-humped distrib. 4−58882
midlatitude trough at dawn and dusk, and plasmapause position 4−73568
mirror-confined nonneutral E layers, equilib. and stability, electron density spatial depend. 4−44320
NGC 2440, planetary nebula 3726 and 3729 A intensities rel. to electron density distrib. 4−54582
plasma, cavity formation by two stream instability 4−78781
plasma, diagnostics of laser spark, scatt. method using electron-optical image convertor 4−75308
plasma, diode radiation fields, estimation 4−44389
plasma, electron density meas. using laser interference method 4−56524
plasma, electron energy distrib. function meas. by beat method, apparatus construction *(Japanese)* 4−52617
plasma, electron wave propagation diagnostics 4−60294
plasma, F-20 injector produced, interferometric meas. 4−56519
plasma, flowing afterglow, probe meas. 4−48448
plasma, high density, holographic interferometry diagnostics 4−56520
plasma, ion acoustic waves, electron energy distrib., Boltzmann's law 4−44210
plasma, laser interferometers applic. 4−56518
plasma, laser produced, X-ray spectroscopy 4−44403
plasma, laser scatt. density meas. 4−72391
plasma, laser scatt. diagnostics, Tuman 2 4−52621
plasma, mag. field depend. in microwave produced plasma *(German)* 4−52595
plasma, microwave interferometric diagnostics 4−44327
plasma, non-Debye, using Lorentz model with screened potential 4−69617
plasma, relativistic electron beam discharge 4−63689
plasma, scattered laser light diagnostics 4−52613

electron density continued
plasma, single wire microwave conductor measurements 4−63688
plasma, spectroscopic determ. 4−82037
plasma, Thomson scattering measurement, relativistic shift 4−56521
plasma, topside reson., oblique echo model 4−80376
plasma, topside upper hybrid reson., oblique echo model 4−80377
plasma alleviates by shock heating WO_3 powder in air suspension 4−72400
plasma focus, electron density and radiation emitted at plasma freq. and harmonics 4−44401
plasma produced by electron beam in mag. trap, microwave diagnostics 4−75307
plasmapause density and gradient from oblique plasma resonance satellite obs. 4−64971
polar cusp, superthermal electrons at 30-150 eV, Kosmos 261 obs. 4−46061
polyatomic molecule, computer calc. of forces on atomic nuclei 4−78409
radiation belt evening energetic electron decreases during substorms 4−83134
r.f. and d.c. probe comparisons for electron density meas. in low density plasmas 4−75306
satellite GHz radio signal scintillation, ionospheric irregularity models 4−46070
Scorpius X-1, radio obs. deductions 4−58400
solar corona, intensity gradients and electron density *(French)* 4−62001
solar corona, spectra on 7th March 1970 during totality *(Russian)* 4−68337
solar coronal brightness and electron density variations according to solar activity *(Japanese)* 4−54403
solar prominence, electron density, electron temp., level populations for obs. H lines *(Russian)* 4−80464
solar prominences, H excitation and ionization, statistical equilibrium eqns. 4−58233
solar type III burst theory rel. to coronal electron density 4−70874
solar wind, dense cloud geometries from radio signal delay and in situ plasma meas. 4−70890
spark discharge, electron beam induced *(Russian)* 4−60344
steady-state nonthermal plasma, population of lithium-like NV ion, electron density and temp. *(Russian)* 4−56463
top side ionogram diffuse resonances, Harris instability 4−70779
Tuman-2, plasma density distrib. meas. *(Russian)* 4−69652
upper atmosphere, corpuscular radiation in central latitudes in period of geomagnetic disturbances 4−46049
upper atmosphere, electron component of excess radiation, Proton-3 obs. 4−80370
upper atmosphere, high energy (>80 MeV) electron fluxes at 200-300 km 4−46048
upper atmosphere flux densities in 0.03-3.5 GeV range, Proton 4 meas. 4−76729
Venus atmosphere, encounter with Mariner 10 4−70936
Venus atosphere, energy spectra and fluxes, Mariner 10 4−70941
whistler ducting at low latitudes 4−57999
X-ray diffraction by thermally excited molecule, analysis by LCAO MO theory 4−63386
X-ray scattering method, small angle diagrams, deconvolution method 4−42937
Ar arc, plasma profile using CO_2 laser irrad., numerical anal. *(German)* 4−52623
Ar^+, laser plasma parameters, probe meas. 4−71531
D_2 arc, temp. and electron density radial distribs., spectroscopic meas. 4−75346
F_2-region storms, electron density and temp. changes 4−50346
H_2 arc, temp. and electron density radial distribs., spectroscopic meas. 4−75346
H_2 plasma, effect of cluster integrals on three particles on calc. electron density 4−60270
HCN, laser plasma, Faraday mode splitting meas. of electron density 4−48447
He discharge, modulated, plasma parameters meas. 4−60361
He plasmajet, nonthermal plasma existence from spectroscopic diagnostics *(German)* 4−63695
Li plasma, electron conc. determ. from forbidden transition intensities *(Russian)* 4−78824
N_2 discharge, stationary microwave, electron energy distrib. 4−60355
N_2 glow discharge, population of state $C^3\pi_u$, electron conc. *(Russian)* 4−56554
Ne, discharge, low press., high current, radiation emission characts. 4−69683
Ne torch discharge, microparameter diagnostics 4−60364

electron device manufacture
see also semiconductor device manufacture
spark chambers, narrow-gap, universal modular system with thin foil electrodes 4−80999

electron device testing
see also integrated circuit testing; semiconductor device testing
electroacoustic transducer, acoustic testing, digital processing applic. 4−42734
Nb-NbO_x-Pb, Josephson junction diodes and array, prep. and lifetest 4−49134

electron diffraction
see also electron diffraction crystallography; electron diffraction examination of materials; low energy electron diffraction
backward diffraction of electrons by standing light wave 4−47405
coherent surface bremsstrahlung theory, Bragg beam 4−44567
contrast in electron microscope, calc. *(Russian)* 4−71253
edge diffraction from transparent C films 4−71591
ellipsoidal inclusion in isotropic matrix, contrast, simulation 4−56594
in situ identification of diffr. patterns in electron microscope 4−74152
inelastic electron scattering, electron microscopy determ. of non-localisation 4−71264
low energy electron emission, diffraction effects 4−76353
molecular, Gauss-lobe-functions expansion electron diffraction intensity calc. *(German)* 4−63483
multiple scattering model for mols. and crysts. 4−72667
selective optical spatial filtering 4−65548

electron diffraction continued
zone plate frequency contrast characteristics *(Russian)* 4−71245

electron diffraction crystallography
see also crystal atomic structure; Debye-Waller factors
bicrystal parameters determ. using Kikuchi patterns 4−45554
Bragg scattering from filamentary array 4−66794
channelling, dynamical theory 4−63847
Coates-Kikuchi patterns and spectroscopy from single crystals 4−44450
cubic crystal, spherical inclusion, electron diffr. contrast, theory 4−66803
diffraction pattern indexing using Kikuchi pattern 4−48483
dislocation, extended edge, image contrast theory *(Russian)* 4−71252
electrostatic energy filter, dispersive and non-dispersive design 4−82093
e.m. radiation of electron diffracted by single crystal, Pendellosung effect *(Russian)* 4−82204
energy loss analysis in Bloch waves 4−56595
film, use of diffr. intensities to detect imperfect fibre orientation 4−53016
geometrical method for determination and indexing 4−82848
grain boundary dislocations, Moire patterns and diffr. effects, relationship 4−44544
grain size determination, textured objects 4−48482
indexing of diffraction patterns, ambiguity problems *(German, English)* 4−72412
Kikuchi pattern formation, theory for 3 inelastically scatt. waves, absorpt. effects 4−75429
Kikuchi pattern from ZnS platelet, ang. tilt estimation in goniometer calibration 4−78871
Kossel interference lines, cryst. struct., theoretical line profiles, absorpt. correction *(German)* 4−75423
lameller system of stacked layers, order-disorder relns. investigation *(French)* 4−56593
LEED, intensities for surface struct. anal. *(Japanese)* 4−44736
LEED-Auger apparatus, u.h.v. cleavage device 4−52665
metallography, diffraction patterns evaluation *(German, English)* 4−49719
monokinetic electron transmission across thin films *(French)* 4−63741
optical frequency modulation, single crystal film 4−79066
phase identification, using computer-simulated electron diffr. patterns. appl. to Co-Sm system 4−78872
phase problem of electron scattering, unitarity eqn. appl. 4−56590
pseudo-Kikuchi pattern contrast from tilted crysts., calc. 4−69700
recrystallisation, feasibility of in situ obs. in h.v. electron microscope 4−60388
relativistic Green's function theory 4−44451
simulation, computer, geometry of TED and quasi-Laue RHEED patterns 4−52668
single crystal, determ. of degree of bending from orientational scatt. of β-particles 4−52810
spotty ring patterns intensity meas., Au film example 4−75428
twinned hexagonal crystal, automatic plotting of reciprocal lattice zones 4−82852
two-phase materials, composite electronograms from b.c.c. and h.c.p. phases 4−60386
voids, electron diffr. theory, appl. to Mo 4−78873

electron diffraction examination of materials
(TTF)(TCNQ) film, epitaxial on NaCl, characterisation 4−57185
alloy AMg5, electron fractography, impact strength 4−82922
amorphous solid, scatt. props., Polk-Turnbull model 4−75455
γ-brass, Cu-rich, long-period superlattice formation obs. 4−52720
2,3-butanedione, molec. structure and composition determ. in gas phase 4−43763
diamond film grown from vapour, struct. obs. 4−79248
dibromomethylene radical, struct., electron diffr. obs. 4−56056
1,2,7,8-diepoxyoctane, electron diffr. exam. of struct. 4−76935
ethylene, gas phase bromination, electron diffr. obs. of reaction intermediates 4−57833
ethylene chlorophosphate and chlorotrithiophosphate, mol. struct. 4−69448
film, textured thin, crystallite tilting, from refl. diffr. diags. and photogr. equidensity *(German)* 4−48487
2-fluoroethanol, molec. structure and composition 4−43762
fluoroethylenes, gas phase mol. struct. 4−43770
kaolinite, coincidence twist boundaries 4−69817
liquid, electron correlation function determination 4−78877
low-density gas flow meas. with electron diffraction camera *(Russian)* 4−81105
molecules in gas phase, program for refining data by statistical least-squares method 4−52019
molybdenite, surface deformation caused by abrasion, electron techniques *(Japanese)* 4−52970
muscovite, coincidence twist boundaries 4−69817
pyridine-N-oxide, mol. struct. determ. 4−74931
quartz, dislocation images and Burgers vectors, electron diffr. contrast obs. 4−60506
rare earth sesquioxide films, C-type, forbidden spots, dynamical theory *(French)* 4−67134
rare earth sesquioxides, C-type cubic struct., space group *(French)* 4−60463
semiconductor, Kikuchi lines, average internal potential determ. 4−79495
ST-50-1 structure, and X-ray diffraction 4−70542
steel, maraging, crystallographic properties of strengthening precipitates and aged structure *(Chinese)* 4−64543
steel, medium-C, martensitic, carbide precip. at first stage of tempering 4−49737
tetramethylene sulphone, electron diffraction determ. of conformation and mol. parameters 4−66365
tetramethylethylene, gas phase mol. struct., computer anal. 4−43769
tochilinite, acicular variety, obs. of unusual electron diffraction patterns in struct. determ. 4−52737
water, technique 4−63742
wet biological membranes 4−68830
Ag, allotropic forms 4−69751
Ag film, condensation on amorphous substrate, kinematic electron diffr. analysis *(Russian)* 4−60708

electron diffraction examination of materials continued
Ag on PbSe film, epitaxial nucleation and growth meas., summary 4−76374
Ag-S system, phase formation 4−48752
Al-Al_2Cu, eutectic alloy, growth crystallography of a single cryst. 4−69738
Al-Al_3Ni, eutectic alloy, growth crystallography of a single cryst. 4−69738
Al-oxide boundary anal. 4−72411
Al-Si-Mg, occurrence of metastable β'' phase 4−70469
$AlCl_3$, bond angle determ. 4−56054
$Al_xGa_{1-x}As$, epitaxial struct. on GaP *(Russian)* 4−45439
Al_2O, mol. struct. 4−69447
Al_2O_3, anodic-spark-deposited coatings, polymorphic phases 4−64611
Al_2O_3 thin films, struct., electron diffr. obs. 4−69969
Al_2O_3-W system, structure of thin films, electron diffraction obs. 4−69969
Au, radial distrib. func. for condensation on clean KCl surface 4−57011
Au, single crystal film, electron backscattering orientation depend. 4−57661
Au film, evaporated, annealing behaviour, 373-873K 4−53017
Au on PbSe film, epitaxial nucleation and growth meas., summary 4−76374
Au-Fe(60%), film, amorphous struct. above room temp., resist and struct. obs. 4−72661
BAs, film struct., deposition conditions depend. 4−45456
Ba-Fe-S system, infinitely adaptive structures $Ba_{1+x}Fe_2S_4$ 4−75618
Bi, struct. of low temp. amorphous thin films 4−82339
Bi, thin films, investig. of lattice parameter changes 4−67131
C, film, condensed struct., small angle electron scatt. 4−82341
CO-Ar(Kr)(Xe), solid mixtures, struct. 4−69970
CaF_2 film, epitaxial, on NaCl 4−44797
CdTe, exam. of oblique film deposition on glass refl. 4−57010
Cf metal, crystal structure and melting point 4−82133
$ClNSOF_2$, gas electron diffraction mol. struct. determ. *(German)* 4−56071
Co, electrolytically deposited epitaxial film, f.c.c.-h.c.p. transition 4−60713
Co, thin film, comp. and struct. *(Russian)* 4−48658
Co, thin film, structural investigation 4−79247
Co-Sm system, phase identification using computer-simulated electron diffr. patterns 4−78872
Cr film, struct. and phase comp., carbide form. on interaction with carbon substrate *(Russian)* 4−79244
Cr_2O_3, formed by oxidation of Cr(110), symmetry influence on orientation *(French)* 4−44794
Cu, LEED intensity profiles from (100) and (111) faces, analysis 4−44737
Cu film, initial growth exam. on (111) Ag film 4−76376
Cu-Al alloy, internally oxidized, Al_2O_3 particle struct. obs. 4−49733
Cu-Cr eutectic alloy, unidirectionally solidified, crystallography of phase interfaces 4−82858
Cu-Te, β''' hexagonal phase, cryst. struct., electron diffr. 4−82135
CuCl, amorphous, thin films, local atomic arrangement 4−75738
$CuS \rightarrow Cu_{2-x}S$ transformation, obs. 4−48757
CuZn alloys, metastable β', martensitic transforms. 4−53640
CuZn alloys, metastable β', isothermal transforms. 4−53641
Fe, γ-phase particles, quenched at room temp. 4−61325
Fe, thin film, comp. and struct. *(Russian)* 4−48658
Fe-Co alloy films, vacuum-deposited, atomic ordering *(Russian)* 4−60429
Fe-Mn alloys, low-C, stacking fault density and ε-phase stability determ. *(Russian)* 4−61373
Fe-Ti alloys, nitrided, struct. changes during annealing 4−53680
FeSi, $FeSi_{2.33}$, amorphous film, struct. anal. *(Russian)* 4−57006
Ga, amorphous film, coordination struct. 4−45040
GaAs, (100) surface, clean and Cs-coated, LEED obs. *(Russian)* 4−48822
GaAs, obs. of anomalies in transmission patterns 4−52669
GaAs, RHEED investigation *(German)* 4−75676
GaAs, surface stoichiometry and struct. during growth 4−56947
GaAs vacuum evaporated films, reflection splitting in RHEED investigations 4−56760
Ge, effect of accelerating voltage on intensity of forbidden 222 refl. 4−48490
Ge, vaporisation and growth characts. *(Russian)* 4−73257
Ge amorphization during ion bombardment, electron diffr. obs. 4−48657
Ge-GeS film interface, LEED obs. 4−56949
GeO_x metastable phase, obs. at GeO_2 surface 4−60700
$Ge_{15}Te_{80}As_5$ glasses, surface nucleated crystn. 4−60416
InSb films, amorphous and liquid, X-ray and electron diffr. exam. of short-range struct. 4−44468
InSe, amorphous thin films, short-range order determ. 4−53015
InSe, vapour deposition, dissociation into In_2Se 4−49583
InTe, vapour deposition, dissociation into In_2Te_3 and In_2Te 4−49583
InTe amorphous thin films, short-range order determ. 4−53015
InTe thin films, elec. registration of intensities, struct. and comp. determ. *(Russian)* 4−63998
KCl single crystal, determ. of degree of bending from orientational scatt. of β-particles 4−52810
MgO, electron channelling, dynamical theory 4−63847
MgO, energy loss analysis in Bloch waves 4−56595
MgO film, on amorphous substrate, preferred orientation, HEED obs. 4−53009
Mn, particle growth in flowing inert gases 4−49562
Mo, oxidation at 110 surface at 1000K, LEED and RHEED investigations *(German)* 4−57003
MoO_3, coincidence twist boundaries 4−69817
Nb-Ti wire, Cu-coated, microstruct. influence on crit. current density *(German)* 4−53180
Ni, adsorption of H_2, LEED obs. 4−67097
Ni, electrodeposited on Cu, epitaxy obs. 4−44808
γ-NiOOH, K^+ ion stabilized, electron diffraction exam. 4−52739
PbTe film, struct. 4−82340
$Re_2(CO)_{10}$, molecular structure determ. by gas-phase electron diffraction 4−43767
Re(0001), LEED, comparison with Be(0001) 4−44738

electron diffraction examination of materials continued
Se, particle growth in flowing inert gases 4−49562
Si, (100) face, struct. after oxidation and at high temp., LEED obs. 4−82307
Si, amorphization during ion bombardment 4−48657
Si, amorphous CBS struct. model, comparison with X-ray and electron scatt. data 4−56617
Si, ion implanted, interstitial and vacancy type dislocation loop identification 4−56743
Si, Kikuchi structures, contrib. of plasmon and quasielastic scatt. 4−56686
Si, pseudo-Kikuchi pattern contrast from tilted crysts., calc. 4−69700
Si, vaporisation and growth characts. *(Russian)* 4−73257
Si:P(As), epitaxial, doped using flux of GaP(As) 4−49626
Si_3N_4, synthesis, characteriz. and consolidation 4−53803
SiO_2 + Al, reaction product obs. 4−44807
TC film, up to 150 Å, h.c.p. structure obs. 4−49108
Ta(100), chemisorption surface struct. 4−48856
TiO film, on NaCl cleavage plane, struct. obs. 4−57008
TlCl, amorphous, thin films, local atomic arrangement 4−75738
Tl_2SO_4, molecular structure, gas-phase determ. 4−47920
UO_2 film, amorphous, crystn. obs. 4−53018
V, β-hydride struct. and hydrogen embrittlement 4−53668
V film, struct. and phase comp., carbide form. on interaction with carbon substrate *(Russian)* 4−79244
V_6C_5, obs. of antiphase boundaries in long range ordered crystals 4−44526
WO_3, W_2O_3, thin film, cubic struct. 4−44518
WSe_2, occlusions, microstruct. obs. 4−63821
Zn, particle growth in flowing inert gases 4−49562
ZnS, epitaxially grown in HCl:H_2 gas flow, influence of growth conditions on struct. 4−53630
ZnSe, sphalerite and wurtzite, epitaxial growth on (111) Ge surface, reproducibility of struct. 4−53615
Zr-Ni alloy, metastable noncryst. phase obs. 4−45504

electron-electron double resonance *see ELDOR*

electron emission
see also cathodes; electron field emission; photoemission; secondary electron emission; thermionic electron emission; work function
alkali halides, photostimulated exoemission in soft X-ray region 4−49537
dielectric, laser surface damage anal. 4−55495
exoelectron, applic. for interface and microdosimetry 4−54731
exoelectron, dosimetric applics. 4−54727
exoelectron, physico-chemical nature 4−53584
exoelectron emission and dosimetry, conf., Liblice, Czechoslovakia (Oct. 1973) 4−49534
exoelectron emission decay curves, activation energy determ. 4−49552
exoelectron emission phenomena and parameters 4−49535
exoelectron microscope for use in surface science 4−46907
insulator, thermally stimulated exoelectron emission after excitation by electrons 4−53580
insulator, thermally stimulated exoelectron emission for electron penetration depth determ. 4−53581
ionic compounds, exoemission, recent developments and basic problems 4−49537
knock-on electron production cross section for relativistic muon in medium Z element, cloud chamber obs. 4−42874
metal, exoelectron emission kinetics under strain excitation 4−53586
metal, exoelectron emission phenomena, review 4−49551
metal, time depend. of outer electron emission during plastic deformation *(Russian)* 4−80021
metal-dielectric cathode, explosive emission of electrons *(Russian)* 4−63724
phonon absorption effect on directional emission of electrons and positrons from crystals 4−49531
semiconductor, exoelectron emission phenomena, review 4−49551
semiconductor catalysts, exoelectron emission research and applic. in chem. and biology 4−54087
superplastic aggregates, activated state obs. *(Russian)* 4−53676
thermally stimulated exoelectron emission dosimetry in multiscalar and pulse height analyser modes 4−51165
thermally stimulated exoelectron emission glow curves, description method 4−49547
thermally stimulated exoelectron emission trap spectroscopy, calibration and resoln. 4−53579
thermoluminescent dosimetry materials, simultaneous TL and TSEE meas. 4−53588
Tokomak plasma, cyclotron electron emission investig. 4−75305
transition metal, outer electron emission, review *(Russian)* 4−79830
Ag-SiO/B_2O_3-Cu(Ag), cathode behaviour, SEM obs. 4−75968
Al, electron escape depths meas. 4−76345
Al-Al_2O_3-Al, energy distrib., struct. depend. 4−49089
Al-O_2-H_2O system, triboinduced electron emission and work function meas. under UHV conditions 4−53585
Al_3 absorber, positron and electron emission, comparison keV region 4−53559
$BaSO_4$, thermally stimulated exoelectron emission trap spectroscopy 4−53579
BeO, exoelectron dosimeters, activation energies determ. from isothermal fading 4−54730
BeO, exoelectron energy spectrum calc. 4−49546
BeO, on γ-irrad. beryllium bronze surface, thermally stimulated exoelectron emission *(Japanese)* 4−61276
BeO, thermally and optically stimulated exoelectron emission correls. 4−49542
BeO, thermally stimulated exoelectron emission maximum and exoelectron yield shift during powder treatment 4−49541
BeO, thermally stimulated exoelectron emission dosimeter 4−50899
BeO, thermally stimulated exoelectron emission, energy analysis 4−53578
BeO, thermally stimulated exoelectron emission, counting gases influence 4−57675
BeO, thermally stimulated exoelectron emission meas., sample surface temp. 4−64485
BeO, Thermalox type, trapping centres and activators assoc. with exoelectron emission, e.p.r. characteriz. 4−49543

electron emission continued
BeO dosimeter, photon irrad., energy depend. of exoelectron emission 4−54729
BeO dosimeters, Li_2O treated, fast neutron detection in mixed radiation fields 4−54728
$CaBr_2$, film, Au electrodes meas. 4−57184
CsI, X-irrad., exoelectron emission 4−49540
Ga, liq., structural transform. obs. by exoelectron emission method 4−53587
LiF, exoelectron emission by mech. treatment, high energy 4−49539
LiF, laser induced exoelectron images 4−49536
LiF, thermally stimulated exoelectron emission glow curves, description method 4−49547
LiF film, evap., thermally stimulated exoelectron emission after X-irrad. 4−49538
$LiNbO_3$, thermally stimulated field emission of exoelectrons 4−49545
Mg, deform. by stretching, obs. of electron exoemission 4−57676
MgO, fast neutron dosimetry using F-centres and exoelectron emission 4−54732
Mo, ion-electron emission yield, ang. depend., cryst. struct. effect 4−76356
Na, during Cl_2 chemisorption, exposure depend. 4−67111
NaCl, coloured, adsorption effect on thermally stimulated exoelectron emission 4−49550
NaCl, exoelectron emission by mech. treatment, high energy 4−49539
Si, annealing of defects, accelerated ions, bombard., high temp., ion-electron emission coeff. 4−72501
SiO-BaO film, in m.i.m. struct., circulating current depend. 4−61279
SiO_2 amorphous layers, TSEE glow curves, correl. between short range order defects and electron trap spectra 4−49548
Si(111), ion-electron emission coeff., angular depend. obs., 780 to 930°C 4−64466
$SrSO_4$, thermally stimulated exoelectron emission trap spectroscopy 4−53579
W, electron work function of (100) vicinals 4−45391
W, ion-electron emission yield, ang. depend., cryst. struct. effect 4−76356
W, work function determ. from meas. on K *(German)* 4−44983
ZnO, oxygen exposure effect on exoelectron emission 4−49544
ZnS:Mn, electron emission during radical recomb. luminesc. *(Russian)* 4−82723

electron energy bands *see band structure*

electron energy states
see also crystal electron states; electronic density of states
alloy, disordered, generalized coherent potential method 4−44816
alloy, random binary, coherent pot. theory, scatt. effects 4−44823
alloy, tight binding, cluster approx. for off diagonal disorder 4−48885
amorphous materials, electronic spectrum using polycryst. model 4−79265
amorphous semiconductor, glass transition temp., rel. to optical gap 4−82117
amorphous solid, self consistent cluster theory 4−72677
augmented plane wave secular equation, method of solution 4−57019
chalcogenide glass, struct. and electronic props., 3-D model 4−82349
chalcogenides vitreous semiconductors, expt. review 4−79268
coherent potential approximationn diagrammatic approach to off-diagonal randomness 4−72672
condensed media, theory of rate processes 4−48886
core states, total-energy and press. calcs., simplification 4−64029
disordered solid, theory, incorporating electron-phonon interaction 4−75766
disordered system, coherent potential approximation 4−60719
Economou-Cohen localization criterion and its appl. to diagonal disordered systems 4−48892
electron liquid structure factor, moment sum rules 4−44815
inhomogeneous interacting electronic system, momentum density, Compton profile 4−72671
ionic crystal, extra electron, extended polarisable ion lattice model 4−75751
Jahn-Teller problem, T × t, large finite coupling 4−79297
liq., cond. state energy of electrons investig. 4−82437
liquid metal, absence of first order electronic transition, high pressure shock wave data 4−44822
liquid metal, effective medium approximation 4−60723
liquid metal, Van Hove diagonality conditions and ionic configuration average 4−75765
metal, pseudopotential spherical functions 4−75750
methane liq., cond. state energy of electrons investig. 4−82437
one dimensional system, new variational method for calc. ground state 4−75759
plasma, weakly ionized, electron states theory, quantum corrections and interaction effects 4−56464
polymer, cond. mechanisms, a.c. and d.c. 4−72792
screening of negative Coulomb potentials *(Russian)* 4−48882
semiconductor, disordered, electronic dielec. susceptibility *(Russian)* 4−72678
Thorpe-Weaire transformation derivation 4−75755
Ag particles, electronic props., plasma resonance absorpt., opt.-consts., temp. depend. 4−64002
Al and Al^{n+}, s, p, d valence states, energy evaluated *(French)* 4−55985
As-Se alloys, amorphous, comp. depend. 4−75868
As_2Te_3, glass, gaps and localised states 4−75768
Ge, amorphous film, pseudogap struct. determ. 4−79269
GeTe, amorphous, energy band tailing, localisation of states 4−76269
Mg and Mg^{n+}, s, p, d valence states, energy evaluated, electron affinity estimated *(French)* 4−55985
Mg-Bi alloy, d.c. and a.c. cond. and optical transmission 4−49092
NH_3-metal solution, electron condensation in polaron or fluctuon system *(Russian)* 4−72738
Si and Si^{n+}, s, p, d valence states, energy evaluated *(French)* 4−55985

electron field emission
adsorbate covered surfaces, Anderson model 4-64484
cathode stability and lifetime 4-79858
current density of field emission into plasma *(Russian)* 4-63727
electron spin polarization, rotation in 1-dimens. tunnelling with superimposed homogeneous mag. field *(German)* 4-73242
metal, clean, appl. to surface density of states determ. theory 4-44980
metal, photoassisted field emission, microscopic theory 4-79855
metal, photoassisted field emission, surface effect, theory 4-79854
methanol, field ions appearance potentials 4-49533
plasma induced, high current relativistic electron accelerator 4-66776
point cathode electron source, sphere on cone model 4-65949
relativistic planar diode with space-charge neutralization, limiting currents 4-65950
solid-vacuum interface electron states, meas. technique and obs. 4-53134
superconductor, crit. current density for supercond. quenching 4-57673
thermionic cathode, ion field effect on emission properties 4-53577
transition metal, refractory, C or Si contaminant effect on surface self-diffusion and surface structure 4-75688
vacuum breakdown between outgassed Mo electrodes, Fowler Nordheim theory applic. 4-82793
water, H_3O^+ and $(H_2O)_2H^+$ field ions appearance potentials 4-49533
AL_2O_3, growth and desorption of layers on tungsten cryst. planes, FEM 4-69962
Ag-N_2O and Ag-O_2 interactions 4-75706
Al, oxide covered, energy distrib. meas., plastic deform. effect, temp. depend. 4-64481
Al-Al_2O_3-Al, m.i.m. system, VA characts., relation of leakage and emission currents 4-70079
C fibre field emitter for electron beam devices, scanning electron microscope appl. 4-79853
CdS cathodes, microplasma bistable state in elec. breakdown 4-79857
p-GaAs, photosensitivity, time characts. *(Russian)* 4-67704
p-Ge cathodes, microplasma bistable state in elec. breakdown 4-79857
Ir, energy distrib. spectra meas. for (111) plane, d-band contribs. 4-53576
$LiNbO_3$, pyroelectric, thermally-stimulated field emission 4-70399
$LiNbO_3$, thermally stimulated field emission of exoelectrons 4-49545
Mo, growth of monocrystalline oxide layer 4-49532
Mo, total energy distrib., SiO, Al_2O_3 adsorption effect 4-61277
Mo tips, Si adsorption, field emission microscope obs. 4-63982
Ni_4Mo, ordered, field-evaporation end form 4-76368
Pd, energy distrib. spectra meas. for (111) plane, d-band contribs. 4-53576
Pt, adsorption of Xe, field emission microscopy obs. 4-67109
Pt, energy distrib. spectra meas. for (111) plane, d-band contribs. 4-53576
Rh, energy distrib. spectra meas. for (111) plane, d-band contribs. 4-53576
Si, photosensitive field emission obs. 4-79852
Ta, adsorpt. of O_2, work-function, thermodesorpt. *(Bulgarian)* 4-82317
Ta, coated by SiO, Al_2O_3 thin layers, FEM investigation *(Bulgarian)* 4-82792
Ta, Ti coated, migration heat, binding energy determ. *(Russian)* 4-82315
W, (100), (110) and (111) planes, appl. to surface density of states determ. 4-44980
W, adsorbed Au, broad resonance, field emission spectra obs. 4-63985
W, change due to face specific adsorption of Al_2O_3 4-64482
W, condensation of Ti, initial phase FEM struct. exam. *(Russian)* 4-82333
W, laser radiation interaction, crit. flux density and desorption, field emission microscopy 4-61278
W, surface self-diffusion and critical reorganisation 4-82308
W, surface self-diffusion coeff., FEM determ. *(French)* 4-75689
W, tip growth normal to close packed face, heating in elec. field 4-57674
W (100) plane, possible dissociation of adsorbed CO, electron field emission obs. 4-63986
W single crystal faces, Si adsorpt., work function obs. 4-52996
W substrate with adsorbed group 1b metals, work function, high field microscope obs. 4-63979
W tip, desorption of Ho, action of elec. field *(Bulgarian)* 4-48848
w:k crystal, field emission flicker noise, single face spectral density functions 4-70400
W(100), with chemisorbed CO or O field emission total energy 4-45412
W(111), photo-stimulated field emission obs. 4-73241

electron gas
see also cathode ray tubes; electron optics
acoustoelectric effects, self consistent field methods for electron phonon interactions 4-49046
approximation, applicability to atoms 4-43710
backward scattering, one-dimensional electron gas 4-72670
BDP(TCNQ)$_2$, mag. susceptibility, 1-dimens. electron gas model 4-57024
bounded, surface energy calc. 4-72666
classical, dense, equilibrium pair-correlation function 4-48883
degenerate, nonlinear conductivity calc. for strong mag. field 4-72813
degenerate, thermodynamic props. at finite temps. 4-55367
dielectric formulation of surface energy of infinite barrier electron gas model 4-60844
dielectric function of free electron gas *(German)* 4-51452
Dirac equation with periodic potential and uniform mag. field, solution 4-59299
new electron resonances predicted for low temp. solid in crossed elec. and magnetic fields 4-49210
equilibrium distribs. in quantum statistics 4-71424
Faraday effect, metallic particle size quantization effect 4-53402

electron gas continued
Fermi fluid at metallic densities, Coulomb correls. *(Russian)* 4-60717
ferromagnet, degenerate electron fluid, high frequency spectrum of spin waves *(Russian)* 4-82575
ferromagnet, oscillations of a degenerate electron liquid, conductivity tensor calc. 4-79471
free energy, electronic contrib., high density 4-44679
graphite, X-ray excitation spectrum, solid-state electron gas, Wigner electron lattice 4-60764
Green's function graphs with nonzero contribution, recurrence formulae 4-62735
ground state energy, calc. of ring diagram contrib. 4-75756
inert gas atoms, mol. interaction pot., self exchange correction 4-56046
Kohn anomaly, single-particle states and pairing fluctuations in one dimens., calcs. 4-57022
linear chain crystal, rel. to phonon dispersion and instability 4-44623
magnetic, spin correlations 4-49137
metal, quantum virial decomp. *(Russian)* 4-67146
metal, simple, one-particle property calc., linearized effective exchange and correlation potentials 4-79257
metal film, surface spin susceptibility, paramagnetic phase 4-45092
metallic spheres, X-ray excitation of surface plasmons, theory 4-79395
metallic system, inhomogeneous hydrodynamic response anal. 4-74961
m.o.s.t. surface quantisation, admittance studies 4-64141
motion in conducting solids, continuum theory of mixtures 4-44954
nondegenerate, cond., electron-impurity Coulomb collisions 4-70013
nondegenerate plasma, collision terms of Boltzmann equation 4-66686
one dimensional, incompatibility of BCS pairing and Peierls distortion 4-72885
one dimensional, static dielec. function, linear response 4-67144
one-dimensional, mag. susceptibility, applic. to BDP(TCNQ)$_2$ 4-57024
one-dimensional classical, equilibrium states 4-65819
orbital susceptibility at low density, Wigner crystal 4-67346
pair distribution functions, binary kernel for Coulombic interacting system 4-62740
plasmas, collisionless, relativistic quantum theory 4-78832
proforce wave, electron gas breakdown wave anal. 4-78844
radial distribution function, noniterative calc. 4-59293
resistivity, exact expression using force-force correlation function 4-79323
scattering form factors determ. using density functional formation 4-74415
screening and plasma dispersion, new self-consistent quasistatic approx. 4-48888
surface effects, Green function theory, work function 4-60840
surface energy, dynamic contrib. 4-75944
thin film, (e,2e) quasielastic knockout process, collective properties 4-44814
Tomonaga model, appl. of eqn. of motion methods 4-82346
two dimensional, plasma oscills. in strong mag. field 4-70000
vertex correction, tested on core electron coupled to gas 4-75748
weak interaction theory 4-51453
Wigner quantum distribution function in crossed elec. and mag. fields *(Russian)* 4-60718
Al, X-ray excitation spectrum, solid-state electron gas, Wigner electron lattice 4-60764
Be, X-ray excitation spectrum, solid-state electron gas, Wigner electron lattice 4-60764

electron guns
ARAKS project, France-Soviet Union, conjugate points of earth's mag. field *(French)* 4-54298
deformable relaxation mesh program, for dense space-charge beams 4-42870
electrostatically operated gun for optical meas. on molten zones 4-49576
grid controlled to produce nanosecond pulsed beam 4-55548
large area, h.v., with thin foil window, design factors 4-47400
low energy, a.c. retarding pot. technique for work function changes meas. 4-77122
Martin-type, beam control 4-81362
Pierce-type, radial flow of conical beams, theory 4-59466
thin layers, vapour deposition *(Czech)* 4-70081
triode, LaB_6 rod cathodes, characts. *(Russian)* 4-73233
zone melting ring electron gun efficiency limitation by magnetron effect 4-53603

electron-hole recombination
see also carrier mobility; charge carriers
alkli metal halide, catholuminesc., elec. cond. relax. *(Russian)* 4-73202
anthracene, recomb. electrolum. and enhanced double injection 4-67660
description in terms of classical mechanics — geometrical optics synthesis 4-74200
dipoles, calc. of dynamic and static parameters based on Ψ pot. 4-53141
double injection theory for compensated semicond. with deep acceptors in forbidden band 4-82474
double injection theory for compensated semiconductor with deep acceptors and electron traps *(Russian)* 4-57162
exoelectron glow curves, calculation 4-64469
gate-controlled diode, depleted surface-recomb. velocity meas. 4-82492
oxysulphides:Eu^{3+}, Tb^{3+}, luminesc. kinetics of additional centres *(Russian)* 4-82729
p^+-i-n^+ structures, asymmetric, negative magnetoresistance 4-79409
p-n homojunctions 4-44988
photoconductor, rel. to transport noise spectrum in presence of nonuniform absorpt. 4-70050
recombination capture cross section investigation 4-73186

electron-hole recombination continued
semiconductor, intrinsic, recomb. laws for bulk and surface carriers, magnetoconc. phenomenon *(French)* 4-72793
semiconductor, narrow-band, by conduction electrons *(Russian)* 4-44884
semiconductor, Oje recomb. during intense excitation *(Russian)* 4-53524
semiconductor, piezoelectric, recomb.-acoustoelec. current, theory 4-60832
semiconductor, transient and alternating currents, carrier generation and recomb. effects 4-44908
semiconductor, under triple recomb. conditions, density and temp. of nonequilib. carriers, spontaneous oscills. 4-57137
semiconductor, Urbach's tails, hot phonon contrib. 4-57624
semiconductor with two or more trapping levels, photocond. and lifetime of excess carriers 4-53118
semiconductors with Td symm. mag. fields 4-75836
L-tryptophan, u.v. and X-ray induced recombination luminesc. in polar matrices 4-61209
AlSb, impurity radiative recomb., 4.2K 4-82747
As_2Se_3, amorphous, photocond. obs. 4-70051
$As_2Se_3(S_3,Te_3)$, photoluminesc., 0.4-1.8 eV 4-45355
$As_2Se_3(S_3)$, vitreous and cryst., photoluminescence, mechanism 4-73177
$BaSO_4$:Sm(Eu), thermoluminesc. mechanism determ. 4-82761
CdS, luminesc., free to bound recomb., temp. and excitation depend., 4.2-80K 4-49420
CdS:In, photoluminesc. emission, elec. cond. 4-53509
CdSe:Te, single crystals, obs. of radioluminesc. at Te traps 4-53488
$CdSiP_2$:Na(Bi), photocond. and optical quenching, recomb. and trapping centres 4-79381
$CdSiP_2$:Zn(Cd), photoelectric effects, recomb. and trapping centres 4-72829
CdTe, opt. and elec. props. of centres with deep levels *(Russian)* 4-67636
p-CdTe:Ge, capture centre parameters, recomb. process *(Russian)* 4-67239
Cu_2S-CdS, heterojunction photovoltaic effects, transport mechanisms 4-60824
GaAs, recombination enhanced defect reactions, junction meas. 4-70036
GaAs, uniformity control *(Russian)* 4-72794
GaAs laser, non conservation of k-selection rules in dense plasma, obs. at 2K 4-59429
GaAs-GaP p-p heterojunctions, surface and interface recomb. vel. meas. 4-67276
$GaAs_{1-x}P_x$:N, quasidirect recomb. and l.e.d. performance, cryst. comp. effects 4-70365
n-$GaAs_{1-x}P_x$:N, Zn, photoluminesc., radiative recombination investig. 4-64434
$GaAs_{1-x}P_x:N^+$, radiative recomb., behaviour of above-gap NN pair states, 77K 4-59432
GaP, green-emitting p-n junction lamps, nonradiative recomb. centres 4-64132
GaP:Ge, photoluminesc. mechanism *(Russian)* 4-45349
Ge, free carrier-free exciton-electron-hole drop interaction 4-72822
Ge, recombination radiation, free-carrier compression in crossed elec. and mag. fields 4-70359
Ge electron-hole fluid, liquid-gas phase diagram, recombination luminescence 4-64045
$Hg_{0.8}Cd_{0.2}Te$, Auger limited carrier lifetimes, photocond. meas. 4-60828
In-GaAs:Cr-In, recom., radiation, high-freq. instability in strong elec. fields *(Russian)* 4-73198
InSb, galvanomag. props., diffusion current effects 4-82499
n-InSb, two-photon absorpt. and recomb. processes 4-82452
KCl:AgCl(TlCl), luminesc., tunnelling recombination of trapped electrons and holes 4-70356
KI:Tl, kinetics of self-trapped holes, emission and absorpt. meas. 4-45356
NaI:Tl, kinetics of self-trapped holes, emission and absorpt. meas. 4-45356
a-Si, photocond., temp. depend., mechanism 4-79379
p-Si, proton irrad., 0.4-200 MeV, influence of disordered regions 4-49000
Si, surface recomb. rate, chemico-mech. treatment, cleaning *(Russian)* 4-76403
Si junction photodetector, laser induced damage effects 4-55497
Si surface, clean, cleaved, recomb. kinetics of photo-created carriers 4-67250
p-Si:B, γ-irrad., steady state photocond. and excess carrier lifetime, theory 4-53118
n-Si:Zn, low resistivity, recombination times calcs. 4-44962
Si-SiO_2 interface, nature of recomb. centres 4-67283
SiC:Sc, single crystal, doping processes, luminescence spectra and radiative centre recombination depth 4-82185
SiO_2, r.f. sputtered films, oxygen-deficient, defect centres, thermoluminescence 4-56739
V_2O_5, photoconduction 4-53116
ZnO, luminesc., high u.v. excitation, 4.2K, bound exciton recomb. 4-73182
ZnS, luminesc., i.r. stimulation kinetics 4-45359
ZnSe, luminesc., donor-acceptor pair lines, energies listed 4-70357

electron interactions
see also nuclear reactions and scattering due to electrons; positron annihilation
annihilation, deep-inelastic, dual model with Mandelstam analyticity 4-74611
conference, high energy electron and photon interactions (Bonn, Germany, Aug. 1973) 4-77804
deep inelastic electroproduction structure function, triple pomeron coupling modification 4-74626
electroproduction, asymptotic near freedom 4-59484
electroproduction, consistency of SLAC data in parton picture 4-47534
electroproduction, deep inelastic, diffractive behaviour in resonance excitation model 4-62961
electroproduction, deep inelastic, on polarised protons, sum rule derivation from quark light-cone algebra 4-59569

electron interactions continued
electroproduction, deep-inelastic, charge transfer and fluctuations 4-74628
electroproduction, deep-inelastic, dual model Mandelstam analyticity 4-74611
electroproduction, exclusive, in massive quark model 4-47510
electroproduction, highly inelastic, initial volume and multiplicity evaluation in statistical theory *(Russian)* 4-81433
electroproduction, one-particle inclusive, connection with e^+e^- annihilation and pair production 4-59560
electroproduction of higher spin resonances within generalized Joos-Weinberg formalism 4-59547
electroproduction of nucleon resonances, spin depend. struct. functions, SU_6 quark model 4-81408
electroproduction scaling in asymptotically free non-Abelian gauge theory of strong interactions 4-47530
electroproduction structure functions, analytic representation 4-74630
hadron inclusive electroproduction test of SU_3 breaking 4-77834
inclusive electroproduction, behaviour in Regge and scaling asymptotic domains 4-69163
muon pair inelastic electroproduction, parton model *(Russian)* 4-71682
polarised electroproduction as test of parton models with structure 4-71691
polarised hadron production with polarised beams and targets, formulae 4-62944
resonance region electroproduction 4-77848
semi-inclusive deep electroproduction, threshold connection with annihilation processes 4-62964
structure functions, Gaussian distribution at large Q^2 4-69164
vector meson creation by relativistic electron motion in mag. field, rel. to pulsars *(Russian)* 4-77844
weak neutral current contributions 4-74627
e^+, with nuclear emulsion, 1-4 GeV, trident production 4-55622
$e^+ + e \to$ hadrons + X, phenomenological anal. 4-74614
ed disintegration process, semi-relativistic theory 4-43417
ed measurements in third resonance region 4-77848
ee, in oscillatory field, Schrodinger eqn. soln. *(Russian)* 4-65728
$ee \to ee\Gamma$ two photon process, corrections to equivalent-photon approximation 4-62960
$e^+e^- \to$ hadrons, quantum field theory anal. 4-71687
e^+e^- annihilation, connection with one-particle inclusive electroproduction in deep inelastic limit 4-59560
e^+e^- annihilation to hadrons, unified theories 4-69165
$e^+e^- \to e^+e^-$, 5.2 GeV, cross-section meas. 4-71677
$e^+e^- \to e^+e^- +$ hadrons, deep inelastic structure functions of photon 4-59571
$e^+e^- \to \gamma\gamma$, 5.2 GeV, cross-section meas. 4-71677
$e^+e^- \to$ hadrons, 1.2 to 3.0 GeV, energy depend. of cross-sections 4-69166
$e^+e^- \to$ hadrons, asymptotic behaviour of form factors 4-71688
$e^+e^- \to$ hadrons, constancy of total cross section in vector meson model, scaling breakdown 4-55621
$e^+e^- \to$ hadrons, multiplicity behaviour in parton model with weak assumptions 4-55624
$e^+e^- \to$ hadrons, nature of hadronic fixpoint 4-77841
$e^+e^- \to$ hadrons, scaling behaviour in model with pointlike couplings between resonances and photons 4-55619
$e^+e^- \to$ hadrons diffractive interaction and lepton composite structure 4-66045
($e^+e^- \to$ hadrons/$e^+e^-\mu^+\mu^-$) cross section ratio variation as evidence of quark substructure 4-71690
$e^+e^- \to k^0k^0$ at φ resonance, $|\eta_{+-}|$ determ. 4-71678
$e^+e^- \to \mu^+\mu^-$, 5.2 GeV, cross-section meas. 4-71677
$e^+e^- \to \mu^+\mu^-$, high-energy, muon electron universality hadronic corrections 4-59550
$e^+e^- \to \mu^+\mu^-$ up to 2000 MeV, vacuum polarisaton, including ρ, ω, φ, ρ' mesons 4-43412
$e^+e^- \to \mu^+\mu^-\gamma$, energy spectrum of photons based on current conservation in QED 4-43416
$e^+e^- \to \pi^+\pi^-$, nonresonant asymmetry 4-55607
eN, light cone algebra description in various quark models 4-62908
eN deep inelastic electroproduction in resonance region, cross section ratio σ_n/σ_p determ. 4-74615
$eN \to e + \ldots$, neutral current phenomenology, Weinberg-Salam model 4-77790
$eN \to e +$ hadrons, invalidity of Schwinger sum rules 4-47524
$eN \to e\pi\Delta$, scalar amplitude separation by multipole amplitudes *(Russian)* 4-47532
$en \to$ hadrons, deep inelastic, charged multiplicities in deuterium target 4-43419
$eN \to$ pions in photon fragmentation region, Regge-Mueller and triple-Regge description 4-55615
ep, $Q^2=0.4\text{-}2.2\ GeV^2$, large angle proton and pion production 4-74624
ep, scaling breakdown at high energies, discussion in simple nucleon model 4-74625
ep and ed deep inelastic cross sections, extraction of σ_l/σ_t 4-71686
$ep \to eK^+\Lambda$, ratio Σ^0/Λ in quark parton model 4-55620
$ep \to eK^+\Sigma^0$, ratio Σ^0/Λ in quark parton model 4-55620
$ep \to eN^*$, two body baryon model with modified Woods-Saxon potential between quark and diquark 4-74609
$ep \to e\mu^+\mu^- + X$, calc. in light-cone limit 4-59562
$ep \to en\pi^+$, near threshold, polar-angle dependence 4-66041
$ep \to en\pi^+$, squared four momentum transfers of 0.2, 0.4 and 0.6 GeV^2 near one pion threshold 4-62953
$ep \to ep\pi^0$, squared four momentum transfers of 0.2, 0.4 and 0.6 GeV^2 near one pion threshold 4-62953
ep semi-inclusive deep inelastic scattering in massive quark model 4-74638
e^-p deep inelastic collisions, charged pion distrib., quark-parton fragmentation functions 4-47529
$e^-p \to e^-p\eta$ near S_{11} (1535) resonance, differential cross sections compared with quark model 4-62955
$e^-p \to e^-p\pi^0$, at $\Delta(1236)$ resonance, $q^2=0.3\ (GeV/c)^2$, cross-section study 4-66042
$e^-p \to e^-\pi^+n$, forward-charged-pion electroproduction meas. at large K^2 4-59567
$e^-p \to e^-\pi^\pm X$, meas. of cross-section 4-59561

electron interactions continued
$e^-p \rightarrow e^-\pi$ + anything, quark-parton fragmentation function 4−47529
νe, high energy behaviour, total cross sections and inelastic processes 4−77802
π deep inelastic electroproduction structure function, simple core model, threshold relations 4−77806
π electroproduction, polarisation phenomena *(Russian)* 4−43413
π electroproduction, test of current-current light-cone commutation 4−77836
π electroproduction, virtual photon polarisation, t-channel selection rules *(German)* 4−71672
π^+ electroproduction at threshold, form factor at timelike momentum transfer 4−62931
$\pi^\pm\Delta$ electroproduction, modified Born term model 4−74613
W-boson pair prod. by high energy particles, e.m. mechanism *(Russian)* 4−62945
W-meson electroproduction on hadron target, energies much higher than threshold *(Russian)* 4−66039

electron ionisation
see also atomic electron scattering; molecular electron scattering
n-alkanes and n-alkyl-derivatives, ionisation cross sections *(German)* 4−48128
atom, absolute cross section meas. 4−43748
atom, inner shell ionisation by relativistic electrons, calc. for ^{28}Ni, ^{47}Ag, ^{50}Sn, ^{79}Au 4−51988
atom, inner-shell ionization by relativistic electrons, differential cross section 4−47886
atom, optical potential approach 4−59953
atoms z=23-28, energy depend. of Kα satellite intensity 4−63365
cosmic ray electrons in cascade shower, angular distrib. of electrons with allowance for ionization losses *(Russian)* 4−65019
ethylene, deuterated isotopes, electron impact dissoc., isotope effects 4−52268
ethylene, ionisation efficiency curves on electron impact 4−60117
excess kinetic energies of ionisation products of electron impact processes 4−48130
hexafluoroglutaric acid, electron attachment and Cs collision ionisation 4−56305
impact, detection of mol. beams 4−63496
inert gases, cross sections calc. 4−78363
ion source, ion residence time meas. 4−46896
rare-earth atoms, 4d-shell ionisation, X-ray emission spectra *(Russian)* 4−45370
tetrafluorosuccinic acid, electron attachment and Cs collision ionisation 4−56305
Tsytovich radiative corrections to ionisation loss of high energy electrons in nuclear emulsion 4−47498
vinyltrimethylsilane-He(Ar) discharge, reactive plasma, electron impact ionisation 4−46935
Al, thin target, ionisation loss for high-energy electrons 4−58918
Ar, config. interaction anal., spectroscopic factor determ. 4−47894
Ar, liq., average energy per ion-pair, electron scatt. 4−56785
Au, high current ion source by electron bombardment 4−80979
Ba$^+$, electron ionisation cross section, autoionisation threshold 4−74894
C, thin target, ionisation loss for high-energy electron 4−58918
CO$_2$, simultaneous ionisation and excitation by electron-impact 4−78521
Cl, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
Cu, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
Cu, thin target, ionisation loss for high-energy electrons 4−58918
GeF$_3^-$, enthalpy of formation by electron impact dissoc. of tetrafluoride 4−48117
H, electron impact ionisation, Coulomb-projected Born approximation 4−47877
H, Glauber approx. total cross section calc. 4−51997
H, impact ionisation cross section of excited atom, in Born approx. 4−74893
H, optical potential approach 4−59953
H$_2$ interstellar cloud, thermal equil. 4−80653
He, differential cross section calcs. 4−78366
He, electron impact ionisation, threshold obs. 4−74890
He$^+$, electron impact ionisation and excitation, cross section meas. 4−59952
He(e,2e)He$^+$, n=1, 2 differential cross section ratios, CI versus HF wave functions 4−69437
Hg, atom, electron impact cross-sections, electron energy loss 4−74891
Kr, electron impact ionisation, 3d inner shell alignment obs. 4−74897
La, 4d-shell ionisation, X-ray emission spectra *(Russian)* 4−45370
Mg, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
N$_2$, gas-discharge gap, ionis. by fast electrons 4−78852
Na, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
Ne, impact ionisation of ground state atom in Born approx. 4−74893
Ne, K X-ray spectrum 4−56011
O$_2$, O$_2^+$ $^4\Sigma$ prod. in electron beams, radiative lifetime meas. 4−52271
O$_2$ electroionization spectrum, identification of new Rydberg states and other structures 4−60120
$O_2 + e \rightarrow O^+ + O^- + e$, ang. distrib. of O$^-$, dipole-Born calcs. 4−56309
$O_2 + e \rightarrow O^+ + O^- + e$, electron energy depend. of energy and ang. distribs. of O$^-$ 4−56308
PF$_3$, electron impact ionisation, ion formation, ion dissoc. energies 4−48127
Pf$_2$CN, electron impact ionisation, ion formation, ion dissoc. energies 4−48127
S, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
SiCl$_4$, dissociative-electron attachment process obs. 4−78519
Zn, L$_{2,3}$MM Auger electron spectrum 4−56037

electron lenses
see also electron microscopes; electron optics; electrostatic lenses; magnetic lenses
axially symmetric focusing systems evaluation 4−69103

electron lenses continued
camera for IC patterns recording 4−69101
collimating lens, for large diameter beam, c.a.d. 4−43372
electrostatic, three aperture, design charts 4−47402
electrostatic, two tube, focal props. for large voltage ratios 4−43373
electrostatic two-tube, calculation of focal props. for high and low voltage ratios 4−55546
filter characteristics with a thick electrode *(Russian)* 4−71260
hemispherical slow-electron spectrometer for solid surface expts. 4−81024
high speed process image formation and recording system *(Russian)* 4−71246
matrix representation of the two-tube electrostatic lens 4−55547
microscopy, lens aberration, phase determ. and compensation, bright/dark field method *(German)* 4−71263
multielectrode tubular lenses with constant p.d. between adjacent electrodes 4−77729
objective aberration, ideal transmission phase contrast microscope, atom imaging 4−71239
objective wave aberration in space frequency transmission electron microscope *(Russian)* 4−71242
quadrupole-octupole lens with axisymmetric components *(Russian)* 4−71258
spherical aberration, correction by foil lens 4−43367
spherical aberration, quadrupole-octupole lenses, third order correction *(Russian)* 4−71254
spherical aberrations, He superhigh vacuum pump for investigating autoelectronic cathodes *(Russian)* 4−68657
three anode accelerating system for field emission SEM 4−62557
three-electrode accelerating system, for field emission SEM, construction and characts. 4−68810
two tube, third order aberration coefficients 4−43374

electron mean free path *see carrier mean free path*

electron micrographs *see electron microscope examination of materials; electron microscopy*

electron microprobe analysers *see electron probe analysis*

electron microprobes *see electron probes*

electron microscope applications
see also electron microscope examination of materials
biological macromolecular structure exploration 4−68831
bipolar transistor junction depth and base width meas. by electron beam induced current 4−49063
dust and particulate characteris. using SEM backscatt. electron imaging 4−77250
m.i.m. cathode behaviour obs., Ag-SiO/B$_2$O$_3$-Cu(Ag) 4−75968
review of instrumentation, techniques biological appls. 4−81032
Schottky-barrier particle detector surface anomaly analysis by scanning electron beam 4−42876
thin film bridge production with pattern generator controlling scanning electron microscope 4−57225
vacancy parameters determination appl. to quenched Au 4−57740
vacuum insulated gap breakdown, metallic particle obs. and identification 4−60351

electron microscope examination of materials
see also electron microscope applications; electron microscopy
(TTF)(TCNQ) film, epitaxial on NaCl, characterisation 4−57185
alloys, for aircraft, microfractographic features, SEM obc. *(German)* 4−80167
amorphous solid, scatt. props., Polk-Turnbull model 4−75455
bacteriophage DD2, determination of size, shape, molecular weight 4−83276
biological specimens, optimum contrib. of phase contrast to image form. 4−68815
γ-brass, Cu-rich, long-period superlattice formation obs. 4−52720
α-brass, Portevin-Le Chatelier effect, structural aspects 4−67802
α-brass, quenched, annealing of secondary defects 4−73299
butadiene-styrene block copolymer, different structures, mechanical props. and morphology *(Russian)* 4−73377
carbons oriented heterogeneous graphitization under high pressure 4−53864
ceramic, fracture surfaces, quantitative SEM and raster profilometer analysis 4−67923
crystal, orientation and surface perfection from electron channelling patterns in SEM *(German)* 4−48485
electrodeposits, homoepitaxial, thick, using thin foils *(French)* 4−82796
fluoropolymer surface, obs. by ESCA, soft X-ray spectroscopy, contact angle hysteresis and electron microscopy 4−67091
glass, appl. to microphase structure and phase separation *(German)* 4−76549
glass, viscous flow during phase separation, structure development 4−66833
glass fibres, liquation struct. investigation using internal friction and electron microscopy 4−48512
ground spherical single crystal, etching effect 4−44786
Hastelloy X, base and weld metals, elevated temp. fracture and fracture surfaces *(Japanese)* 4−70503
human skin in situ, dynamic SEM 4−62569
III-V mixed compounds, cross sectional specimen prep. 4−82092
III-V semiconductors, crystal orientation and imperfections obs. *(Czech)* 4−66801
Incolloy 901, fatigue crack propagation, secondary microcracks 4−45593
Incoloy 901, TEM specimen prep. techniques 4−64554
ionic crystal, surface decoration with Bi 4−60676
kaolinite, coincidence twist boundaries 4−69817
Kapron, oriented monofilament, fractographic obs. of macrocrack propag. 4−45817
lattice instability obs. with one-camera near phase transition point 4−48726
lunar rocks and soils, pore struct. determ. 4−58263
magnetic head-on saw-tooth domain walls, Lorentz microscopic obs. 4−79539
mast cell structure, quantitative anal. 4−68481
metal, close-packed, Shockley partial dislocations separations, rel. to electron microscopy meas. 4−82183
metal, wear sheet formation by delamination, SEM obs. 4−53777
metallic thin film condensation kinetics anal. 4−53014
meteorite, Cape York, TEM, obs. of microstruct. features 4−50238

electron microscope examination of materials continued
mirror, rel. to imaging of charge inhomogeneities in dielec. layers *(German)* 4−48486
molybdenite, surface deformation caused by abrasion, electron techniques *(Japanese)* 4−52970
mullite porcelain, microstructure 4−57758
muscovite, coincidence twist boundaries 4−69817
myosin, localization of light meromyosin, ferritin-labelled antibodies method 4−83274
nichrome, thoria dispersed, interfacial energetics 4−79929
Nimonic, PE16 alloy, ageing, resistometric study, use in nuclear reactors 4−70497
organic molecular crystals, detection of lattice defects *(German)* 4−75521
oxide scales exam. in SEM using backscattered electron images 4−45557
particle size, determination, 50 to 500 Å *(German)* 4−45573
poly(acryloyl nucleosides), electron microscopy *(Russian)* 4−72438
poly(ethylene terephthalate), crysts. induced by inorganic fillers 4−56624
polyacrylonitrile fibres, carbonized, SEM obs. of structure 4−53888
polyethylene samples crystallised from partially molten oriented polyethylene, morphology, sample replicas *(Russian)* 4−72436
polymer, ABS type, improved etch method for SEM and TEM 4−53894
polymer, cross-linked, surface formed by tensile fracture 4−67945
polymer gel, structural-morphological props. *(Russian)* 4−53924
polymeric film on Al surface, adhesion studies, surface struct. investig. 4−77272
polypropylene, cryst. isotactic, cryogenic crazing obs. 4−67947
polystyrene, high-impact, fracture under fatigue loading, electron micrographs 4−45809
polystyrene latex, particle size electron error anal. 4−57789
polythene fibre, anisotropic structure, related properties 4−63771
polyurethane, hard-soft segmented, characterisation 4−49980
Precambrian sedimentary rock macerates, SEM studies and preparation 4−80392
PVC film, edge yielding phenomena 4−67951
pyrocarbon film growth from methane, effect of substrates *(Russian)* 4−72648
rare earth sesquioxides, C-type cubic struct., space group *(French)* 4−60463
review of instrumentation, techniques biological appls. 4−81032
rubber mixtures, elec. conductive carbon black distrib. 4−73371
side entry specimen rod for in situ soft tensile testing 4−45891
siloxane block copolymers, morphology 4−56625
sol-gel urania, observation of grain growth 4−82995
stainless steel and Bi/Cu samples Auger analysis *(German)* 4−81036
steel, austenitic, Fe-(20%)Cr-(25%)Ni, splat-quenching, thin foil electron microscopy obs., dislocations 4−79927
steel, austenitic stainless, high-angle grain boundaries, annealing of dislocations 4−82862
steel, bainite, morphology and substruct., specimen prep. method *(German, English)* 4−53683
steel, bainitic, deform. effect of metastable austenite on bainite morphology *(Czech)* 4−79935
steel, carburized, fatigue fracture, high cycle, fractographic obs. 4−64581
steel, cementite dissolution, role of dislocation movements and vacancy flow 4−79922
steel, chromium-type, isothermal decomp. of austenite 4−79912
steel, creep-resisting 12% Cr, precip. processes, 500 and 600°C *(German)* 4−53674
steel, fatigue crack tip, microscopic plastic zone and slip band zone obs. 4−53685
steel, ferritic, high temp. crack opening displacement meas. 4−82932
steel, high C and high Ni, cementite orientation during martensite carbide disintegration *(Russian)* 4−73293
steel, low alloy, thermomechanically tempered martensitic structures and mech. props. *(Japanese)* 4−53750
steel, low-C martensite, structural hierarchy *(Russian)* 4−73292
steel, maraging, constitution analysis *(Russian)* 4−61336
steel, martensite and lower bainite differentiation *(German, English)* 4−73304
steel, meas. of neutron induced porosity 4−82206
steel, medium-C, fracture surfaces and brittle fracture resist., B influence *(Russian)* 4−53714
steel, medium-C, martensitic, carbide precip. at first stage of tempering 4−49737
steel, mild, fretting wear, spherical particle obs. 4−53776
steel, mild, slip amplitude effect on fretting 4−53775
steel, milk, sulphide cracking, fractographic obs. 4−67846
steel, pearlitic structure produced by delta eutectoid transform., TEM obs. *(Japanese)* 4−45552
steel, pressure vessel type, radiation hardening, role of alloying elements 4−45720
steel, radiation strengthening and impurity-defect interactions 4−45721
steel, scuffing surface transformations 4−67886
steel, stainless, austenitic 18-10 type, boride phase identification *(French)* 4−79948
steel, stainless, ion bombardment surface structs. development 4−49694
steel, stainless, plate, intermittent motion of friction, SEM obs, 4−67885
steel, stainless, second-phase particles effect on irrad. swelling 4−43658
steel, stainless, single crysts., relation between applied stress and orientation in α' martensite 4−53642
steel, stainless, stabilized, void form. on irrad. 4−43659
steel, stainless, stacking fault energy temp. dependence *(Russian)* 4−45572
steel, stainless, Type 316 and Ti-modified, proton irrad., void form. 4−43666
steel, stainless, vacuum deposited films, structure *(Russian)* 4−53740
steel, temper brittleness and grain boundary etching 4−64552

electron microscope examination of materials continued
steel, titanium-alloyed, M_2X phase detection *(German)* 4−61367
styrene cis-1,4-isoprene block copolymer, organized struct., X-ray scatt., electron microscopy 4−48524
surface-reactive metals, thin-film bicrystals, vacuum welding technique, grain boundaries obs. 4−82864
terpolymer, ABC block type, microphase separation 4−75465
Zircaloy-4, second phase particles, transmission electron microscopy, thinning by ion beam bombardment 4−70456
Ag, allotropic forms 4−69751
Ag, heavy ion irrad., point defect clusters, weak-beam electron microscopy 4−48656
Ag film, stereo electron microscopic obs. of microtopography 4−70459
Ag on (111) Si substrates, sputtered, growth obs. using electron microscope 4−76375
α-Ag_2Se, polymorphic transition, size displacement effect 4−56687
Ag_3Sn-Hg amalgamation process, SEM obs. of cryst. growth and mass transport, fracture surfaces 4−67803
Al, block boundaries formed in creep, stability *(Russian)* 4−76438
Al, electron bombarded, multi-faulted dislocation loops, helium preinjection influence 4−53679
Al, elongated and annealed, mutual annihilation of dislocations, obs. *(Japanese)* 4−49692
Al, He bubble formation, coalescence 4−70498
Al alloys 2024 and 2618, fatigue crack propagation, secondary microcracks 4−45593
Al condensation film on amorphous C substrate, impurity effects *(Russian)* 4−73256
Al film, electrolyte for electropolishing and revealing struct. 4−67113
Al plate, intermittent motion of friction, SEM obs. 4−67885
Al surface, sparked areas investig. with SEM and energy dispersive X-ray analyser 4−62624
Al-Ag(5.7 at.%) alloy, splat-quenching, supersaturated solid soln. struct. 4−79931
Al-Al_3Ni fibrous composite, mechanism of rupture in tension *(Russian)* 4−53827
Al-Borsic composite, necking of Al matrix 4−82963
Al-Cr(0.5 wt.%) alloy, precip. during recrystn. 4−79968
Al-Cu (4 wt.%) alloy, neutron irrad. effects on precip. 4−76443
Al-Cu alloy, thinning technique for transmission electron microscope obs. 4−82849
Al-Cu alloys, fatigue cracks of precipitates *(German)* 4−61471
Al-Cu-Sn alloy, ageing accelerating at high temps., aged struct. obs. *(Japanese)* 4−64578
Al-Cu(4 wt.%) alloy, antiphase domain boundaries within θ' and η precipitates 4−67792
Al-Ge (4%) alloy, struct. changes during decomp. *(Russian)* 4−67768
Al-Mg, high-angle grain boundaries, annealing of dislocations, microscopy meas. 4−82862
α-Al-Mg_2Si eutectic, spiral growth 4−79899
Al-Mg_2Si(1.3 wt.%) alloy, two-step ageing behaviour *(Japanese)* 4−45637
Al-Mg_2Si(1.35 at.%) alloy, reversion treatments effect on precip. mechanisms 4−45563
Al-Mg-Si alloys, plastic deform. effect on precip. 4−64565
Al-Mn(1.3 wt.%) alloy, precip. during recrystn. 4−79968
Al-Pb (5 wt.%) alloy, obs. of annealing of liquid Pb inclusions in Al matrix 4−70493
Al-Si-Cu-Mg-Ni piston alloy, copper influence on microstruct. and mech. characts. *(German)* 4−61398
Al-SiO_2-Si(100), m.o.s. struct., self-quenched breakdown regions, SEM obs. 4−75964
Al-Zn, solid soln., rhombohedral phase formation in slow cooling 4−53646
Al-Zn, stable and metastable equilibria, solvus line determ. 4−49636
Al-Zn-Mg alloy, multiple ageing, structural changes 4−45562
Al-Zn-Mg alloy, trace Ag additions influence on stress corrosion 4−49743
AlCu(4 wt.%) alloy, repeated θ' precip. at prismatic dislocation loops 4−49695
Al_2O_3, alumina, amorphous vacuum deposited films, structure *(Russian)* 4−53740
β-Al_2O_3, alumina, strength and fracture mechanisms 4−61499
β-Al_2O_3, alumina electrolyte material, dislocation behaviour 4−61492
Al_2O_3, high speed sliding wear 4−53820
Al_2O_3, Lucalox, SEM fractographic obs. rel. to testing temp. and grain size 4−67922
β-Al_2O_3-Na_2O, intergrowth of crystal structures 4−73343
AlSi silumins, modified and unmodified, spatial distrib. of eutectic silicon *(German, English)* 4−49720
As_2Se_3-CdO, glass, struct. rel. to photocond. 4−44960
AsTe, amorphous film, switching, computer simulation and obs. 4−82504
Au, direct resolution of surface atomic steps by transmission electron microscopy 4−82338
Au, quenched in vacancy parameters determ. 4−57740
Au clusters, on NaCl (100) surfaces, size distrib., quantitative image analysis obs. 4−53019
Au clusters, on NaCl (100) surfaces, spatial distrib., quantitative image analysis obs. 4−53020
Au film, diffusion of Pt from underlying film, obs. 4−48878
Au film, discontinuous, on NaCl substrate 4−57009
Au neutron damage obs. by transmission electron microscopy 4−52790
Au on (111) Si substrates, sputtered, growth obs. using electron microscope 4−76375
Au thin film bicrystal, faceting of high-angle grain boundaries in coincidence lattice, obs. 4−48636
Au-Cd(47.5 at.%) alloy, nucleation dynamics and growth of thermoelastic martensite 4−76410
Au-Fe(60%), film, amorphous struct. above room temp., resist and struct. obs. 4−72661
Ba ferrite layer structs., M_nY_m type, electron microscopy obs. of domain struct., stacking sequence 4−52777
$Ba_2NaNb_5O_{15}$, sintered, SEM obs. of morphological changes 4−61495

electron microscope examination of materials continued
- $BaTiO_3$, $(Ba,Pb)TiO_3$, ferroelec., 90° domain wall thickness meas. 4−61115
- $BaTiO_3$, electron microscope obs. of shear surface decoration patterns *(Russian)* 4−73082
- C, pyrolytic, highly oriented, high-temp. neutron irrad. effects 4−74792
- C composite, glassy matrix, C-fibre reinforced, strength changes on graphitization and mechanism 4−53831
- C fibres, structural studies, review 4−67949
- $CaCO_3$, calcite single crystals, dislocations, TEM obs 4−52759
- CaF_2, microinclusion light scattering centre formation in crystallization from melt *(Russian)* 4−73247
- CaF_2 film, epitaxial, on NaCl 4−44797
- CaO-Al_2O_3-CaF_2 system, glass form., electron microscopic, i.r. spectra obs., liq. zone 4−69730
- Cd-$CuCd_3$ eutectic struct. obs. by selective sublimation 4−82851
- CdS thin films, hexagonal growth forms 4−82332
- CdTe, dislocation struct., transmission microscopy 4−60507
- CdTe, SEM exam. of oblique film deposition on glass 4−57010
- Cf metal, melting point determ. 4−82133
- Co, electrolytically deposited epitaxial film, f.c.c.-h.c.p. transition 4−60713
- Co evaporated film, magnetocrystalline anisotropy 4−57305
- Co film, electrolyte for electropolishing and revealing struct. 4−67113
- Co fine particles, oxide layers, morphology and growth rate 4−63994
- Co-Fe, cryst. struct. and phase transform. exam., double h.c.p. phase 4−76416
- Co-Ni-Cr-Ti alloy, coarsening behaviour of γ' particles 4−45547
- Cr-N(0.01 wt.%), nitrogen precip. evolution *(French)* 4−45545
- Cu, deformed in tension and torsion, dislocation struct. at small strains 4−79938
- Cu, heavy ion irrad., point defect clusters, weak-beam electron microscopy 4−48656
- Cu, recrystallisation, nucleation mech., effect of plastic deformation and annealing *(German)* 4−67794
- Cu alloy film, vacuum-deposited, struct. form. laws and resist. meas. *(Russian)* 4−48875
- Cu alloys, neutron irrad. induced deform. behaviour 4−52787
- Cu condensation onto C-replica containing dispersed Au particles *(Russian)* 4−71255
- Cu film, electrolyte for electropolishing and revealing struct. 4−67113
- Cu on mica, multiply twinned particles obs. during vac. deposition 4−57012
- Cu-Al alloy, internally oxidized, Al_2O_3 particle struct. obs. 4−49733
- Cu-Al-Co (2 wt.% Co and 8 or 15 wt.% Al) decomp., precipitated phase *(Russian)* 4−67776
- Cu-Al-Ni alloy, stress-induced acicular β_1' martensite obs. 4−79970
- Cu-Al-Ni alloy, stress-induced acicular γ' martensite obs. 4−79971
- Cu-Al(10 at.%), partial dislocation structs., electron microscope obs. 4−82878
- Cu-Cr and Cu-Ni-Cr alloys, Cr precip. mechanism 4−45561
- Cu-Ni-Fe alloys, spinodally decomposed, loss of coherency 4−61359
- Cu-Ni-Sn alloy, spinodal decomp. and effects 4−64525
- Cu-Si, weak beam obs. of constricted dissociated dislocation lines 4−57738
- Cu-Si(5 at%), dissociated Frank loop corners, electron microscopy obs. 4−70471
- Cu-Ti (1.3-4.3 wt.%) alloys, temp. effect on ageing, hardness and thin foil electron microscope exam. 4−76454
- Cu-Ti alloys, age hardening characts., effect of Ti conc. *(Japanese)* 4−67789
- Cu-Zn-Si alloy, 3R stacking sequence in martensite, dark field electron microscopy 4−73300
- Cu-Zr (1.07 wt.%), electron microscope observations, precipitation 4−67798
- Cu-Zr and Cu-Al-Zr alloys, ageing mechanism *(Russian)* 4−49682
- Cu_2MnAl, effect of antiphase boundaries on domain struct., obs. 4−45142
- CuZn alloys, metastable β', martensitic transforms. 4−53640
- CuZn alloys, metastable β', isothermal transforms. 4−53641
- Eu_2O_3-La_2O_3-Ta_2O_5 system, cross section with 25 mole % Ta_2O_5 4−44649
- Fe, dislocation structure after cyclic loading at 77K *(Russian)* 4−49683
- Fe, γ-phase particles, quenched at room temp. 4−61325
- Fe, radiation strengthening and impurity-defect interactions 4−45721
- Fe, solubility of NbN and VN 4−64558
- Fe, thin film, oxidation effects on struct. 4−57001
- Fe foil crystal, dislocation motion at low temp. 4−52768
- Fe-Al alloy, antiphase domain struct. during annealing 4−53678
- Fe-C alloy, electron irrad. effect on precip. phenomena, excess point defect obs. *(Japanese)* 4−45551
- Fe-C alloy, eutectoid, metastable carbide precip., h.v. electron microscopy 4−79969
- Fe-C-Ni(Si) alloys, martensite form. mechanism *(French)* 4−79908
- Fe-Co-V alloy, heat treatment influence on microstruct. 4−79940
- Fe-Co-V alloy, thermal ordered domains and mech. antiphase boundaries 4−49723
- Fe-Cr-Ni (16 wt.%, 12 wt.%), transformation cycling 4−82900
- Fe-Mo(Ta)(W)(V)-S(Se) ternary alloy systems, chalcogenide form. obs. 4−67758
- Fe-Ni-Cr alloy, deformed, precip. of excess phases 4−61387
- Fe-Ni-Mn alloys, martensitic, microstruct. changes during ageing, TEM obs. *(Japanese)* 4−67787
- Fe-Pt alloy, substruct. of austenite formed by partial reverse martensitic transform. 4−45510
- Fe-Si, mag. domain contrast obs. 4−57317
- Fe-Si, microstruct. determ. of 90% Fe alloy, temp. comp. diag. for two phase system *(German)* 4−57727
- Fe-Si alloy, deformed single crystal dislocation wall struct. *(Russian)* 4−73294
- Fe-Ti alloys, nitrided, struct. changes during annealing 4−53680
- Fe-Ti-Ni alloy, superplastic, substruct. depend. of strain rate sensitivity 4−67873
- FeO-Fe_2O_3-TiO_2, obs. of aggregated and isolated faults 4−56759

electron microscope examination of materials continued
- γ-Fe_2O_3, oxide nuclei formation on pure Fe surfaces *(German)* 4−75726
- Fe_xO-MnO system, elec. cond., 900-1150°C, and struct. props. 4−49888
- $Ga_{1-x}Al_xAs$, liq. phase epitaxy on GaAs with mech. surface corrugations, SEM obs. 4−61290
- GaAs, as-grown, effect of precipitate-like zone on opt. absorptivity 4−60491
- n-GaAs, electron microscope obs. of impurity structural effects *(Russian)* 4−72480
- GaAs junction, anisotropic etching behaviour 4−60694
- GaAs nonuniform semiconductor, SEM microanalyser in cathodoluminescent mode *(Russian)* 4−71250
- GaAs:Te, microstructure, impurity conc. depend. 4−79054
- GaAs:Te, nature of small etch-pits 4−82325
- GaTe, single crystal, memory switching 4−64121
- Ge, electric domain instability, cryogenic emission electron microscope obs. *(Russian)* 4−73068
- Ge, electrolytic amorphous film, growth etching behaviour,optical and electron microscope obs. 4−82337
- Ge, film, cryst. struct. and elec. props., by ultra-high-vacuum electron microscopy 4−72657
- Ge, film, obliquely deposited, O uptake meas. 4−70415
- Ge condensation film on amorphous C substrate, impurity effects *(Russian)* 4−73256
- n-Ge:Li, impurity interaction with disordered regions formed by fast neutrons 4−56780
- Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61309
- Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal, obs. 4−61310
- Ge/GaAs heterojunction, gas transport and vacuum condensation, struct. effects *(Russian)* 4−73258
- $Ge_{15}Te_{80}As_5$ glasses, surface nucleated crystn. 4−60416
- In, small particles, size depend., interfacial surface tension 4−60599
- KBr single crystals, metallic colloidal particles growth under electron irrad. *(Russian)* 4−52784
- KCl:Ag, colloidal particles, size distrib. 4−63834
- KCl:Ag, investigation of colloidal centres 4−67622
- KCl/Au, charging effect of specimen in scanning electron 4−69699
- LiF thin crystals, defect formations caused by electron irrad. 4−60517
- $LiFe_5O_8$, cation stacking faults obs. 4−66927
- $LiFe_5O_8$, domain struct., transmission microscope obs. *(French)* 4−67401
- $LiNbO_3$, electron microscope obs. of shear surface decoration patterns *(Russian)* 4−73082
- Mg, deformed, helical dislocations obs. by transmission electron microscopy 4−56751
- Mg, dislocation interactions during shear *(Russian)* 4−73248
- Mg fine particles, oxide layer growth rate and morphology 4−63994
- Mg-Al-Zn-Mn alloy, aged, precipitate morphology and orientation relationships 4−64542
- $MgAl_2O_4$, stoichiometric spinel, dislocation dissociation, weak beam electron microscope obs. 4−60505
- Mg_3Cd, two-phase region, electron microscopy, continuous precipitation phase transformations 4−53639
- MgF_2-Nb_2O_5, multiple phases, electron microscope obs. of intergrowths defects, disordered crysts. 4−69819
- MgO, as-grown, subgrain boundaries 4−53805
- MgO whiskers, morphology and internal structure *(Japanese)* 4−48881
- MgO/Au, charging effect of specimen in scanning electron microscopy 4−69699
- MgO-Al_2O_3-Fe_2O_3 system, nonstoichiometric ferrites, phase comp. 4−67896
- MgO.3.5 Al_2O_3 single crystals, precipitation sequence obs. 4−48766
- MgO.3.5 Al_2O_3 spinel, nonstoichiometric, precip. strengthening and effects 4−73356
- $MgSiO_3$, augite exsolution lamellae and enstatite matrix interface, weak beam and direct imaging obs. 4−57935
- Mn, particle growth in flowing inert gases 4−49562
- Mn fine particles, oxide layer growth rate and morphology 4−63994
- Mo, accelerator and reactor irradiated, high temp. damage structs. 4−43662
- Mo, deformed, anomalous slip, HVEM obs. 4−53687
- Mo, deformed annealed single crysts., substruct. obs. *(Russian)* 4−79943
- Mo, deformed polycrystalline, struct. and texture *(Russian)* 4−79941
- Mo, neutron bombard., radiation defects, kinetics of annealing *(Russian)* 4−66940
- Mo, neutron irradiated, point defect clusters 4−69831
- Mo, single cryst., fracture surfaces, selected area electron channelling obs. 4−70492
- Mo, slip and strain hardening, influence of orientation 4−45570
- Mo based alloy TZM, he implantation effects on fatigue props. 4−56790
- Mo single cryst., photoelectron emission, effect of thin oxide layers *(German)* 4−49522
- Mo-Re (15 at.%) alloy, fracture surface, selected area electron channelling obs. 4−70492
- Mo-V-C alloy, structure of surface intergrain breakdown *(Russian)* 4−69952
- MoO_3, coincidence twist boundaries 4−69817
- $(Na, Ca)_nNb_nO_{3n+2}$ *(French)* 4−48763
- NaCl, evaporation rate and mechanism in vac. 4−72565
- NaCl, surface decoration with Bi 4−60676
- NaCl single crystals, metallic colloidal particles growth under electron irrad. *(Russian)* 4−52784
- NaF:U, autoradiographic investigation of impurity distrib. 4−44558
- Nb, struct. of thin foils of monocrysts. 4−61376
- Nb:Y(Gd), fluxoid pinning behaviour, magnetisation meas., optical and electron microscopy investigation 4−82528
- Nb-H system, δ-phase precip., domain struct., $\beta\to\alpha+\alpha'$, $\beta\to\alpha'+\beta$ and $\beta\to\to\varepsilon$ transitions 4−79914
- Nb-Ti wire, Cu-coated, microstruct. influence on crit. current density *(German)* 4−53180

electron microscope examination of materials continued

- NbN film, sputtered, supercond., columnar-void type struct. obs. 4−44804
- $Nb_{12}O_{29}$, lattice image in 1000 kV electron microscope 4−75489
- $Nb_{12}O_{29}$ oxidation, mechanism study using lattice imaging electron microscopy 4−60699
- Ni, electron microscopical test of domain wall motion theories 4−67402
- Ni, film, magnetic domain wall response to ultrasound, transmission electron microscope meas. 4−82597
- Ni, high-angle grain boundaries, annealing of dislocations, hot-stage electron microscopy meas. 4−82862
- Ni, polycrystalline, work softening 4−82899
- Ni, struct. changes during alternate thermocyclical working and annealing *(Russian)* 4−82914
- Ni, study of substructure fatigue damage by t.e.m. 4−45701
- Ni, thoria dispersed, interfacial energetics 4−79929
- Ni alloys, second-phase particles effect on irrad. swelling 4−43658
- Ni-Al, high-angle grain boundaries, annealing of dislocations, hot-stage electron microscopy meas. 4−82862
- Ni-Al and Ni-Cr-Al alloys, coarsening of γ' precipitates at large vol. fractions 4−61358
- Ni-Co (25%) alloy, ordering in deform. and annealing, transform. characts. *(Russian)* 4−79904
- Ni-Co(66.5%), study of substructure fatigue damage by t.e.m. 4−45701
- Ni-Cr, stacking fault energies and deformation mechanisms, electron microscope and tensile deformation meas. *(French)* 4−82863
- Ni-Cr-Al system, metallographic analysis of γ' phase *(German)* 4−49717
- Ni-Cu(40 at.%) alloy, modulated structure *(Japanese)* 4−61382
- Ni-Fe film, new type of domain wall, Lorentz microscopy obs. 4−53259
- Ni-Fe(17%) alloy, electron microscopical test of domain wall motion theories 4−67402
- Ni_3Mo, lattice relax. at non conservative antiphase boundaries 4−45569
- Ni_4Mo, domain struct. changes during isothermal ageing at 800°C 4−64529
- $(Pb,La)(Zr,Ti)O_3$, β-phase electro-optic ceramic, field induced microstructure 4−63829
- Pb film, supercond., obs. of vortex dist. using particle decoration technique *(German)* 4−49114
- Pb-In alloys, supercond., microphotographs of flux distrib. *(Russian)* 4−70097
- Pb-Sb and Pb-Cd-Sb alloys, substruct. development and mech. props. improvement 4−45649
- $PbFe_{12}O_{19}$, strip and bubble domains, Lorentz microscopy obs. 4−60971
- PbSe, heteroepitaxy on PbTe, misfit dislocation form. 4−44799
- PbTe, single cryst., transmission electron microscopy obs. of microprecip. 4−79158
- Rh film, epitaxial growth and struct. 4−64495
- Sb film, on C substrate, growth, struct., low and high vac. 4−72654
- Se, particle growth in flowing inert gases 4−49562
- Se layer, amorphous, deep trapping levels rel. to struct. 4−44863
- Si, carbon and carbon-containing inclusions content rel. to growth method 4−67723
- Si, circular stacking faults, TEM obs. 4−44546
- Si, deformed single crystals, stresses produced by Lomer dislocation network *(Russian)* 4−52760
- Si, diffusion of P, nature of precipitates obs. 4−56918
- Si, dislocation structure of surface layer of scratch deformed single crysts. *(Japanese)* 4−44539
- Si, electrically active rod defects 4−44552
- Si, obs. of stacking fault growth anisotropy 4−44551
- Si, wedge, cryst. struct. factors determ., electron diffr. technique 4−56655
- Si single crystal, implanted changes due to implantation obs. *(Polish)* 4−70416
- Si wafer, technique for selected-area obs. by TEM 4−60387
- Si:B, Hg^+ implantation damage assessment using SEM 4−82208
- Si:P, dislocation interactions, X-ray topography and electron microscopy obs. 4−82180
- Si:P, He^+ irradiated, pits, dislocations obs., transmission electron microscopy meas. 4−82822
- Si:P(As), epitaxial, doped using flux of GaP(As) 4−49626
- Si/Ag, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61309
- Si/Ag, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal, obs. 4−61310
- SiC, microsyntaxy and polytypism 4−60460
- SiC film, recrystallisation on electron-beam pulse annealing in microscope 4−64001
- Si_3N_4, synthesis, characteriz. and consolidation 4−53803
- SiO_2-Al_2O_3 glasses, rapid crystn. phenomena 4−53804
- SiO_2-B_2O_3-Na_2O-Al_2O_3 glass, comp. fluctuation kinetics 4−63767
- $SnCl_2/PdCl_2$/HCl catalyst for plating dielectric substrates, electron microscope obs. 4−61620
- Ta-Au thin film couples, interdiffusion and cpd. formation obs. 4−60711
- Ta-N system, modulated structure 4−76429
- Ti, substructure, heating rate and previous plastic deform. influence *(Russian)* 4−61372
- Ti-Al-V alloy, fatigue crack propagation, secondary microcracks 4−45593
- β-Ti-Cr alloy, $TiCr_2$ phase form. and crystallographic characts. 4−49725
- TiC, TiC-Co, TiC-Ni and TiC-NiCr, fracture mechanics, statistical analysis and fractography 4−67919
- TiO_2-Cr_2O_3, phase analysis of oxides derived from rutile by crystallog. shear 4−67048
- Ti_xWO_4 system, crystallographic shear phases 4−60461
- Tl_xN_y, formed by reactive cathode sputtering, thin film struct. *(Russian)* 4−72651
- UO_2, fast flux irrad., resoln. controlled fission gas behaviour 4−43640
- V, alpha-particle irradiated, helium mobility obs. 4−63279
- V, β-hydride struct. and hydrogen embrittlement 4−53668

electron microscope examination of materials continued

- V-Zr-C alloy, hardening phase comp. and struct., carbide precip. *(Russian)* 4−45575
- V_6C_5, obs. of antiphase boundaries in long range ordered crystals 4−44526
- VO, superstruct. disordering by electron beam, electron microscope obs. 4−56685
- W, etching behaviour anisotropy and edge screw dislocation distribution 4−79044
- W, SEM filament whisker formation, SEM exam. 4−53022
- W, surface self-diffusion and critical reorganisation 4−82308
- WC and WC-Co, fracture mechanics, statistical analysis and fractography 4−67919
- WO_3, nonstoichiometric, electron and optical microscope study 4−75522
- W_nO_{3n-2}, shear plane growth direct obs. 4−44554
- WSe_2, occlusions, microstruct. obs. 4−63821
- YF_3, stoichiometric change, MX_3 to MX_2 to M_2X_3, struct. rel. 4−75632
- Y_2O_3, stoichiometric change, MX_3 to MX_2 to M_2X_3, struct. rel. 4−75632
- Zn, cryst. growth and size distrib., flowing inert gas system 4−49563
- Zn, particle growth in flowing inert gases 4−49562
- Zn, single crystal, kinking and buckling, h.v. electron microscopy meas. rel. to slip systems 4−82178
- Zn, slip band structure and form. mechanism in single crysts. *(Russian)* 4−49681
- $ZnIn_2S_4$, $Zn_3In_2S_6$, vapour grown, lattice defects, X-ray and electron microscopic obs. 4−44537
- ZnO:Li, hydrothermally grown, cryst. perfection obs. 4−49612
- ZnSe, microstructure, vap. deposition on Ge 4−45483
- ZnSe-Ge(100) heteroepitaxial system, struct. perfection, annealing, electron microscopy 4−67126
- ZnTe, dislocation struct., transmission microscopy 4−60507
- α-Zr, creep deformed at 500 and 600°C, hydride particles and dislocation struct. *(Czech)* 4−49698
- Zr-Sn (5% wt), second phase particles, transmission electron microscopy, thinning by ion beam bombardment 4−70456
- Zr-Ti alloys, martensitic transform., morphology and substruct. 4−45505
- ZrO_2, metastable tetragonal, characteriz. and stabilization 4−64607
- ZrO_2, pure, partially-stabilized, phase transform. 4−63922
- ZrO_2-CaO system, partially stabilized, microstruct. development 4−67909
- Zr_xWO_3 bronzes, perovskite type, formation 4−72557

electron microscopes

- *see also electron microscopy*
- advancements, market and technical aspects 4−74153
- analytical, appl. to biology, metallurgy and material sciences 4−62561
- atom visualisation, ideal TEM calcs. 4−71239
- backscattered electron detector, for SEM, construction and uses 4−62558
- backscattering cartridge for thickness determination 4−46905
- cathodoluminescence microscopy 4−65546
- coupled laser scanning system, laser materials interactions 4−71265
- depth of focus comparison for scanning and emission microscopes *(German)* 4−81033
- dual gun type, for high resolution TEM and SEM 4−77249
- dynamic SEM, human skin in situ 4−62569
- exoelectron, for use in surface science 4−46907
- field emission gun, h.v. power supply improvement *(French)* 4−51185
- field emission scanning, three anode acclerating lens system 4−62557
- field emission scanning, three-electrode accelerating lens system, construction and characts. 4−68810
- field-emission SEM, analysis of accelerating lens system 4−58956
- heating of thin films by irrad., temp. distrib. obs. 4−66936
- high speed process image formation and recording system *(Russian)* 4−71246
- high voltage, recent appl. to biology, metallurgy, mineralogy and solid state physics 4−65549
- high-resolution, ZEISS EM 10 4−62565
- h.v., instrument design, review 4−65544
- image quality, focusing and longitudinal spherical aberration effects *(Russian)* 4−71243
- image reconstruction, focal series method *(Russian)* 4−71244
- in situ identification of diffr. patterns in electron microscope 4−74152
- interferometry with Elmiskop 101 4−68811
- JEOL type, photographic plates exposed area increase *(German, English)* 4−62564
- lens, spherical aberration, correction by foil lens 4−43367
- local magnetic field scattering factors, T and SEM shadow electron optic meas. *(Russian)* 4−71251
- magnetic energy analyzer with small aberrations *(German)* 4−46906
- mirror, in shadow mode, quantum limit of resolution 4−42927
- mirror type, surface pots. distrib. of ramp. function type 4−51183
- power supply units and electrical insulation *(Russian)* 4−71241
- resolution limit, corrected microscopes with deformed wave surfaces *(German)* 4−71262
- resolving power with automatic compensation for AC mag. fields 4−58957
- review of instrumentation, techniques biological appls. 4−81032
- scanning, backscattered and low loss electron images 4−77248
- scanning, deflection aberrations of three types compared 4−46902
- scanning, dynamic stereo obs. system 4−81041
- scanning, high resolution, with automatic control, features 4−81034
- scanning, optimisation for TV scanning rates and dynamic event obs. 4−81040
- scanning, with automatic control and compensation systems modular construction 4−46904
- scanning, with thermionic and field emission gun for Auger analysis *(German)* 4−81036
- scanning transmission, high resolution image characts. 4−51184
- scanning transmission, review 4−65545
- scanning transmission microscope, coherent and incoherent imaging 4−55112

electron microscopes continued
- SEM, developments and appl. 4−62560
- SEM, digitally driven, system for materials study and microfabrication 4−42926
- SEM, mirror and low-voltage modes, scanning mirror device *(Russian)* 4−71249
- SEM, p-n junction built-in local electric field obs. *(Russian)* 4−70063
- SEM, Soviet MER-3, developments *(Russian)* 4−71257
- SEM adapted for direct obs. of frozen biological tissue 4−46928
- SEM microanalyser, channelling patterns *(Russian)* 4−71256
- SEM microanalyser in cathodoluminescent mode for observations on nonuniform GaAs *(Russian)* 4−71250
- SEM optimisation 4−68816
- SEM scintillation collector, secondary electron collection efficiency *(Russian)* 4−71248
- spherical aberration, quadrupole-octupole lenses, third order correction *(Russian)* 4−71254
- transmission microscope, space freq. transmission, wave aberrations *(Russian)* 4−71242
- TV camera attachment and video recording 4−68814
- voltage supply, accelerating, 100 kV regulator with $^1/_4$ p.p.m. stability 4−65550
- C fibre field emitter for electron beam devices, scanning electron microscope appl. 4−79853
- Si diodes properties 4−70065

electron microscopy
- *see also electron microscope applications; electron microscope examination of materials; electron microscopes; metallography; specimen preparation*
- analytical, appl. to biology, metallurgy and material sciences 4−62561
- arrested physiological processes, rapid freezing apparatus 4−65565
- astigmatism and image field curvature, effect on resolution *(Russian)* 4−71259
- Auger electron images in SEM 4−77308
- automated specimen preparation 4−62562
- bicrystal parameters determ. using Kikuchi patterns 4−45554
- biological specimens, resolution improvement techniques 4−68817
- carbohydrate demonstration, PA silver methenamine method and PA thiocarbohydrazide-silver proteinate method comparison 4−68827
- cathodoluminescence microscopy 4−65546
- cathodoluminophor barrier screen for electron beam apparatus *(Russian)* 4−73200
- channelling patterns applic. to embrittlement studies 4−80012
- charging effect of specimen in scanning electron microscopy 4−69699
- complex image determination, thin phase objects 4−81038
- damage due to relativistic charged particles, energy dependence rel. to target material directional props. 4−44561
- dark-field, high-resolution, subnanometre struct. 4−65547
- diffraction contrast, calc. procedures *(Russian)* 4−71253
- dislocation loop nature, determ. by residual contrast at g.b=0 and s=0 4−69816
- dislocation obs. using SEM 4−78875
- dislocation structure, link length distrib. meas. 4−82847
- dislocations in thin foil crystals, characterisation by image contrast method 4−44543
- disorientation of microregions in structures with continuously changing orientation 4−61375
- electrostatic energy filter, dispersive and non-dispersive design 4−82093
- elemental standards, binary, for quantitative electron microscope microprobe anal. 4−58993
- eutectic structure obs. by selective sublimation 4−82851
- ferromagnetic materials, domain contrast obs. technique 4−57317
- fractography, oxidation protection of fracture surfaces 4−64547
- fracture surfaces, quantitative SEM and raster profilometer analysis 4−67923
- high temperature microscopy in quality control *(German, English)* 4−53682
- high voltage, recent appl. to biology, metallurgy, mineralogy and solid state physics 4−65549
- high voltage, wet whole cells, preparation method effect on structure visibility 4−68826
- high-voltage, simultaneous correction of third order aperture and axial chromatic aberrations 4−62563
- holography in electron microscope, spatial filtering method as holography approach 4−71261
- h.v., appl. review 4−65544
- h.v., material exam. capabilities and applics. at Chalk River Nucl. Labs. 4−75430
- h.v. electron microscopy, appl. of many beam systematic diffraction contrast 4−78874
- image, Hilbert transform, noniterative soln., bright field and dark field cases 4−65542
- image analysis, use of optical diffractometer *(Russian)* 4−71240
- image analysis and automatic control of scanning microscope by computer *(Russian)* 4−71247
- image contrast theory for extended edge dislocation *(Russian)* 4−71252
- image overlap in field ion microscope, obs. of field emitter end morphology 4−52650
- image processing and filtering, transforms, discrete anal. 4−62878
- image restoration filtering of TEM micrographs, simulation 4−58958
- inclined dislocation image diffraction conditions and cryst. thickness depend. *(Russian)* 4−66926
- indexing of diffraction patterns, ambiguity problems *(German, English)* 4−72412
- induced current meas. of bipolar transistor junction depth and base width 4−49063
- inelastic electron scattering, determ. of non-localisation 4−71264
- ion beam etching method for TEM thin foil prep. *(German, English)* 4−73303
- lens aberration, phase determ. and compensation, bright/dark field method *(German)* 4−71263
- line defect in thin foils, rapid method for top and bottom intersections determ. 4−63743
- macromolecular structure, image analysis 4−68825

electron microscopy continued
- magnetic domains, image contrast method using s.e.m. 4−44453
- mapping technique for defect density of thin foils 4−48489
- metallography, diffraction patterns evaluation *(German, English)* 4−49719
- metallography, microstruct. artifacts due to faulty foil prep. *(German, English)* 4−53684
- metallography, sample prep. by jet thinning techniques *(German, English)* 4−64564
- metallography, specimen prep. methods *(German, English)* 4−49721
- metallography specimen prep. by window and Bollmann techniques *(German, English)* 4−73305
- microbeam analysis, conf., Ottawa, Canada (July 1974) 4−77292
- micrographs from SEM and electron channelling patterns, rotation 4−68812
- monokinetic electron transmission across thin films *(French)* 4−63741
- monokinetic electron transmission curves, normalization procedure *(French)* 4−44448
- nonperiodic structures, optimum contrib. of phase contrast to image form. 4−68815
- nucleic acid molecule, configuration control by ion bombardment of C films 4−65568
- paratransmission through matter *(French)* 4−75427
- photogrammetric applications, review *(Russian)* 4−62566
- plasmons in C, Cu, Si and WS_2 4−79317
- radiation damage reduction by coating organic specimens with conducting layer 4−82094
- resolution rel. to inelastic particle-specimen interaction 4−58959
- review of instrumentation, techniques biological appls. 4−81032
- scanning, as analytical tool, systems approach 4−46934
- scanning, edge effect obs., Monte Carlo anal. 4−42925
- scanning, real-time cathodolum. spectroscopy 4−77253
- scanning, signal processing using time derivative transforms. 4−77251
- scanning, trends and prospects 4−65543
- scanning, Type II mag. contrast, Monte Carlo simulation 4−77252
- scanning, using high probe current densities 4−81042
- scanning transmission, high resolution image characts. 4−51184
- scanning transmission, review 4−65545
- selective optical spatial filtering 4−65548
- selective sublimation technique for metallographic exam. *(French)* 4−49714
- SEM, developments and appl. 4−62560
- SEM, dislocation obs. 4−78875
- SEM, electron channelling patterns, rel. to cryst. orientation and surface perfection *(German)* 4−48485
- SEM imagery, photogrammetric treatment 4−58960
- SEM images, photographic recording 4−51182
- SEM resolution for single atom elastic cross section obs. 4−81732
- SEM staining of biological material 4−65569
- sequential colour TV display with beam rocking 4−68818
- serial electron microscope montages of brain cells, 3-D computer reconstruction 4−62273
- single-stage carbon replicas of layer materials, prep. method 4−52667
- specimen preparation, wide-area electrothinning of foils using masks 4−44449
- specimen preparation techniques *(German, English)* 4−64562
- STEM, dark field and conventional, generalised reciprocity theorem 4−81037
- stereo technique for microtopographic meas. 4−70459
- stereological method selection 4−66802
- temperature-controlled hydration stage, wet biological membranes, electron diffraction 4−68830
- thick specimens, contrast conditions 4−81035
- thin film bridges, production using pattern generator and electron microscope 4−57225
- tilt moire patterns, analysis for conditions of production 4−48484
- transmission, computer programs *(Czech)* 4−48488
- transmission, current trends 4−62559
- transmission image calculation for six modes, nonlinearity effects 4−65540
- transmitted electron intensity calc. for thin objects *(French)* 4−56591
- two-phase materials, composite electronograms from b.c.c. and h.c.p. phases 4−60386
- two-stage plastic-carbon replication, improved technique for carbon separation from substrate 4−52666
- video recording of microscope images 4−68814
- weak beam images, dislocation contrast influence of divergence on image formation 4−44452
- zone plate frequency contrast characteristics *(Russian)* 4−71245
- C, thin film, subnanometre struct. in high-resolution dark-field electron microscopy 4−65547
- C replica prep. from transmitted GaAs foils, rel. to transmission electron microscopy image 4−46903
- CaF_2, ordered lattice defects, transmission electron microscopy obs. 4−66914
- PbS, i.r. photocond. layer for electron mirror image tube 4−72817
- Si, preparation techniques for transmission electron microscopy *(German)* 4−56592
- $ZnSiP_2$ preparation techniques for transmission electron microscopy *(German)* 4−56592

electron mobility
- *see also carrier mobility*
- diffusion and drift in gases, review of theory and expt., book 4−60151
- DNA, charge and excitation migration, LCAO model 4−52310
- electron energy distribution, spatial relax. in high fields, theory *(German)* 4−52624
- Ar plasma, electron energy distrib., spatial relax. in high field *(German)* 4−52624
- Xe electron mobility in critical region, pulse radiolysis determ. 4−64053

electron multipliers
- curved channel, energy distrib. of output electrons 4−55060
- ion beam visibility on phosphor screens, enhancement 4−42917

electron multipliers continued
ion counting, photon-blind electron multiplier used with quadrupole mass filter 4−68804
LEED current detector, electron multiplier coupled to freq. modulator, input current 1×10^{-9}-3×10^{-7} A 4−46751
with louvred and continuous dynodes, comparative characteristics 4−80991
microchannel, for use in spectroscopic instrumentation, frequent vacuum breaking 4−71202
microchannel, reversibility of parameter changes 4−71203
saturable microchannel array plates 4−68807
secondary-electron multiplier characteristics for 0.04 to 15 keV electron recording 4−80992
transmission-absorbance conversion, use of transdiode 4−62581

electron nuclear double resonance *see ENDOR*

electron optics
see also beta-ray spectrometers; electron beams; electrostatic lenses; ion optics; magnetic lenses; particle optics
aberration theory, second order, electron trajectory in r.f. fields 4−43377
aberrations in r.f. field, third order theory 4−47403
analyzer, cylindrical mirror and retarding field, overlayer attenuation orientation depend. 4−65538
aperture aberration correction, astigmatism free systems *(German)* 4−43376
backward diffraction of electrons by standing light wave 4−47405
beam diffraction radiation, quasi-optical theory *(Russian)* 4−77727
dynamics of intense relativistic electron beams in toroidal fields 4−59464
edge diffraction from transparent C films 4−71591
electron microscope image quality, focusing and longitudinal spherical aberration effects *(Russian)* 4−71243
electron microscope image reconstruction, focal series method *(Russian)* 4−71244
electron multiple reflection from sensitive surface, beam energy multiple resetting 4−51662
electrostatic mirror, transaxial, theory 4−77728
electrostatic wedge prism, geometric aberrations *(Russian)* 4−62879
e.m. field in focal region of aplanatic lens, conditions for electron acceleration 4−59465
e.m. lenses of complex config., design 4−47407
energy selecting optics, transfer integral expression and theory 4−59467
field-emission SEM, analysis of accelerating lens system 4−58956
holograms and reconstructed images, spectral quality 4−43269
holography in electron microscope, spatial filtering method as holography approach 4−71261
image formation and relativistic transfer theory 4−71590
image processing and filtering, transforms, discrete anal. 4−62878
image tube streak camera improvements for subpicosecond time meas. 4−65371
imaging properties, theory of aberration mixing 4−43370
large area guns, h.v., with thin foil window, design factors 4−47400
magnetic energy analyzer with small aberrations *(German)* 4−46906
mirror, axisymmetric, electro-optic props. 4−59470
mirror, axisymmetric, trajectory eqns. 4−59469
mirror in telescope operation mode, low-lag readout of potentials 4−55549
point cathode electron source, sphere on cone model 4−65949
scanning Auger microanalysis applics. 4−77306
Schiske's least mean square error filter alternative 4−71592
slit-slit system, transmission properties *(French)* 4−77723
toroidal deflection yokes with eddy current compensation 4−62877
trajectory parameters fluctuations, effect on inverted aperture synthesis *(Russian)* 4−77726
transmission electron microscopy, current trends 4−62559
transmission spectra, on scattering by gas target, modulation technique 4−55109
Wien double focusing filter for electron energy analysis 4−43371

electron pair annihilation *see positron annihilation*

electron pair production
atomic-field pair production, polarisation correlations between incident photon and emitted positron 4−59935
bremsstrahlung mechanism for prod. in colliding electron beams, calc. *(Russian)* 4−66038
cross-section meas. by internal source method 4−47684
deep-inelastic, connection with one-particle inclusive electroproduction 4−59560
Dirac electron, exotic at. phenomena, high Z-elements, quantum electrodynamics 4−78385
double to single cross section ratio for 6.6 MeV γ-rays on various targets 4−44563
electron-positron pair creation and annihilation in superstrong mag. field 4−74633
extragalactic IR and X-ray sources 4−73769
inner-bremsstrahlung in e^+e^- pair creation in general nuclear transitions 4−81475
photon beam polarisation 1.5 GeV, from Yerevan synchrotron *(Russian)* 4−81420
radiative corrections to pair prod. induced by photons incident on electrons or nuclei *(Russian)* 4−77815
spur reaction model of positronium formation 4−54076
student-experiment improved with ^{88}Y source 4−62381
trident production by 1-4 GeV positrons in nuclear emulsion 4−55622
μ^- induced in nuclear emulsion at 15.8 GeV 4−59740
$\pi^-p\rightarrow e+e^-n$, 1.1 to 1.5 GeV, information on nucleon e.m. form factors in timelike region 4−69192
H track-sensitive target in Ne-H bubble chamber, geometrical reconstruction of events 4−55075
^{16}O, zero-zero transition, final state distrib. of inner bremsstrahlung 4−55768

electron pairs
see also electron pair production; positron annihilation; positronium
detection, by Pb-glass Cherenkov counter 4−55047
detection in Ar diffusion chamber after hot neutron trapping *(Russian)* 4−46858

electron pairs continued
storage ring experiments, use of multiwire proportional chambers 4−55055

electron paramagnetic resonance *see paramagnetic resonance*

electron-phonon interactions
see also carrier mobility
acoustoelectric effects, self consistent field methods for collision free electron gas 4−49046
alkali metal, electrical and thermal resistivities 4−64059
alkali metal, electrical resistivity at low temps., general theory 4−64064
amorphous system, hopping cond., numerical calc. 4−79357
anisotropic crystal, electron-polar phonon interactions, phenomenological theory 4−72536
Brillouin zone effects on supercond. T_c and rel. normal metal props. 4−69980
crystal, bounded, slow electron scatt., phonon Green's function 4−56844
crystal, rare earth doped, nonradiative multiphonon transition theory 4−53492
cyclotron resonance of polarons in ellipsoidal bands, general case 4−72728
cyclotron resonance of polarons in ellipsoidal bands, simple limiting cases 4−72727
dilute alloy, Nielsen-Taylor effect in diffusion thermopower 4−82394
dilute alloys, nonmagnetic, effect of Umklapp process and phonon drag on low-temp. conductivity 4−53077
disordered crystal, vibrating, electron transport theory 4−64072
disordered solid, theory 4−75766
disordered system, optical intraband absorption in presence of electron-phonon interaction 4−70287
Eliashberg equation, supercond. transition temp., ferromag. metal *(Russian)* 4−67298
e.m. wave spectrum near cyclotron-phonon resonance 4−57040
ferroelectric phase transitions, microscopic mechanism and properties, review 4−64335
ferroelectric-semiconductor, thermodynamic description of phase transition 4−64336
ferromagnetic semiconductors, conduction electron in phonon field 4−79341
Hamiltonian, electron diagonal interaction, determ. of exact spectral function 4−44619
n-hexane:1,12-benzoperylene, temp. depend. of phononless lines in luminesc. spectra 4−73184
n-hexane:coronene, temp. depend. of phononless lines in luminesc. spectra 4−73184
high electric fields optical polarons, zero vibrs. of lattice 4−75874
Hubbard chain, narrow band, polaron effects on conductivity 4−75849
impure metal, Green's function theory, u.s. absorpt. 4−52840
impure systems, thermal electron mass 4−72747
n-InSb, helicon wave amplification, by transverse phonon-helicon interaction 4−44969
insulator, Raman scatt., electron and exciton-phonon couplings investig. 4−70303
intrinsic two-phonon exchange mechanism of supercond. and enhancement of T_c 4−72884
K-spectra edge shape of free-electron metals, broadening mechanisms 4−45383
linear chain crystal, phonon dispersion and instability 4−44623
mass enhancement factor, rel. to electronic free energy 4−44679
metal, adiabatic diagrammatic expansion 4−79124
metal, Boltzmann transport equation, asymptotic soln. 4−64055
metal, effect on electrical cond. under mag. breakdown conditions 4−72748
metal, electron diffusion magnetothermopower, model 4−70010
metal, Landau damping, nonlinear effects, following magnetic field induced interband tunnelling 4−49045
metal, LO phonon spectrum, effect of electron-phonon interaction *(Russian)* 4−79125
metal, phonon dynamics effect on electronic props. 4−72685
metal, positron diffusion constant and mobility calc. 4−82384
metal, pure, low temp. thermoresistance mechanism 4−75839
metal with impurities, light absorption theory 4−57579
multivalley cubic crystal, F-centre theory 4−75827
napthalene: azulene, cryst., thermal broadening and shifts of impurity zero-phonon bands investig. 4−76283
nondegenerate semiconductor, rel. to transverse magnetoresistance 4−60816
nonequilibrium fluctuations in electron-phonon system, kinetic theory 4−72757
nonpolar crystals, polaron effects in shallow traps 4−67185
normal metal, rel. to nonlinear effects in elec. cond. of point junctions *(Russian)* 4−67273
one dimensional metal, fluctuation resistivity, Peierls instability 4−70005
one dimensional system, reflectivity, giant Kohn anomaly 4−73106
organic semiconductor, dimerisation, charge ordering 4−72532
Peierl's transition, Coulomb interaction effects on mean field theory 4−67176
phonon-impurity centre bound states theory *(Russian)* 4−69875
piezoelectric semiconductor, optimum acoustic wave second-harmonic generation 4−67261
piezoelectric semiconductor, wurtzite-type, rel. to anisotropy of transverse cond. in strong quantizing mag. field 4−57112
polar crystal, hot electron rate of momentum loss to longitudinal optic phonons 4−44934
pseudo-one-dimensional system, fluctuation supercond. theory 4−49101
quantum transport equation for electrons in size-quantised film 4−79416
quartz, piezoelectric cryst., nonlinear interaction of elastic waves resulting in electric field oscillations 4−76217
quasi one dimensional system, phase transition, phonon drag cond. 4−75803
quasi-one-dimensional electron-phonon systems, dynamic props. 4−75589
relativistic, Hamiltonian series definition using momentum cut-off, convergence to renormalised Hamiltonian 4−53065

electron-phonon interactions continued
renormalization theory of Peierls transition in one-dimensional Frohlich Hamiltonian 4−75591
self-consistent field screening, simple metal, diffraction model 4−69864
self-consistent field screening problem, exact soln. in Bloch-state matrix elements 4−69863
semiconductor, disordered, Green's function approach to hopping conductivity theory 4−82399
semiconductor, doped, LO phonon spectrum, effect of electron-phonon interaction *(Russian)* 4−79125
semiconductor, drag effects in intense electric field 4−63868
semiconductor, drag in crossed strong electric and quantizing mag. fields 4−72772
semiconductor, elec. cond. mechanism, electron and hole carriers *(Russian)* 4−67208
semiconductor, excitation of higher harmonics by free carriers 4−72812
semiconductor, free carrier light absorption instability, acoustic phonon interaction 4−72808
semiconductor, high freq. phonon amplification by e.m. wave field 4−75912
semiconductor, inelastic hot electron scatt. by optical phonons, theory 4−75879
semiconductor, magneto-optical level crossing 4−53399
semiconductor, magnetophonon oscillations of conductivity 4−53113
semiconductor, many-valley, electron and sound fluctuations in phase transitions *(Russian)* 4−82439
semiconductor, multiple emission of optical phonons effect on cyclotron resonance line profile 4−75785
semiconductor, nondegenerate, nonohmic resistivity in quantising mag. field 4−60803
semiconductor, nonpolar, magnetophonon struct. in longitudinal magnetothermal emf investig. 4−64104
semiconductor, phonon heating effect on propag. of h.f. e.m. waves 4−57126
semiconductor, polar, acoustic wave amplification, two phonon mechanism 4−75927
semiconductor, polar, Monte-Carlo calc. of electron transport 4−67207
semiconductor, small-polaron effects on d.c. cond., thermoelec. power, density of states 4−64086
semiconductor, thermal conductivity and drag effect in electron-phonon system 4−79201
semiconductor, transport theory of electrons in arbitrary electric and mag. fields 4−72759
semiconductor, Urbach's tails, hot phonon contrib. 4−57624
semiconductor, u.s. harmonic generation with deformation potential coupling 4−64119
semiconductor, zero-gap, symmetry-induced, elastic p electron scattering by phonons 4−82364
semiconductor-metal contact, effect on tunnelling 4−44995
semiconductors, layered, perturbation treatment 4−56833
semiconductors, photoionization of deep repulsive impurity centres 4−64039
semiconductors, polar-optical phonons, decay mechanism investig. 4−63871
superconducting film, tunnelling 4−76026
superconducting isotope effect calc., strong coupling theory 4−82511
superconducting junction, S-I-N contact, rel. to inelastic tunnelling of carriers *(Russian)* 4−82536
superconductivity, historical survey and Nobel prizes *(German)* 4−60894
superconductivity, microscopic theory, verifications and extensions, review 4−60896
superconductivity model, macroscopic stability criteria *(Russian)* 4−79435
superconductor, strong-coupling, electron-phonon interaction const. calc. *(Russian)* 4−72904
superconductor, strongly-coupled, energy gap parameter and electron-phonon interaction function determ. *(Russian)* 4−76004
superconductor under pressure, effect of scatt. processes on thermodynamic characts. *(Russian)* 4−79447
superconductor with optically excited quasiparticles, nonequil. state *(Russian)* 4−70106
surface Umklapp process, tight binding model 4−75942
TCNQ complexes electron transport processes 4−48957
TCNQ-TTF, band struct. calc., electron-phonon coupling 4−72699
p-terphenyl:2-phenyl-1-monoazaazulene, cryst., thermal broadening and shifts of impurity zero-phonon bands investig. 4−76283
thermal impedance, meas. using metal and superconducting foils below 1K 4−82309
transition metal alloy, strong-coupling superconductivity theory 4−60897
transition metal carbides, calc. of superconducting parameters, from augmented plane wave theory via electron-phonon interactions 4−49113
transition metals, calc. of superconducting parameters from augmented plane wave theory via electron-phonon interactions 4−49113
TTF-TCNQ, responsible for metal-semiconductor transition, pressure effects 4−53132
Umklapp surface reflection, refl. coeff. for cond. electrons 4−53137
weakly bounded carriers, phonon propagation detection 4−56839
Ag, low-temp. magnetothermopower, diffusion and phonon drag components 4−53085
Ag, phonon drag thermopower in high mag. field obs. 4−67204
Ag, Umklapp processes and phonon assisted defect scattering of electrons 4−44895
Ag-Au, electron scatt., virtual crystal model 4−72746
Ag_2S, $Ag_2S_{0.5}Te_{0.5}$, electron mobility and effective mass. 4−44911
Al, Matthiessen's rule, theory of deviations 4−67198
Al, model for the electron-phonon interaction in polyvalent metals 4−82387
Al, positron diffusion constant and mobility calc. 4−82384
Al electron-phonon scattering times 4−53075
Al-3d transition metal compound, phonon resistivity investigation, temp. depend. 4−60771

electron-phonon interactions continued
AlMg. AlMn, dilute resistivity between 0 and 100°C, generalised model approach 4−82388
As_2S_3, amorphous, temp. and field depend. of optical absorption edge 4−45317
As_2S_3, vitreous and crystalline, temperature dependence of absorption edge, electron-phonon interaction 4−64398
Au, phonon drag thermopower in high mag. field obs. 4−67204
$BaTiO_3$, ferroelectric-semiconductor, photocond. review 4−64112
$BaTiO_3$:Gd, drift mobility mechanism 4−75863
Bi, magneto-Seebeck effect, obs. of phonon drag at high mag. field 4−49018
Bi, magnetoacoustic effect, freq. depend. mechanism 4−61011
Bi, thermal resistance of lattice, $T<2K$, contribution of phonon relaxation mechanisms *(Russian)* 4−82251
Bi_2Te_3 single cryst. resist., 1.3 to 300K 4−72764
$CaWO_4$:Nd^{3+}, nonradiative multiphonon transition calcs. 4−53492
$Cd_{0.015}Hg_{0.85}Se$, rel. to form of absorpt. edge and conformity to Urbach's rule *(Russian)* 4−82704
$CdIn_2S_4$ single crystal, phonon energy modes from tunnel effect 4−82234
$CdIn_2S_4$:Cr^{3+}, impurity effect on thermal cond. 4−56922
CdS, I_1 luminesc. line as phonon spectrometer 4−79788
CdS, piezoelectric cryst., nonlinear interaction of elastic waves resulting in electric field oscillations 4−76217
Cu, phonon drag thermopower in high mag. field obs. 4−67204
Cu, thermal resistivity, electron-phonon interaction 4−72741
Cu-based alloys transport prop. test for electron-phonon effects in density of states 4−64006
CuCl:S, induced traps as exciton luminesc. killers 4−57620
FeS_2, natural cryst., evidence of n-type semicond. 4−72769
Fe_xSe_y, thermal cond., 100-450K 4−60653
Ga, amorphous film, rel. to coordination struct. 4−45040
GaAs, absorption edge, hot electron effects 4−45322
GaAs, compensated, rel. to low temp. mobility of hot electrons 4−60806
GaAs, high field drift vel. calc. 4−48992
inGaAs, mag. field depend. of thermoelectric power in extreme quantum limit 4−44949
n-GaAs, rel. to free carrier light absorpt., 90-500K, 5-14 μm *(Russian)* 4−82702
GaAs, wave-vector dependence of electron-optical phonon coupling 4−56841
$Ga_xIn_{1-x}Sb$, scattering processes, transport phenomena under pressure 4−57096
GaSe, effect on Hall mobility and energy gap 4−75893
Ge, cyclotron reson. in quantised mag. field on inelastic scatt. by acoustic phonons *(Russian)* 4−82368
n-Ge, impurity-ion field effect, thermal cond. 4−75814
n-Ge, magnetocond. tensor, electron-phonon drag effects 4−79368
Ge, optical phonon interaction const., optical carrier heating method 4−72823
Ge, Raman second order reson. scatt., E_1, $E_1+\Delta_1$ edges 4−61162
Ge:Sb, phonon cond., phonon-scatt. calcs. 4−63951
Hg, cyclotron reson., temp. depend., 1.1-2.5 K, and electron-phonon interactions 4−45049
HgTe, electron-optical phonon reson. scatt., cond. depend. 4−72765
HgTe-ZnTe solid solutions, Maggi-Righi-Leduc effect and thermal cond. meas. 4−57113
In, electron-phonon scattering probability, temp. depend., 2.3-5.5K, r.f. size effect *(Russian)* 4−70105
InAs, acoustic deformation pots. calc. 4−64024
InP, high field drift vel. calc. 4−48992
n-InP, magnetophonon effect, warm electron relax. 4−57107
InSb, acoustic deform. pot. calc. 4−64024
InSb, cyclotron phonon reson., three phonon absorption 4−79734
iNSb, free carrier absorption, two-phonon process contrib. 4−45302
InSb, non-interaction of transverse phonons with free electrons 4−75590
n-InSb, piezoelectric semiconductor, optimum acoustic wave second-harmonic generation 4−67261
n-InSb, rel. to Hall mobility, 20-77K 4−49014
p-InSb, thermoelectric power, temp. depend., 4 to 200K 4−67242
n-InSb, warm electron mobility, and comparison with theory 4−82425
K, elec. resist., temp. depend. at low temps., calc. 4−64065
K, low field Hall coeff., temp. depend. 4−64060
K, phonon drag contrib. to low temp. elec. resist. 4−75837
K, r.f. size effect meas. of anisotropy and magnitude of electron-phonon scatt. rate 4−82243
Li, positron diffusion constant and mobility calc. 4−82384
Li, self-consistent field screening, diffraction model 4−69864
$LiNbO_3$, piezoelectric cryst., nonlinear interaction of elastic waves resulting in electric field oscillations 4−76217
Mg_2Pb, thermal cond., 2-200K, mechanisms 4−67073
Na, self-consistent field screening, diffraction model 4−69864
Na conduction electron spin-lattice relaxation, 13K to 600K, normal and umklapp processes 4−64263
Na_xwo_4, soft mode instability enhancement of supercond. transition temp. 4−72895
Nb, supercond., rel. to u.s. attenuation calcs. 4−57214
Nb-O system effects of interstitial O on supercond. properties 4−64155
Nb-V alloys, spin fluctuation depressed superconductivity 4−64153
Nb-Zr (75% Nb), thermal cond. below 20K, phonon carriers 4−45046
$Nb_3Al_{0.8}Ge_{0.2}$, strong-coupling saturation of T_c 4−57200
NbC, electron-phonon mass enhancement theory 4−72890
NbN, electron-phonon mass enhancement theory 4−72890
NdS, lattice thermal resistivity determ. from 100 to 750K 4−56925
PbS, Monte Carlo calc. of hot electron mobility 4−67225
Pd, resist., high temp. effects, electron density of states calcs. 4−60769
Pd-Cu(Au,Ag)-H(D), high supercond. transition temps. 4−53177
PdH(D), PdAgD, supercond. mech., electron-phonon coupling, isotope effects 4−53175
$PrAl_3$, elec. cond. meas., linear temp. depend. 4−67194
Sb, thermoelectric power, mag. field depend., 4.2-30K 4−60820
SbSI, ferroelectric-semiconductor, photocond. review 4−64112
n-Si, degree of compensation determ. from Hall mobility 4−73270

electron-phonon interactions continued

- n-Si, hot-electron pulse, X-ray scattering from non-thermal phonons 4-75588
- n-Si, intervalley scatt. obs. by magnetophonon effect 4-57110
- Si, surface inversion layers, hot carriers, field-dependence behaviour 4-60801
- Si, thermally oxidized surface inversion layers, two-dimens. electron-lattice scatt. calcs. 4-44921
- Si:B, Raman spectra, interaction between localised vibrs. and electronic excitations investig. 4-64390
- Si:Li, Si:Li-O, thermal cond. meas. rel. to temp., phonon scatt. investig. 4-63950
- Si:Li, thermal cond., 1.2-50K, phonon scatt. mechanism 4-60567
- Sn, electron-phonon scattering probability, temp. depend., 2.3-5.5K, r.f. size effect *(Russian)* 4-70105
- TiO_2, rutile, transient photoconductivity meas. 4-57132
- Ti_4O_7, rel. to metal-insulator transition mechanism 4-53054
- Tl, single crystal, electron-phonon interaction model for anisotropy in supercond. props. 4-82513
- p-$TlSbTe_2$, transport props. meas., acoustic mode scatt. 4-72771
- W, single crystal, thermal cond., 2-120K, anomalous temp. dependence, electron-phonon interaction region *(Russian)* 4-82390
- Zn, temp. depend. calc. using band struct. models 4-75771

electron probe analysers *see electron probe analysis*

electron probe analysis

- absorption correction improvement, mean depth, shape function 4-71282
- alloy, ternary, quantitative microprobe analysis, Wedge specimen correction method 4-51234
- Auger electron images in SEM 4-77308
- austenite-pearlite transformation, Mn partitioning using analyt. electron microscope 4-79895
- α-brass, dezincified, concentration curve determ., comparison of methods 4-69935
- channelling patterns *(Russian)* 4-71256
- computer program in APL language for electron probe microanalysis *(French)* 4-77276
- depth distribution curve meas. at electron energies to 15 keV 4-81093
- detection system design and applic. 4-77300
- elemental standards, binary, for quantitative electron microscope microprobe anal. 4-58993
- energy dispersive, Harwell active pulse processor applic. 4-77317
- energy dispersive spectrometry, quantitative analysis capabilities 4-81091
- energy dispersive X-ray spectra, qualitative and quantitative analysis system 4-81089
- film, on thick substrates, Monte Carlo simulation 4-81076
- garnet, foreign phase data using raster system 4-62651
- Inconel 713C modified alloy, directional coupled growth, cryst. morphology 4-80076
- industrial applications of quantitative microanalysis 4-51229
- influence coefficients in quantitative analysis 4-77303
- iterative procedures and electron backscatt. in quantitative analysis 4-81092
- mass loss, biological tissue section 4-65564
- metal, mass absorpt. coeffs. for CK_α line *(Japanese)* 4-45382
- meteorites, achondrites, and howardites, olivine compostions 4-62082
- microanalysis practical problems 4-77301
- microbeam analysis, conf., Ottawa, Canada (July 1974) 4-77292
- Monte Carlo method for modelling electron-specimen interactions 4-77304
- oxides, O X-ray analysis, absorption correction models for quantitative microanalysis 4-81079
- polymer film, electron energy deposition profiles, Monte Carlo simulation 4-79088
- protective coatings, diffusion aluminide, nondestructive characteriz. methods 4-50072
- quantitative analysis, physical basis of electron/X-ray/matter interactions 4-77302
- radioactive materials, collimator for energy dispersive X-ray analysis in SEM 4-81090
- review, instrumentation, coupling with X-ray detector, anal. appls. 4-81071
- silicates, simultaneous microprobe analysis for nine elements using wavelength dispersive system 4-77296
- solid-state X-ray detectors applic. for obtaining fund. X-ray data 4-77318
- steel, nitride inclusions identification *(German)* 4-45567
- submicron particles, energy dispersive analysis in TEM 4-77316
- sulphides and sulphosalts, quantitative analysis using energy dispersive spectrometer 4-77299
- three-dimensional elemental analysis by ion sputter etching with scanning Auger microprobe electron spectroscopy 4-51219
- trace element analysis, comparison of Si(Li) detector with spherically bent crystal X-ray spectrometer 4-81080
- Al/steel composite, microprobe analysis of transition zone 4-61524
- Al-Cu(4 wt.%) film, microprobe technique for nondestructive determ. of Si conc. profile 4-77305
- Al_2O_3, high speed sliding wear 4-53820
- Au, X-ray mass attenuation coeffs. between M_I and M_V absorpt. edges 4-77295
- $CdTe_xSe_{(1-x)}$, semicond., interdiffusion coeffs. of chalcogens meas. rel. to conc., temp. *(German)* 4-56921
- Fe-Co-V (2.5 to 3.0 wt.%) alloy, phase equilib., annealing, microstruct. 4-70441
- Fe-Cr-Mn system, ferrite/austenite equil., optimisation of thermodynamic parameters 4-61327
- Fe-Mn, Fe-Ni and Fe-Mn-Ni, surface segregation behaviour of Mn and Ni 4-53669
- Fe-Mn-C system, solid phase thermodynamics 4-45508
- Fe-Mo(Ta)(W)(V)-S(Se) ternary alloy systems, chalcogenide form. obs. 4-67758
- Fe-Ni(8wt%) alloy, controlled solidification 4-70440
- $Ga_{1-x}Al_xAs$ epitaxial layers, comp. determ. by electron probe microanalysis *(German)* 4-50161
- GaAs nonuniform semiconductor, SEM microanalyser in cathodoluminescent mode *(Russian)* 4-71250
- GaTe, single crystal, memory switching 4-64121

electron probe analysis continued

- Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4-61309
- K_β emission spectrum 4-65592
- K_2O-SiO_2 melt, cristobalite dendritic precip. kinetics 4-44480
- Na_2-B_2O_3-SiO_2, ion exchange, iterative deconvolution technique applic. 4-69821
- Na_2O-B_2O_3-SiO_2, sodium borosilicate glasses, ion exchange 4-72481
- Nb-Al-Ge alloys, metallography and supercond. 4-49109
- Ni-Co-Cr-Mo system, phase diagram, σ phase behaviour in superrefractory alloys *(French)* 4-45530
- Ni-Fe-Cr, tertiary fluorescence effect in elec. probe microanalysis, contrib. of Cr 4-71280
- O microanalysis, binary and ternary oxides, mass absorption coeffs. calc. 4-81078
- Si/Ag, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4-61309
- Sm-Co system, phase diagram determ. 4-61341
- Ti-ZrO_2 pseudobinary in Ti-Zr-O system, phase relations 4-45743
- UO_2 fuel, phase study on pseudo-fission products Ba, Sr and Zr present as oxides 4-51886
- $ZnTe_xSe_{(1-x)}$, semicond., interdiffusion coeffs. of chalcogens meas. rel to conc., temp. *(German)* 4-56921

electron probe microanalysis *see electron probe analysis*

electron probe microscopy *see electron probe analysis*

electron probes

- *see also electron probe analysis*
- cathodoluminescence studies applic. 4-55110
- filter characteristics with a thick electrode *(Russian)* 4-71260
- p-n junction local electric field observation with SEM *(Russian)* 4-70063
- production of probes in Angstrom range 4-77293
- scanning microscope as analytical tool, systems approach 4-46934
- spherical aberration, quadrupole-octupole lenses, third order correction *(Russian)* 4-71254

electron-proton scattering

- colliding beam expts. and detector configs. 4-58886
- colliding beam facilities, weak interaction processes detection 4-59558
- deep inelastic, parton model, structure functions, relation to e^+e^- annihilation *(Russian)* 4-77865
- deep inelastic, three-quark bound state model for nucleons 4-47537
- deep inelastic, virtual photons, dynamical connections between quark fragmentation functions 4-74621
- deep inelastic data analysis, restrictions on anomalous dimensions 4-74622
- deep-inelastic, ratio of e-p to e-n cross-sections, threshold region 4-77840
- elastic, information on proton form factors in time-like region *(Russian)* 4-69158
- elastic, proton e.m. form factor, influence of heavy hypothetical particles *(Russian)* 4-71670
- EPIC physics 4-58885
- inelastic, μp scatt. comparison, μ-e universality *(Russian)* 4-62942
- inelastic, scaling function calcs., proton e.m. structure functions 4-59566
- inelastic scattering kinematics, 12 + 80 GeV 4-59557
- Kurti-Weisskopf proton model rel. to high energy scatt. *(Hungarian)* 4-47564
- resonance levels and noncausal effect 4-77833
- structure functions, parton model interpretation, perturbation theory *(Russian)* 4-66040
- $ep \to e\Delta^+(1236)$, quark model approach *(Russian)* 4-69162
- $ep \to eN^*$, symmetric quark model with modified Woods-Saxon potential 4-62939
- $ep \to e\mu^+\mu^- + X$, cross section anal. in field theoretic parton model 4-71689

electron radiation

- effects, high voltage electron microscopy 4-68826
- equilibrium spectrum of electrons, effect of radiation loss for very thick target *(Russian)* 4-51718
- ionisation chamber, liquid, for dosimetry of electron radiation 4-62517
- relativistic motion in field of two e.m. waves, induced radiation *(Russian)* 4-77768
- relativistic motion in homogeneous crossed fields, induced radiation 4-77769

electron reactions *see electron interactions*

electron relaxation time *see carrier relaxation time*

electron resonance *see cyclotron resonance; paramagnetic resonance*

electron ring accelerators

- double-ring storage facility, general description *(German)* 4-58880
- EROS, transverse oscillations due to resistive wall effect 4-42859
- nonrelativistic, theory of, technical problems in realisation of *(Polish)* 4-55005
- relativistic ring, H_φ focusing 4-51131
- stationary field type; filament model; generalized Bernstein-Greene-Kruskal problem 4-77143
- e^+e^- storage rings, spin motion anal. 4-55009

electron scattering

- *see also atomic electron scattering; beta-ray scattering; electron-proton scattering; molecular electron scattering; nuclear reactions and scattering due to electrons*
- by collimator, effects on dose for a 45 MeV betatron 4-46412
- collimator scatter study, for AECL Theratron 80 and HVC Van de Graaff radiotherapy machines 4-50851
- deep inelastic, off hadrons, φ^4 field theory 4-59564
- electron therapy, 5 to 40 MeV, port using an annular secondary scatterer 4-46413
- film, on thick substrates, Monte Carlo simulation 4-81076
- Moller scattering of weakly excited oscillators, Touschek effect in storage rings *(Russian)* 4-77855
- optical bremsstrahlung of relativistic electrons, effect of multiple scatt. on coherent radiation 4-77766
- plasmasphere, energy degradation and photoelectron transport, Monte Carlo simulation 4-54267
- soft photon-electron scatt. in mag field, cross section, i.r. divergence elimination *(Russian)* 4-77767

electron scattering continued
stellar photospheric emissivities, scattering dominated opacity 4−76822
ed elastic and inelastic scatt., polarisation effects 4−51714
$e^-e^- \to e^-e^-$, neutral current phenomenology, Weinberg-Salam model 4−77790
$e^+e^- \to e^+e^-$, neutral current phenomenology, Weinberg-Salam model 4−77790
$e^+e^- \to e^+e^-$ + hadrons, equivalent polarised-photon approx. 4−55613
$e^\pm e$ collisions, short-range strong interaction an quasilocal terms *(Russian)* 4−71693
eN, deep inelastic, evidence favouring large anomalous dimensions 4−74619
eN, evidence for existence of partons, analogy with liquid He-neutron scatt. 4−51720
eN, inelastic, structure functions, spin dependence and scaling in quark parton model 4−47536
eN, longitudinal photon cross section scaling, relation to massless quarks 4−74620
eN, massive quark model approach to deep inelastic phenomena 4−59573
eN, quark model approach *(Russian)* 4−69162
eN deep inelastic collisions, reln. between nucleonic wave function and scaling function 4−59565
eN deep inelastic scatt. estimate of valence and core quark dominance and transition region 4−77832
eN elastic and inelastic scatt., polarisation effects 4−51714
en(p), deep inelastic, ratio of e-p to e-n cross-sections, threshold region 4−77840
$\nu + e \to \nu + e + \gamma$, appl. to ν detection, 1 MeV *(Russian)* 4−62928
νe, intermediate boson effects 4−47473
νe scattering in sun, energy loss mechanism rel. to Davis experiment 4−61958
νe^-, high energy, CPT invariance, experimental tests 4−47458
$\nu_\mu e^-$ elastic scatt. effects in Hiroshima model 4−66025
$\pi^- e^-$, 50 GeV π^-, direct scatt., radius determ. 4−77823

electron spectra
see also Auger effect; electron spectroscopy; photoelectron spectra
aliphatic carbonyl compounds, electron impact of energy 100 eV 4−66500
alkyl derivatives of water 4−52257
beam transmission and reflection by foils 4−62513
benzene, electron spectra of solid and vapour, opt. const. calc. 4−67545
cyclohexane, cyclohexene, cyclohexadienes, electron spectra of solid and vapour, opt. const. calc. 4−67545
diamond, electron energy loss spectra 4−52795
diethyl ether, assignment using ionisation potential 4−52257
dimethyl ether, assignment using ionisation potential 4−52257
dinitrogen complexes, application of chemical bond theory 4−69468
energy spectra for relativistic electron precip. 4−83113
equilibrium spectrum of electrons, effect of radiation loss for very thick target *(Russian)* 4−51718
ESCA approach to structure and bonding 4−72141
ethanol, assignment using ionisation potential 4−52257
ethylene oxide, assignment using ionisation potential 4−52257
fluorethylenes, electron impact excitation spectra 4−66493
graphite, electron energy loss spectra 4−52795
halomethanes, core electron binding energies and ESCA shifts, ab initio calcs. 4−56103
inelastically reflected electrons from unbacked graphite films, effect of electron incidence angle 4−70389
isopropanol, assignment using ionisation potential 4−52257
methanol, impact energy loss spectra assignment using ionisation potential 4−52257
monochlorobenzene, electron spectra of solid and vapour, opt. const. calc. 4−67545
pyridine, electron spectra of solid and vapour, opt. const. calcs. 4−67545
rare-earth, multiweave structure of X-ray and electronic spectra *(Russian)* 4−45377
tertiary butanol, assignment using ionisation potential 4−52257
tetrahydrofuran, assignment using ionisation potential 4−52257
toluene, electron spectra of solid and vapour, opt. const. calc. 4−67545
transition metal alloys, ordered binary, model approach to electron structure *(Russian)* 4−60724
transition metal alloys, ordered binary, model approach to electron structure *(Russian)* 4−64010
transmission spectra, on scattering by gas target, modulation technique 4−55109
trap spectroscopy by thermally stimulated exo-electron emission including electron affinity *(A)* 4−72723
upper atmosphere, energy spectrum 0.5-24 keV at 80-170 km on 1970 October 21 4−68212
water, alkyl derivatives and related compounds 4−52257
Ag, film, ultrahigh vacuum electron spectrometer 4−51169
Ag(111), chemisorption of O_2 4−48860
Al, neutral atom, electron bremsstrahlung cross section calcs. 4−72085
Au, film, ultrahigh vacuum electron spectrometer 4−51169
Au, neutral atom, electron bremsstrahlung cross section calcs. 4−72085
C, amorphous, electron energy loss spectra 4−52795
CO_2, K-shell energy loss spectra of 2.5 keV electrons 4−52276
Cd, characteristic energy loss peaks, plasmon creation effects 4−61267
Cl, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
Cu, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
Fe, 2s and 3s electron spin densities meas., Mossbauer with electron spectra technique 4−64315
Fe_2O_3, 2s and 3s electron spin densities meas., Mossbauer with electron spectra technique 4−64315
Ge, film, obliquely deposited, O uptake meas. 4−70415
H + He* Penning ionisation, electron energy spectrum, semi-classical uniform approx. 4−56029
HCN, Rydberg states 4−52258
He* + Ar(Kr)(Xe)(Hg)(CO)(N_2), Penning electron ang. distribs. 4−74880
I^- + He, autoionising spectra of I^- 4−43751
Mg, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
Mo, film, ultrahigh vacuum electron spectrometer 4−51169
N, autoionising states, spectroscopic assignments 4−66310
N_2O, K-shell energy loss spectra of 2.5 keV electrons 4−52276
Na, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
NaCl, rel. to surface charge *(French)* 4−48821
O, resonance meas. by electron transmission spectroscopy 4−74899
Pt, adsorption of Xe, ESCA obs. at 100K 4−75697
S, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
Si, electron escape depth 4−67688
Si minerals, in respirable coal dust, electron-binding energies determ., ESCA method 4−71277
SiO, SiO_2, electron escape depth 4−67688
Zn, characteristic energy loss peaks, plasmon creation effects 4−61267
Zn compounds, chem. shifts of core electron binding energies determ. 4−67686
ZnO, interband transitions, low energy electron spectra 4−64467

electron spectroscopy
see also electron spectra
acetylacetones, photoelectron spectra obs. of keto-enol reaction temp. depend. 4−56291
analyzer, cylindrical mirror and retarding field, overlayer attenuation orientation depend. 4−65538
Auger, use in retarding-potential secondary electron yield obs. 4−68799
Auger electron spectroscopy, review 4−79828
Auger spectrometer, improvement employing concentric hemispheres 4−46945
Auger spectroscopy of electron impact ionization cross-section of L, M shells of Si, P, S, Cl, Ti, Br and Si 4−63368
collision chamber, rotatable gas tight, for electron spectrometer, design, construction 4−51168
composite Cherenkov total-absorption electron spectrometer for 30 to 40 GeV 4−81025
conversion electron spectra meas. by Fe magnetic spectrometer 4−46879
coupling to elastic channel, Born model 4−48132
cyclopropenone, photoelectron, electron impact spectra, interpret. using Gaussian orbital calcs. 4−48129
electron spectrometer, luminosity increase by electron retardation 4−51180
environmental samples, elemental comp. 4−67686
ESCA, literature review, including techniques, instrumentation, struct. determ., surface chem. 4−81066
fibreglass surfaces, anal. and investig. by X-ray photoelectron spectroscopy (ESCA) 4−58974
gating circuit for Auger electron spectroscopy 4−58954
hemispherical slow-electron spectrometer for solid surface expts. 4−81024
LEED apparatus design *(French)* 4−52973
materials testing, Auger spectroscopy *(Polish)* 4−70597
metal surface oxidation states, identification 4−53005
solution evaporation method for solid state ESCA studies 4−58998
spherical analyser, preretardation instrument 4−55091
u.v. photoexcitation spectroscopy literature review, including instrumentation, appls., spectral interpretation methods 4−82783
vacuum electron spectrometer, for sufrface studies 4−51169
X-ray photoelectron spectroscopic study of adsorption of Xe and O_2 on W(111) 4−75704
Ne, high resolution spectroscopy, energy loss spectra, electronic struct. 4−63363
^{207}Pb, internal conversion meas. with combined magnetic-Si(Li) spectrometer 4−47654
Si(Li) cooled electron spectrometer, construction and resolutions 4−46880

electron spin
electron-coupled ‘through-space’ nuclear spin-spin interaction 4−69463
free radicals, organic, form., e.s.r. investig. of electron spin polarisation 4−54052
polarisation in 1-dimens. tunnelling with superimposed homogeneous mag. field *(German)* 4−73242
polarised electron source, through electron-hydrogen spin exchange, teflon containment and longitudinal mag. trap 4−55028
polarization effects in electron-atom scattering, exchange interaction *(Russian)* 4−74903
Ar^{16+}, origin of Hund’s rule investig., energies of $1snl_{max}$ config. calc. 4−47819
He, origin of Hund’s rule investig., energies of $1snl_{max}$ configuration calc. 4−47819
Ne^{8+}, origin of Hund’s rule investig., energies of $1snl_{max}$ config. calc. 4−47819

electron spin-lattice relaxation *see spin-lattice relaxation*
electron spin relaxation *see spin-lattice relaxation*
electron spin resonance *see paramagnetic resonance*
electron states, crystal *see crystal electron states*
electron states, impurity *see impurity electron states and effects*
electron states, surface *see surface electron states*
electron states (solids) *see crystal electron states*
electron streams *see electron beams*
electron structure of solids (crystallography) *see crystal atomic structure*
electron structure of solids (energy structure) *see crystal electron states*

electron theory
see also Dirac equation; quantum electrodynamics
Dirac electron, exotic at. phenomena, high Z-elements, quantum electrodynamics 4−78385
holistic, relativistic non-quantum theory 4−51411
Landau electron, free, relativistic problem *(French)* 4−55320

electron theory continued
polarised, wave function computaton *(Russian)* 4−55338
position prod. critical nuclear fields, QED corrections 4−77952
self-energy problem, correspondence principle violation *(Russian)* 4−74380
spin and localization for elementary systems 4−69116
spinor five dimensional approach 4−47194

electron theory of metals *see crystal electron states; metal theory*

electron traps
see also colour centres; impurity electron states and effects
alkali halide crystals, self-trapped exciton luminesc. 4−45357
alkaline glasses, trapped electron decay, apparent activation energy 4−76611
amorphous semiconductor, photocond., temp. depend. 4−75917
anthracene, doped and pure, electroluminescence calcs. 4−61233
anthracene, pulsed photoconductivity 4−57134
anthracene, trap depth anal. by thermal and optical release of carriers 4−72781
anthracene, ultrahigh purity single crysts., carrier trap obs. 4−67223
anthracene-phenazine, photoconduction enhancement by detrapping 4−64113
bees wax, elec. cond., semicond., thermoelectret 4−79363
benzene, luminesc. rel. to trap mech. and kinetics 4−73207
cadmium formate dihydrate:Cd^+, γ-irrad., electron trapping, and Mn^{2+} e.s.r. obs. 4−57364
capture cross section modulation effect on luminesc. recomb. centres *(Russian)* 4−73148
choline chloride, irrad., solid-state chemistry 4−80692
copper phthalocyanine, position of Fermi level in δ-model 4−48970
decay of trapped electrons, by tunnelling to scavenger mols., low-temp. glasses 4−80193
double injection theory for compensated semiconductor with deep acceptors and electron traps *(Russian)* 4−57162
electron release from dipole potentials, field depend., cond. process 4−67230
energy migration, exciton band model in rel. to population of localized trap states 4−53052
ethanol glass, photoconversion of solvated electrons to trapped electrons at 6K 4−73439
exoelectron glow curves, calculation 4−64469
Gunn diode, anomalous current oscill. mechanism, low temp. 4−72786
hexachlorobenzene, pure and in hexamethylbenzene host, PMDR, low temp. triplet energy traps 4−53340
impact ionisation theory for electron traps in semiconductors 4−64100
insulator, thermally stimulated exoelectron emission for electron penetration depth determ. 4−53581
metal-insulator contact charging models, bulk trap role, appl. to polymers 4−64137
methane, liq., trapped electron electronic state calc., INDO-UHF method 4−68028
m.i.m. system, thermal elec. characts., electron trap parameters determ. 4−82496
m.n.o.s. capacitor, thermal current characterisation 4−45004
m.n.o.s. memory device, electron trapping, emission, and generation 4−49083
m.n.o.s. structure, bulk trap parameters detn. using thermal dielec. relax. technique 4−82489
molecular crystal, electroluminescence theory with filamentary double injection 4−61233
molecular crystal, phosphoresistence, heat pulse modulation obs. 4−76294
m.o.s. capacitor, p-type, self consistent energy band scheme for electron impact flat band shift 4−60861
m.o.s. capacitors, thick-oxide, elec. beam irradiation effects 4−82484
non-metallic solid, rel. to one carrier s.c.l. cond. 4−67221
nonpolar crystals, polaron effects in shallow traps 4−67185
organic glasses, γ-irrad., light intensity depend. of photocurrents and bleaching rates for trapped electrons 4−80194
organic glasses γ-irrad. at 4.2 and 77K, deferred isothermal luminescence, thermal detrapping mechanism 4−57600
phosphors, photoluminesc. mechanism 4−70350
piezoelectric semiconductor, acoustoelectric e.m.f. mechanism 4−75928
polar glasses, model of pre-existing traps 4−57858
polyethylene, thermally stimulated current in high temp. region 4−82407
positron vacancy trapping, temp. depend. 4−79061
PTFE, electret foil, thermally stimulated current spectra mechanism 4−67516
s.c.l. diode with deep traps, small signal behaviour 4−70066
semiconductor, ambipolar mobility freq. dispersion in presence of deep traps 4−75913
semiconductor, deep level transient spectroscopy 4−75805
space-charge-limited currents, photoexcited, trap distrib. 4−64096
tetracyanobenzene + aromatic, charge-transfer complexes, doped, localised excited triplet states, e.s.r. 4−64027
thermally stimulated exoelectron emission trap spectroscopy, calibration and resoln. 4−53579
thermoluminescent dosimetry materials, simultaneous TL and TSEE meas. 4−53588
1,3,5-trichlorobenzene, pure and in hexamethylbenzene host, PMDR, low temp. triplet energy traps 4−53340
AgBr, AgCl, u.v. excited thermoluminesc., trap levels 4−82762
AgBr, dye desensitisation rel. to crystal size and habit 4−54073
β-B, photo-induced e.s.r., rel. to photoconductivity 4−82607
BAs, film, trap density determ. 4−45456
B_2O_3-P_2O_5 glasses, radiation electron-hole centres ratio, controlled change 4−67449
$BaSO_4$, impurity doped, thermoluminesc. and e.s.r., trapping and emission centres 4−70372
$BaSO_4$, thermally stimulated exoelectron emission trap spectroscopy 4−53579
BeO, exoelectron dosimeters, activation energies determ. from isothermal fading 4−54730
BeO, Thermalox type, trapping centres and activators assoc. with exoelectron emission, e.p.r. characteriz. 4−49543
CaS:Bi, Tm phosphor, thermoluminesc., i.r. absorption 4−70370

electron traps continued
$CaSO_4$, exoemission, storage effect, role of activation 4−73234
CdS, changes in local centres, ionising action of γ-rays 4−72724
CdS, trap parameter determ. from temp. depend. of acoustic gain 4−48934
CdS single crysts., cond. inhomogeneity effects on elec. and optical props. 4−70015
CdS:Bi, film, distrib. profile, rel. to response time 4−44967
CdSe, film, incompletely ionized donors as bulk traps 4−45030
CdSe, film, s.c.l. and thermally stimulated currents 4−60885
CdSe:Te, single crystals, obs. of radioluminesc. at Te traps 4−53488
$CdSiP_2$:Na(Bi), photocond. and optical quenching, recomb. and trapping centres 4−79381
$CdSiP_2$:Zn(Cd), photoelectric effects, recomb. and trapping centres 4−72829
p-CdTe, annealing behaviour, minority carrier lifetime effects 4−60755
CdTe:Br transport characterisation for γ detectors 4−46816
CdTe:Cl transport characterisation for γ detectors 4−46816
CdTe:Cl(Br) self-compensation, time of flight technique 4−72761
p-CdTe:Ge, capture centre parameters, recomb. process *(Russian)* 4−67239
CuCl:S, induced traps as exciton luminesc. killers 4−57620
n-GaAs, domain propag. control, photocurrent memory effect 4−44959
GaAs, electron-hole recomb. enhanced defect reactions, junction meas. 4−70036
p-GaAs, rel. to field emission photosensitivity *(Russian)* 4−67704
GaAs epitaxial layers, electron density and mobility, photoluminescence and deep traps obs. *(Japanese)* 4−45025
β-Ga_2O_3, neutron damage effects on elec. cond. and thermoelectric power, defect annealing 4−69832
GaP, green-emitting p-n junction lamps, nonradiative recomb. centres 4−64132
GaP, light emitting diode, thermal current meas. 4−49060
GaP, p-n junction, ZnO and O centre characts., apparatus 4−74092
n-GaSe, space-charge limited current meas., existence of deep electron traps 4−82428
Ge, high-purity, trapping effects of vacancies and dislocation 4−53607
Ge, p- and n-type, adsorption of Hg, fast energy level form. 4−75707
Ge(Li) detector, correlation of local trapping with crystal defects by electron loss obs. 4−51167
K_2CO_3, 5M glass, trapped electron photobleaching, scavenger effect 4−79760
KCl, luminesc. decay, annealing of F' band, F' centre interaction with electron traps 4−82739
KCl:In,Na, thermolum. peaks with photon activation, thermal field ionisation of electron traps 4−79806
LiCl:Cu single crystal, luminesc. props., photo. thermo and X-ray, 79-450K *(Russian)* 4−82737
MnF_2:Er, metastable levels, fluoresc. mechanism 4−45354
NaI:Tl, recomb. luminesc., complex activator centres *(Russian)* 4−73158
NaOH, 8M glass, trapped electron photobleaching, scavenger effect 4−79760
PbO, high resistivity photoconducting materials, investigation using electron beam contact 4−75878
$PbZrO_3$ paralelectric phase, investigation from current-voltage characteristics 4−53090
Sb_2S_3, high resist. photocond. material, investigation using electron beam contact 4−75878
Sb_2S_3, single cryst., bipolar effects *(Russian)* 4−75883
Se, amorphous, high-field mobility 4−70031
Se crystals, distribution for photoconductivity mechanism description 4−53089
Se layer, amorphous, deep trapping levels rel. to struct. 4−44863
Si, n- and p-channel junction f.e.t., electron and neutron irrad. damage 4−67275
Si, Schottky barriers, deep trap levels determ., ion implantation, C-V meas. 4−72720
Si, surface props., influence of trapping 4−75936
Si-Si_3N_4, interface instability, bias voltage effect 4−45010
Si-Te-As, amorphous, trapping parameters and photocond. 4−75918
Si_3N_4, rel. to avalanche injection from Si 4−45009
SiO_2, charge storage under low energy electron bombard. 4−79424
SiO_2, r.f. sputtered films, oxygen-deficient, defect centres, thermoluminescence 4−56739
SiO_2, rel. to avalanche injection from Si 4−45009
SiO_2 amorphous layers, TSEE glow curves, correl. between short range order defects and electron trap spectra 4−49548
SiO_2 film, amorphous, trap ionisation by electron impact, effect of Na centres 4−60891
SiO_2-Si, obs. on m.o.s. interface using thermally stimulated charge release 4−57176
$SrSO_4$, thermally stimulated exoelectron emission trap spectroscopy 4−53579
Ta_2O_5 film, anodic, u.v. stimulated photocurrent spectroscopy and trapping kinetics of 2.1 eV trap 4−53166
Ta_2O_5 film, sputtered, investigation of 2.1 eV trap, photocond. 4−75919
TiO_2, rutile, transient photoconductivity meas. 4−57132
ZnS, single cryst. from Ga melt, thermoluminesc. obs. 4−70369
ZnS:Cu, Br, electroluminophors, electron traps rel. to ageing *(Bulgarian)* 4−53533
ZnS:Cu,In, effect of trap filling on shift of thermoluminesc. peak 4−53541
ZnS:Cu,Mn, electroluminesc., trap spectrum 4−82750
ZnS:Cu:Co, photoconductor, thermally stimulated current curves investig. 4−79343
ZnTe, film, s.c.l. and thermally stimulated currents 4−60885

electron tube diodes *see diodes*

electron tube rectifiers *see rectifier tubes*

electron tubes
see also cold-cathode tubes; diodes; electron emission; microwave tubes; nuvistors; pentodes; tetrodes; thermionic tubes; triodes; ultra-high frequency tubes; vacuum tubes; X-ray tubes
No entries

electron tunnelling *see tunnelling*

electron valves *see electron tubes*

electron-wave tubes
see also klystrons; magnetrons; travelling-wave-tubes
relativistic electron beam microwave generation in waveguide with rippled mag. field 4−74542

electronic calculators
data acquisition system, for temperature-sensing transistors 4−46587
pocket, for ellipsoidal problems in geodesy *(German)* 4−68271
programmable, in calculator based measurement instrumentation package 4−74096
programmable, photogrammetry, independent triangulation models applic. 4−61902
radiation therapy, internal dose distribution, from sealed sources, desk-top calculation 4−50865

electronic component manufacture *see electron device manufacture*

electronic data processing *see data processing*

electronic density of states
A15 type phase stability 4−82134
adatom, chemisorption on metal surface 4−48857
alloy, narrow band, electron correlation 4−57029
alloy, substitutional, local environment effect 4−48922
amorphous magnetic materials, struct. fluctuations effect 4−79477
amorphous materials, electronic spectrum using polycryst. model 4−79265
amorphous semiconductor, valence states, photoemission data 4−82790
analytical model, only nearest neighbour overlapping bands 4−57025
aperiodic solids, dynamical systems, Friedel sum rule and coherent potential approx. 4−53024
BDP(TCNQ)$_2$, mag. susceptibility, 1-dimens. electron gas model 4−57024
binary alloy, coherent potential approx., off diagonal randomness 4−72668
β-brass, X-ray photoemission spectra, d-bands 4−72690
Brillouin zone effects on supercond. T_c and rel. normal metal props. 4−69980
chemisorption, Hartree-Fock approx. extended to larger atomic clusters 4−72634
chemisorption in Anderson model, theory of density of states associated with adatom 4−75713
coherent potential approx., averaged T-matrix approx. and Lloyd's model 4−53028
coherent potential approximation, mol. generalization, analytic props. 4−53026
covalent semiconductor surface, charge neutrality point 4−67269
critical phenomena, infinite divisibiliy of effective density-of-states distrib. 4−71450
disordered alloys, continued fractions and cluster theory, density of states 4−79262
disordered system model, path-integral theory, density of states and effective mass 4−72676
disordered systems, matrix coherent potential approximation 4−72674
frequency spectra on s.c. and b.c.c. lattices 4−44819
Hubbard model, disordered mag. insulator, proof of existence of band tails 4−57251
III-V semiconductors, amorphous, short-range disorder model 4−67148
ion wake in solid, oscillatory fluctuations, bound states 4−63844
liquid, metal-nonmetal transition, inhomogeneous regime 4−79264
liquid alloy, tight binding approx. 4−53027
liquid metal, pseudo-atom theory for surface tension 4−72625
liquid metal, tight binding approx. 4−53027
liquid semiconductor, model of electron props. *(Russian)* 4−69975
magnetic metal, Hall coeff. near phase transition 4−67205
metal, clean, surface density of states, field emission determ. 4−44980
molecule, simple, vib. struct. in photoelectron spectra by Green's functions methods 4−56293
m.o.s.t. surface quantisation, admittance studies 4−64141
polyethylene, band struct., density of states investigs. using ESCA and calc. methods 4−52311
semiconductor, clean surface, ellipsometric meas. 4−64127
semiconductor, heavily-doped impurity band electronic structure, cumulant approach 4−53058
semiconductor disordered alloy, two band model, coherent pot. approx. 4−44825
semiconductor film and chain structures, valence electron charge density calcs. *(German)* 4−79284
semiconductor Weaire model, random walks, band edges density 4−75762
semiconductors, small-polaron effects on d.c. cond., thermoelec. power, density of states 4−64086
solid-vacuum interface, field emission and photoemission techniques and obs. 4−53134
spatial charge distrib. of filled electronic band determ. 4−44818
superconducting alloy, dirty, type II, density of states near T_c 4−57207
TCNQ compounds density of occupied states determ. by u.v. photoemission 4−61275
tetrahedrally coordinated solid, ring topology method 4−67145
three-dimensional solids localised defects, appl. of generalised Wannier function concept, perturbation theory 4−64030
transition metal adatoms, density of states, binding energy, moment method calc. *(French)* 4−44984
two dimensional electron system, under strong mag. field, single site approx. 4−57083
Weaire's tight-binding Hamiltonian for tetrahedrally coordinated networks 4−57035
Ag, X-ray and u.v. photoemission obs. and band struct. calcs. 4−57026
Al, muffin-tin impurity model, application to 3d transition metal impurities 4−64037
As_2Se_3, amorphous, rel. to carrier recomb. and photocond. 4−70051
Au, X-ray and u.v. photoemission obs. and band struct. calcs. 4−57026

electronic density of states continued
Be, one-body potential calc. exchange and correlation contrib. 4−75763
Bi_xGe_{1-x} film, amorphous, model to interpret elec. props. 4−53162
Bi_xGe_{1-x} film, amorphous, model, rel. to optical and photoelec. props. 4−53163
$Bi_{12}SiO_{20}$, electron effective mass and cond. band effective density of states, photocond. excitation spectra obs. 4−60827
Co-Ni ferromagnetic alloys, multiband coherent-potential approx. with orbital degeneracy 4−49148
Cr, rel. to comparison with nondirect transitions calc. with optical props., 0.8-4eV 4−53464
Cu, calc. using resonance parameter approach 4−44821
Cu, liq., u.v. photoemission, density of states determ. 4−72675
Cu, X-ray and u.v. photoemission obs. and band struct. calcs. 4−57026
Cu, X-ray photoemission spectra 4−72690
Cu-based alloys transport prop. test for electron-phonon effects in density of states 4−64006
Cu-Mn, X-ray electron spectra and state density of valency electrons 4−82766
Cu-Pb sandwiches, supercond. proximity effect 4−49110
CuI, partial p and d densities of states determ. by u.v. photoemission 4−75764
Fe-Ni, L and M X-ray emission spectra, Invar anomaly 4−79814
Fe-Si(Ge), electron structure, X-ray spectral investigation 4−67673
FeO-P_2O_5 glasses, semicond., a.c. cond. 4−72766
GaAs:Se, electron conc. depend. on donor conc., subsidiary extrema in conductivity zone 4−44817
GaSe, charge density of valence electrons determ. from pseudo-wave-functions calc. 4−67147
Ge, film, elec. and optical props., impurity and defect effects 4−79419
H-bonded crystals, formamide, formic acid, urea, density of states plots 4−75474
He, dense gas, electron localization by density fluctuations, electron trapping 4−66550
K, liquid, electron dispersion study of effective mass and density of states 4−48891
LiF, optical props. investig., Hartree-Fock band struct. calcs. 4−70320
Mg-Bi alloy, d.c. and a.c. cond. and optical transmission 4−49092
MgO, valence and conduction bands, ab initio investigation of electronic props. 4−67160
Mn, rel. to comparison of nondirect transitions calc. with optical props., 0.8-4eV 4−53464
Mo, density of states calc. using Slater-Koster interpolation 4−60727
MoS_2, density of states of valence and cond. bands, interpretation of optical spectra 4−57036
Na, liquid, electron dispersion study of effective mass and density of states 4−48891
Nb, density of states calc. using Slater-Koster interpolation 4−60727
Nb-O system effects of interstitial O on supercond. properties 4−64155
$NbSe_2$, density of states of valence and cond. bands, interpretation of optical spectra 4−57036
Ni-Cu alloy, valence band density of states, X-ray photoelectron spectra obs. *(Russian)* 4−67154
$Ni_{1-x}Fe_x$, mag. form factors, asphericity 4−76065
NiS, hexagonal, metal-insulator para.-antiferromag. transition 4−64032
PbI_2, charge density of valence electrons determ. from pseudo-wave-functions calc. 4−67147
Pd, pseudopotential calc. 4−53033
Pd, resist., high temp. effects, electron density of states calcs. 4−60769
Pd, X-ray and u.v. photoemission obs. and band struct. calcs. 4−57026
$PdTe_2$, electronic props. determ. using Korringa-Kohn-Rostoker method 4−67165
Pt, clean and monolayer covered surfaces, valence band investig., ESCA studies 4−69978
Rh, X-ray and u.v. photoemission obs. and band struct. calcs. 4−57026
Se, charge density of valence electrons determ. from pseudo-wave-functions calc. 4−67147
Se, cryst. and amorphous, calc. 4−44845
Se, cryst. and amorphous, electronic structure determ. by photoemission 4−44846
Se, electronic density of states and bonding charges, interpretation of photoemission data 4−64475
Se semiconductor, electronic spectra, struct. disorder effect calcs. *(German)* 4−79266
Si, spatial distrib., Morse potential calcs. 4−79263
Si-insulator interface, amorphous Si 4−72869
Si-SiO_2 interface, vapour deposition, charact., device applics. 4−67742
β-SiC, band struct. calc. using X-ray and photoelectric emission spectra 4−72706
Si_2Se_3, cryst. and amorphous, photoemission energy distrib. curves, band struct. investig. 4−64480
$SnSe_2$, charge density of valence electrons determ. from pseudo-wave-functions calc. 4−67147
Te, charge density of valence electrons determ. from pseudo-wave-functions calc. 4−67147
Te, cryst. and amorphous, calc. 4−44845
Te, cryst. and amorphous, electronic structure determ. by photoemission 4−44846
Te, electronic density of states and bonding charges, interpretation of photoemission data 4−64475
Te semiconductor, electronic spectra, struct. disorder effect calcs. *(German)* 4−79266
$Te_{2.0}Br_{0.75}I_{0.25}$, crystn. and glassy, prep., thermal, struct. and photoelectric props. 4−56620
TiNi, martensitic transition, charge transfer model 4−82352
Tl, Tl-Hg, supercond. transition temp. vol. depend. correlated to Knight shift temp. depend. 4−49246
V, rel. to comparison of nondirect transitions calc. with optical props., 0.8-4eV 4−53464
V-Cu(Al)(Si)(Sn) alloys, rel. to supercond. props. 4−64152

electronic density of states continued
W, (100), (110), and (111) planes, surface density of states, field emission determ. 4−44980
W, surface and bulk density of states Auger emission 4−53561
W(100), rel. to field emission from surfaces with chemisorbed CO or O 4−45412
Zn, X-ray photoemission spectra 4−72690
$ZnGeP_2$, density of states and bonding, calc. and X-ray photoemission spectra 4−79290
electronic desk calculators *see electronic calculators*
electronic equipment manufacture
adiabatic toroidal compressor, neutral injection 70 kV pulsed floating deck switch, mech. design 4−60309
Tokamak machine ion cyclotron rsonance heating apparatus, mech. design and fabrication 4−60299
ZnO-plasma display fabrication 4−61236
electronic equipment testing
digital stereo plotter, test procedure 4−46114
nondestructive, i.r. radiation application *(Czech)* 4−64669
nucleonic instrumentation, immunity tests for electrical interference 4−77137
petrochemical liquid turbine flowmeter test methods 4−77326
resistance thermometer, miniature broadband, thermal response obs. *(Russian)* 4−77044
superheterodyne receiver, 230 GHz, for atmospheric attenuation and radioastronomical applications 4−68476
temperature-sensing transistor, data acquisition system, calculator-based 4−46587
watthour meters, residential, revised standards for increased fault currents 4−46553
electronic music
see also musical acoustics; musical instruments
No entries
electronic structure, atomic *see atomic structure*
electronic structure, molecular *see molecular electronic structure*
electronics applications of computers
see also computer-aided circuit design
1/f noise simulation, Markov process vs random walk computer solns. 4−46367
e.m. fields in cable of finite length *(Russian)* 4−81268
epitaxial growth and device processing, impurity redistrib. in Si, model 4−45471
IC patterns recording using electron beam camera 4−69101
microfabrication, digitally controlled SEM system 4−42926
microwave noise standards laboratory automatic data recording 4−65342
physical electronics teaching, simulation applic. 4−62401
electrons
see also beta-rays; cosmic ray electrons; positrons
anomalous magnetic moment, sixth order contrib. from second order vacuum polarisation insertion 4−55575
evanescent wave emission, interaction with matter, appl. to Cherenkov effect *(French)* 4−74478
g-factor, sixth order, mass-operator approach 4−71664
g-factor, sixth-order, mass-operator approach, vertex diagrams 4−71665
magnetic moment, sixth order, calc. in hyperspherical approach to QED 4−47445
magnetic moment, sixth order radiative corrections calc. 4−69134
quark models and hadron core possibility 4−74714
radiative polarisation in mag. field, calc. using modified electron propagation function 4−71624
e-μ puzzle, Higgs-Kibble mechanism 4−51676
μ-e transitions in gauge model of weak interactions 4−51706
electrooptics *see electro-optical effects*
electroosmosis *see osmosis*
electrophoresis
Burkitt lymphoma cell line, lack of recovery from radiation damage 4−54709
cataphoresis, positive glow discharge 4−52644
colloidal particles, delta potential meas. using electrophoretic cell with electronic attachment 4−58864
densitometry of polyacrylamide gel electrophoregrams, microphotometer modification 4−46922
dielectric liquid, electrical excess press., dielectrophoretic forces 4−57851
electrophoretic light scattering, review 4−53910
electrostatic precipitator, bench scale, particle collection efficiency in field charging region, particle size depend. 4−76984
light scattering autocorrelation spectra, effect of finite collection aperture 4−43252
liquid, dielectrophoretic forces, exptl. effects obs. 4−53357
multiparticle system, cell model representation 4−57850
polyoxyethylene esters, of N-benzoylhistidine, mono-and disubstituted, conformational modes *(Russian)* 4−72261
radionuclide separation from fission products by h.v. electrophoresis *(German)* 4−64720
solute concentration free flow profiles 4−64709
spectrometer, laser Doppler, for meas. of diffusion and electrophoresis 4−42804
suspension, electrorheological, formation of bridges of dispersed phase particles *(Russian)* 4−64713
Ar-Ne discharge positive column, cataphoresis, spectra meas. 4−78841
He-Hg glow discharge, cataphoresis 4−52644
KCl-impregnated strip, critical potential and power of elec. explosions *(Bulgarian)* 4−54017
KCl-impregnated strip, delay time of elec. explosion *(Bulgarian)* 4−54016
electrophotography
cascade development investigations of fidelity of reprod. of lines *(Russian)* 4−54972
glow discharge, for uniform charging 4−54965
noise on nonimage areas, particle size depend. 4−54662
recording on insulators by nonwetting conducting liquids 4−82470
surface potential decay, single carrier case, analytic solns. 4−53117
GaAs photodetectors, low temp. charge transfer 4−71215
HgI_2-polystyrene binder layers, photopolarization characts. 4−61096
electrophotography continued
Si photodetectors, low temp. charge transfer 4−71215
electrophotoluminescence *see electroluminescence; photoluminescence*
electrophysiology
see also biomedical phenomena
active fibre, in a volume conductor 4−68485
cardiac 4−76948
cerebellar cortex, mammalian, computer model 4−65246
colour channels in human pattern vision, evidence for colour channels 4−65258
electroretinogram recording, technique for infants and young children 4−50810
electrotonus, on a nonlinear dendrite, mathematical model and numerical solution 4−83306
magnetic field perception, by electroreceptors, in Black Sea skates 4−50761
muscle fibre impedance measurement, skeletal, of the frog 4−46370
muscle transfer function estimates, parameter value fitting procedure 4−83310
nerve net activity and spontaneous contractions, in sea anemone Calliactis parasitica 4−50758
nerve terminal, afferent, and intrafusal muscle fibre, electrical coupling, in the frog muscle spindle 4−46374
presynaptic inhibition at mammalian peripheral synapse, evidence for 4−65247
Purkinje fibre model, stability properties 4−65245
Purkinje fibres, canine, alternating response to repetitive premature excitation, microelectrode study 4−58497
recording systems, electrode produced signal distortion 4−46924
retinal colour discrimination processes 4−58516
sensory responses, in Tritona (Gastropoda, Nudibranchia) 4−50759
squid giant axon, potential and time constant effects in fast ramp voltage clamp 4−83305
transthoracic impedance variations rel. to thoracic diameter changes 4−83307
visual pigment, quantitative kinetic model, derivation from early receptor potential obs. 4−73905
electroplating
microprofiles, current distribution 4−54035
microprofiles, current distribution 4−61624
Au reclamation from citrate electrolytes by ion exchange liquid extraction *(Russian)* 4−83029
Cu, electroless, $SnCl_2/PdCl_2/HCl$ catalyst, electron microscope obs. 4−61620
Cu deposition, pulsed plating technique application, review 4−76606
Fe-Ni alloy, with small amounts of Mn, composition, hardness and microstructure obs. 4−82842
Zn on Al, electrolyte composition, electrolysis conditions rel. to transition layer struct., props. investig. 4−54039
electropolishing *see electrolytic polishing*
electroreflectance
dichloroanthracene, mol. cryst., electro-optical props., charge transfer excitons 4−53062
Ag, electrorefl. spectra in polarized light *(French)* 4−61172
Ag, interface with electrolyte, phenomenological interpret. *(French)* 4−64369
$AgInS_2$, band struct. obs. in chalcopyrite and orthorhombic phases 4−44851
$AgXTe_2$, X=Al, Ga, In, band struct. obs. using luminesc. and electroreflectance spectra 4−75778
$Al_xGa_{1-x}As$, impurity inclusions influence, comp. depend. *(Russian)* 4−67604
$Al_xIn_{1-x}Sb$ alloys, spectra 4−76272
Au, at oblique incidence, theory and expt., metal-electrolyte interface study *(French)* 4−64401
Au, phenomenological interpretation of electroreflectance spectra 4−53467
$CdSi(Ge)(Sn)As_2$, investigation of refl. and electrorefl. spectra 4−49371
$CdSi(Ge)(Sn)P_2$, investigation of refl. and electrorefl. spectra 4−49371
Cu, electrorefl. spectra in polarized light *(French)* 4−61172
Cu, interface with electrolyte, phenomenological interpret. *(French)* 4−64369
EuSe, 1.9-2.9 eV, multiplet struct., atomic model 4−61187
Fe^{3+} oxides, wavelength modulated spectra, exciton and charge transfer effects 4−61175
GaAs, fine struct., thermoreflectance analogies 4−45326
GaSe, higher interband electroreflectance struct. around 3.37 eV 4−61177
Ge, fine struct., thermoreflectance analogies 4−45326
InSb, Landau levels obs. by electroreflectance at E_1 and E_1 + delta$_1$ edges 4−76270
PbSe, band struct. and spin-orbit splitting meas. 4−73129
Si, 3.1-3.6 eV, line shape, fine struct., band parameters 4−61183
$SrTiO_3$, flatband electrolyte and Schottky barrier meas., 2-5 eV 4−64399
TiO_2, low temp., fine struct., 3.0-3.7 eV, crit. points 4−76278
V_2O_5, stoichiometry depend., energy gap struct. 4−79756
$ZnGeAs_2$, electrorefl. spectra, 1.1-4.5 eV, and band struct. 4−61189
$ZnSe_xTe_{1-x}$, spin-orbit splitting at Γ point, electroreflectance curves 4−57565
$ZnSi(Ge)(Sn)As_2$, investigation of refl. and electrorefl. spectra 4−49371
$ZnSi(Ge)(Sn)P_2$, investigation of refl. and electrorefl. spectra 4−49371
electrostatic devices
see also capacitors; dielectric devices; electrostatic generators; electrostatic lenses
energy filter for electron diffraction and electron microscopy 4−82093
energy-charge analyser, spaceborn, for low-energy interplanetary particle meas. 4−54603
focuser, molecular beams, upper state, lower state and electret 4−60130
particle accelerator deflecting devices, magnetic and electrostatic, some technological aspects 4−80975
probe perturbation by spacecraft at small speed ratios 4−72394

electrostatic devices continued
pulsed ion beam spectrometer 4−81022
recording on insulators by nonwetting conducting liquids 4−82470
electrostatic fields *see electric fields*
electrostatic generators
see also Van de Graaff generators
accelerator with charge reversal, type EPG-10-1 4−42858
bar-type, rotor field analysis and calc. *(Russian)* 4−47261
electrostatic lenses
see also focusing; particle beams
aberrations, r.f. field, third order theory 4−47403
description in terms of classical mechanics−geometrical optics synthesis 4−74200
double electrostatic quadrupole doublet as exit lens of ion implantation machine 4−51663
simulation by digital computer, relativistic trajectory computations for charged particle beams 4−43364
three aperture, design charts 4−47402
two tube, focal props. for large voltage ratios 4−43373
two tube, third order aberration coefficients 4−43374
two tube bipotential lens, computer-aided calculations of focal props. 4−43363
two-tube, calculation of focal props. for high and low voltage ratios 4−55546
two-tube, matrix representation 4−55547
wedge-shaped prism with inclined electrodes and single telescopic system 4−59468
electrostatic microphones *see microphones*
electrostatic precipitation
aerosol particle size distrib. meas. by electroprecip. method, particle shape effect on error 4−82992
electrostatics
see also electrets; electric charge; electric fields; electrostatic devices; static electrification; triboelectricity
boundary problems using Friedrich's method 4−68989
Coulomb Green's functions at diffuse interfaces 4−61621
electric potential distribution in conducting material, infinite product evaluation 4−59052
magnetic force equation, electrostatic derivation using relativistic principles 4−77583
microbalances, use of radioactive source in discharging e.s. build-up 4−65480
motor vehicles near high tension lines *(Russian)* 4−47267
potential field analysis, linear programming *(Russian)* 4−47259
potential problems involving annulus 4−59054
static elimination using corona discharge with electrical screening 4−47275
electrostriction
see also piezoelectric materials; piezoelectricity
alkali halide crystals, shell model calc. 4−76236
dicalcium lead propionate, u.s. vel. near phase transition, mechanism 4−56815
dicalcium strontium propionate, paraelec. 4−73077
dielectric layer, mech. forces due to passage of light beam *(French)* 4−59347
electrostriction, dielectric plate with square hole, stresses by complex variable formalism method 4−53376
isotropic dielectric medium, light beam induced radiation tensions and pressures *(French)* 4−59348
piezoelectric plates, thin bending by action of electric changes *(Russian)* 4−53377
plate with square hole, stresses by complex variable formalism method 4−53376
polystyrene, step response meas., time law *(German)* 4−73080
triglycine selenate crystals, piezoelec. and elastic expts. in region of phase transforms. *(German)* 4−57478
$NaH_3(SeO_3)_2$, influence of hydrostatic pressure on α-β transition meas. of electrostriction coeff. 4−57486
electrosynchronisation *see synchronisation*
electroviscous effect
see also colloids; viscosity
No entries
element origin
see also cosmic ray origin; cosmology
Galaxy, pulsating active nucleus, evolution of rare-light elements 4−62185
nuclear energy in the cosmos *(Dutch)* 4−46150
s-process conditions and possible solar system elements 4−46213
stellar nucleosynthesis rel. to evolution of life in universe 4−46351
superheavy element generation in nature *(Russian)* 4−80558
supernova ejected matter, neutron rich, dynamical r-process 4−58209
supernova explosions, origin of D and B 4−58380
supernova shock waves, light element and D formation by spallation 4−46224
Na, equilib. concen. in atmosphere, photochemical considerations 4−54207
^{99}Tc production in evolved star interiors photoneutron mechanism 4−46207
element relative abundance
see also isotope relative abundance
A-type supergiants in Magellanic Clouds, abundances rel. to galactic evolution 4−73733
Allende meteorite, abundances in Ca, Al rich chondrule rel. to high temp. condensation 4−73647
Allende meteorite, major and trace element abundances in type III carbonaceous chondrite 4−54449
Allende meteorite, trace element distrib. in melilite and pyroxene 4−50516
Archaean gneisses and anorthosites, REE distrib. 4−64771
Cepheid variable stars in the Galaxy, elemental abundance var. 4−54500
coronal relative abundances of N, O, Ne, Mg and Fe from X-ray spectrometry 4−80460
F and G type stars, C and Fe abundances 4−76832
Fen carbonatite complex, S. Norway, Sc, Co and Fe abundances 4−80228
galaxies, chemical evolution 4−76907

element relative abundance continued
Galaxy, chemical evolution, pulsating active nucleus 4−58416
Galaxy, observational abundance and theoretical yield agreement 4−70962
Galaxy, pulsating active nucleus, evolution of rare-light elements 4−62185
HD 101065 (Przybylski's star), red spectrum and rare earth abundances 4−76843
HD 184927, LTE fine analysis of He-rich star in 3600-6200 Å range 4−65166
IC 443, abundances in supernova remnant 4−58367
interstellar clouds, statistical props. from interferometric scans 4−80642
interstellar gas, evolutionary model of Galaxy, diffusion of elements 4−73847
interstellar matter, depletion of intermediate-weight elements 4−50694
interstellar Na I, Ca I and K I optical absorption lines, interferometric scans 4−80641
Malakal chondrite, cosmic ray history 4−62079
massive star explosions, nucleosynthesis and evolutionary calcs. 4−68409
meteorite, L-6 chondrites, activation analysis of minerals 4−62080
meteorites, achondrites, and howardites, olivine compostions 4−62082
NGC 5195, nucleus, stellar content and reddening 4−62180
nuclear energy in the cosmos *(Dutch)* 4−46150
ordinary chondrite, fractionation of moderately volatile elements 4−65128
photospheric abundance inhomogeneities due to spallation reactions from flares 4−54380
δ Scorpii interstellar lines in u.v. spectrum 4−73831
solar atmosphere elemental abundances, isotope ratios and molecular compounds 4−76791
solar wind velocity streams, He component 4−46167
supernova neutron rich ejected matter, dynamical r-process 4−58209
trace element geochemistry of Norwegian Lower Palaeozoic basic volcanics 4−64775
type I supernova envelopes, initial expansion phase, light element abundances 4−65177
underabundance in cosmic dust, effects of new star formation and supernova explosions 4−80666
upper atmospheric meteoric element densities, seasonal variation theory 4−76736
B in photosphere from B I 16244.66 A line obs. 4−73613
B/Cl ratio of deep-sea water from Pacific Ocean 4−45999
Ba in K supergiants from Ba I lines 4−46223
Be, interstellar abundance from Be II resonance lines in O and B stars 4−73835
Be in photosphere from Be II 3130.43 and 3131.08 lines 4−80481
C in metal-poor stars rel. to nucleosynthesis and evolution 4−62096
^{12}C/^{13}C ratios in H II regions, formaldehyde 6 cm line obs. 4−50707
D_2 cosmic abundance, scalar field postulation for speeding up expansion of Universe 4−58213
Fe in stellar models of solar-type giants and dwarfs 4−46234
Fe meteorites, element distribution, neutron activation *(Russian)* 4−76809
Ge I solar abundance 4−70902
He abundances in galactic H II regions from H and He radio recombination lines 4−54568
He I latitudinal var. from e.u.v. obs. of 584 Å airglow emission 4−50319
He in He II regions, low abundance due to selective absorption by dust, towards galactic centre 4−50703
He Stromgren sphere and abundance in Orion A model 4−54515
He/H ratio in dense core of Orion Nebula 4−50718
Hg total content in N.W. Atlantic Ocean seawater 4−45998
Li, interstellar abundance in ε Orionis and α Cygni directions 4−73846
Li in super Li stars from KI resonance lines 4−58294
Mn solar abundance, revision using Mn I, II, and III mean lives 4−69416
Mo in living organisms rel. to directed panspermia 4−54619
Mo in sea water rel. to directed panspermia 4−50738
N, in metal-poor stars rel. to nucleosynthesis and evolution 4−62096
Na I oscillator strengths rel. to interstellar abundance in Ophiuchi 4−80647
Na in interstellar medium, 3302 A doublet obs. 4−50691
O solar abundance from equivalent widths of O I forbidden lines 4−46170
Pr abundance anomaly in Ba II stars 4−73678
^{244}Pu/^{238}U early ratio in meteorites, from U, Th, Pu fractionation in geological samples 4−80258
Sn in stony meteorites and standard rocks from mass spectrometric isotope dilution analyses 4−58272
Th/U ratio and extinct ^{224}Pu in phosphates of St. Severin meteorite 4−80534
Ti column densities from spectrograms for 23 stars 4−46285
U in peculiar star κ Piscium (HR 8911) in far violet spectrum 4−50611
elemental semiconductors
chemisorption of O_2, narrow energy gap, self consistent calc. 4−72639
diamond:N(B), interstitials, LCAO calcs. 4−48926
diamond, effective mass approx. for excitons and impurities 4−75806
diamond, p-type semicond., thermoluminesc., pre-excitation and excitation investig., energy level model 4−76324
film, heteroepitaxy on insulating substrate, review 4−49613
p-Ge, elec. cond. in strong mag. field, deform. potential const. depend., calc. 4−60818
Ge, electron-hole drops, drift due to negative charge *(Russian)* 4−64052
p-Ge, impurity distribution by measuring d.c. hopping conductivity 4−75858
group IV semiconductor, piezospectroscopy of single and double acceptors 4−64359
junction photodetector, laser damage, carrier effects 4−55497
microscopic optical fields and mixing coeffs. of X-ray and optical freqs. 4−73096

elemental semiconductors continued
Si, Harrison's first principle pseudopotential method appl., band struct. calcs. 4−79255
n-Si, odd magnetoresist. in heatng elec. fields, pressure influence 4−75896
surface quantisation, in m.o.s.t., admittance, surface capacitance studies 4−64141
tetrahedral amorphous, transport props. 4−79360
X-ray forbidden (222) reflection, pressure and temp. depend. of bonding electron vibr. amplitude 4−52837
As, amorphous film, cond. mechanisms, temp. depend. 4−82503
Au-Ge, Schottky barrier, photovoltaic effect in quantizing mag. fields 4−67277
band structure, amorphous and cryst., high energy photoemission 4−82791
Bi, meas. of elec. resist., polycrystalline film on glass substrate 4−53164
Bi, surface impedance, meas. at r.f. in mag. fields 4−49029
C film, amorphous-polycryst. transition, influence on elec. cond. and optical density 4−60709
CdS-Ge p-n heterojunction, elec. and optoelectronic props. 4−82482
p-Ge, 10μ radiation h.f. modulation by field heating of carriers 4−72809
Ge, (111) and (100) surfaces, NH_3 adsorption, LEED obs. 4−72631
Ge, absorption and optimum doping level for i.r. optics 4−46712
Ge, acoustic nonlinearity parameters and elastic consts., harmonic generation technique 4−52803
Ge, adsorption of Hg from soln., surface props., p- and n-type 4−75707
Ge, amorphization during ion bombardment, electron diffr. obs. 4−48657
Ge, amorphous, pseudogap struct., cond. meas. 4−79269
Ge, amorphous, relaxed continuous random network models 4−44471
Ge, amorphous, structure investigation, comparison with amorphous GaAs 4−82115
α-Ge, amorphous film, i.r. vibr. spectra meas., disorder effects 4−45388
Ge, amorphous film, ideal random network 4−75987
Ge, amorphous film, internal stress 4−79887
Ge, amorphous film, struct., ordering, elec. cond. 4−75745
Ge, amorphous film, substrate specific voids 4−75743
Ge, amorphous film, transport props., press. and temp. depends. 4−79423
Ge, amorphous structure, clathrate model 4−75456
Ge, amorphous thermoelectric power, prep. conditions depend. 4−79374
n-Ge, annealing of electron radiation induced defects, 360K, impurity effects 4−82201
Ge, Auger recomb. rate calc. 4−69984
Ge, bond-charge model of phonon dispersion 4−69870
p-Ge, calc. of Landau levels from effective mass stress Hamiltonian, effect of de Haas Shubnikov oscills. 4−48905
n-Ge, carrier concentration, microwave transmission technique 4−57120
Ge, compensated, cond. and photocond., influence of gas discharge treatment 4−72775
Ge, compensated, energy depend. of capture cross section and instability producing spatial charge-exchange waves 4−48997
Ge, conduction electron effective mass in field of excitons 4−57037
Ge, contacts on Si surface barrier detectors, rectifying props. 4−62541
n-Ge, containing point defects, charge carrier scatt. mechanism *(Russian)* 4−75934
Ge, cryst., electron-hole drops, optical props., absolute concs. determ. 4−76251
Ge, cyclotron reson. in quantised mag. field on inelastic scatt. by acoustic phonons *(Russian)* 4−82368
Ge, decay kinetics of electron-hole-drop and free-exciton luminescence 4−49445
n-Ge, deformed, surface barrier instability of current 4−49087
Ge, density-depend. luminesc. props. of electron-hole liquid 4−57623
Ge, dislocation movement under stress, time and temp. depends. *(Russian)* 4−66916
Ge, dislocation multiplication relationships 4−75534
Ge, doped, exciton condensation, threshold phenomena and hysteresis, electron-hole drops 4−67654
Ge, electrical properties, Fermi level, effect of substitutional impurities, interstitials and vacancies 4−44918
Ge, electrolytic amorphous film, growth, etching behaviour, optical and electron microscope obs. 4−82337
n- Ge, electron bombardment, recovery spectra of electrical cond. at 77K 4−64123
Ge, electron energy loss spectra of surface states 4−72840
Ge, electron surface states produced by adsorption of Rh 4−67270
Ge, electron-hole drops, cohesive energy stress depend. 4−72729
Ge, electron-hole drops, microwave dimensional resonances 4−57058
Ge, electron-hole drops, size distrib. 4−72732
Ge, electron-hole liq., self-consistent calcs. 4−79319
Ge, electron-hole liquid, ground state energy calc. 4−75823
Ge, electron-hole plasma, high field domain 4−70032
Ge, electron-hole plasma, θ pinch, current carriers increase *(Russian)* 4−67244
Ge, electron-hole plasma generation, picosec. ellipsometry meas. 4−53067
Ge, electron-neutral donor complex form. in presence of indirect optical transitions *(Russian)* 4−72832
Ge, electroreflectance-thermoreflectance analogy, data comparison 4−45326
Ge, epitaxial growth, and Ge and Si-Ge, remarks on exptal. system design 4−57721
Ge, epitaxial growth by solid-phase transport 4−70414
Ge, etching and growth in flow system with cyclic diffusion mass exchange 4−61302
p-Ge, even Hall effect, ang. conc., and temp. depends. 4−57109
Ge, exciton condensate density, absorpt. edge obs. 4−72734
Ge, exciton condensation, variation of electron-hole drop size with temp. 4−75834

elemental semiconductors continued
Ge, expt. Compton scatt. cross sections, thermal diffuse scatt. contribs. 4−45386
Ge, far i.r. photoconductivity from majority and minority impurities 4−82454
Ge, film, cryst. struct. and elec. props. 4−72657
Ge, film, elec. and optical props., impurity and defect effects 4−79419
p-Ge, film, mobility of carriers scatt. by acoustic phonons, temp. depend. 4−72877
Ge, free carrier-free exciton-electron-hole drop interaction, photocond. 4−72822
n-Ge, group V doped, low temp. recovery of irrad. defects, annealing investig. 4−63841
Ge, Hall coefficient, meas. for effects of dislocations introduced by deformation at 350°C and 600°C 4−49005
Ge, Harrison's first principle pseudopotential method appl., form factor calcs. 4−79254
Ge, Harrison's first principle pseudopotential method appl., band struct. calcs. 4−79255
Ge, heavily doped with Au, heat treatment 4−67730
Ge, high-purity, anal. of chemical impurities and lattice defects 4−53608
Ge, high-purity, trapping effects, state of art reln. to radiation detector fabrication 4−53607
Ge, hole scattering, cyclotron resonance obs. 4−64021
Ge, hopping cond., amorphous state, calc. and meas. 4−79359
n-Ge, hot carrier relax. time, microwave cond. meas. 4−44929
n-Ge, impurity compensation effect on elec. breakdown 4−73071
Ge, impurity meas. by Fourier transform spectroscopy 4−53609
n-Ge, impurity-ion field effect on electron-phonon interaction 4−75814
n-Ge, in contact with Na_2SO_4:Au^{3+} soln., anisotropy of surface props. *(Russian)* 4−72855
Ge, in mag. field, energy levels of indirect exciton, calc. 4−57063
Ge, indirect exciton absorption spectrum 4−79742
n-Ge, influence of impurity conc. on hopping cond. 4−48982
n-Ge, instability of injected carriers subjected to strong electric fields 4−67226
Ge, intrinsic, quenched, annealing behaviour, elec. resistivity obs. 4−52754
Ge, ion implantation, nitride, oxide and oxynitride form., i.r. absorption 4−76396
Ge, irradiated with 30 keV Ga^+ ions, Hall effect and structure defects 4−67236
n-Ge, light scatt., exchange excitation of nonequilib. carriers *(Russian)* 4−82460
Ge, liquid, diffusion of Ag, In, Sn, Sb, 930-1250°C 4−60636
Ge, locally deformed diode, negative resist. characts. 4−72862
Ge, luminescence decay of electron-hole drops, vol. and surface effects 4−76304
Ge, mag. field depend. of Hall coeff. 4−44943
Ge, mag. field effect on i.r. absorption and luminesc. of electron-hole droplets 4−73188
n-Ge, magnetocond. tensor, electron-phonon drag effects 4−79368
Ge, magnetorefl., carrier conc. and diffusion length meas., 34 GHz 4−82767
n-Ge, many valley, charact. parameters of selected const. energy ellipsoid 4−75859
Ge, meas. of Hall mobility by two probe method 4−46754
n-Ge, microwave complex cond. anisotropy due to hot electrons 4−60804
n-Ge, microwave cond. in high electric fields 4−64101
p-Ge, mobility, noise temp. and diffusivity of hot holes 4−44931
Ge, multielectron correlation effects in hopping cond., 1-5K 4−48978
Ge, n- and p-types, trapping model for positron lifetime obs. 4−56771
Ge, n-type, anisotropy of the photogradient e.m.f. of hot carriers 4−67224
Ge, new cyclotron resonance absorption peaks obs. under high excitation 4−60736
Ge, nonlocal pseudopotential calc. 4−44849
Ge, obliquely deposited film, O uptake meas. 4−70415
p-Ge, optical heating of carriers, photocarrier mobility and lifetime 4−72830
Ge, optical phonon interaction const., optical carrier heating method 4−72823
Ge, optical pumping electron-hole drops or exciton mols. 4−53061
Ge, oxidation, amorphous-crystn. comparison, u.v. refl. spectra meas. 4−48863
Ge, p-n-p transistor, ion implantation for h.f. appls. 4−57713
Ge, phonon anharmonicity, 80-880K, neutron diffr. obs. 4−79120
p-Ge, photocond. due to inter-valence band transition 4−44958
Ge, photoconductivity and absorption in 2 to 0.25 mm, range using backward wave tube generators 4−53127
Ge, photoluminesc., theory of exciton, biexciton recomb. 4−49456
p-Ge, piezoresist. and piezo-Hall effect 4−57119
Ge, plasma anodization, insulating film growth and characts. 4−45464
p-Ge, plasma-electric effect in strong electric field 4−57127
Ge, plasmon damping *(Japanese)* 4−44875
Ge, polarisation of low temp. photoluminesc. due to deformations *(Russian)* 4−73190
Ge, precip. of Li, effect of heat treatment conditions 4−82825
Ge, precipitation of Cu and Ni solid solns., with donor and acceptor impurities 4−73269
Ge, pure and alloy amorphous films, resistivity, tunnelling 4−60887
Ge, quantum efficiency of internal photoeffect 4−57140
Ge, radiative two-electron transitions in electron-hole droplets 4−49452
Ge, Raman second order reson. scatt., E_1, $E_1+\Delta_1$ edges 4−61162
n-Ge, rate of production of vacancy-donor complexes resulting from electron irradiation, calc. 4−66939
Ge, recombination radiation, free-carrier compression in crossed elec. and mag. fields 4−70359
Ge, rod-like samples, minority carrier bulk lifetime, mag. field depend., 5-77K 4−67229
Ge, self-diffusion mechanism, theory 4−82291

elemental semiconductors continued
Ge, shallow acceptors, high resolution Fourier spectroscopy 4-73118
Ge, shaped crysts. with low dislocation density, Bridgman growth 4-49628
p-Ge, Shubnikov-de Haas oscillations and longit. magnetoresistance obs. 4-75892
n-Ge, small signal characteristics at high fields 4-60802
p-Ge, strained electrical cond. calc. in presence of strong non-quantising mag. field 4-67235
Ge, sub mm absorption and refraction, 293K, 12-50 cm^{-1} 4-73108
Ge, surface electron states, influence of adsorbed Cu 4-49057
Ge, surface vibrational amplitudes, LEED obs. 4-56955
Ge, thermoreflectance, obs. of struct., 4-9 eV 4-53466
Ge, transient photopiezoresistance 4-53120
Ge, transmission Raman spectra, obs. of phonons and electronic impurity levels 4-53448
Ge, twisted specimens, screw dislocations, electronic states, carrier density and Hall mobility obs. *(German)* 4-69991
Ge, u.h. purity, multiple pulling method 4-49582
Ge, valence band parameters investig. by cyclotron resonance in stressed crysts. 4-64023
Ge, valence band struct. investig. by quantum resonance techniques 4-64022
Ge, valence band transitions, theory of optical absorpt. at low temp. 4-49365
Ge, vaporization and growth, electron microscope obs. *(Russian)* 4-73257
Ge, with adsorbed noble metals, neutralization of surface states 4-60846
Ge, with shallow donor impurities, photocond. temp. depend. 4-72824
Ge, X-ray struct. factors, from half-widths of Bragg refl. curves 4-72460
p-Ge converted by electron irrad., transformation of simple defects at 200K 4-69801
Ge elec. cond. variation induced by shock wave produced on laser interaction *(Russian)* 4-77700
p-Ge electron-hole drops due to laser irrad. 4-70352
Ge electron-hole fluid, liquid-gas phase diagram, recombination luminescence 4-64045
Ge film, absorption edges broadening, amorphous and crystalline structures *(Russian)* 4-76337
Ge film, amorphous, defects and crystn., resist. obs. during annealing 4-75731
Ge film, amorphous-polycryst. transition, influence on elec. cond. and optical density 4-60709
p-Ge film, elec. cond., Hall coeff. and hole mobility, 20K, two-layer model interpretation 4-82502
Ge high-purity γ detector fabrication and handling reliability improvement 4-51149
Ge transport by iodine in flow system 4-61300
Ge type, band struct. temp. depend. 4-75777
Ge:(Al$_1$P), donor-acceptor binding energy 4-44860
Ge:As,Sb, far i.r. recomb. radiation from impact-ionized donors 4-76315
Ge:As(P)(Sb), impact ionisation, far i.r. recombination spectra, electron transitions investig. 4-64442
n-Ge:Au, photoionization cross sections of acceptor levels, photocond. obs. 4-57136
Ge:Ga, Czochralski growth, oscillatory interface stability 4-45455
p-Ge:Ga, d.c. magnetoresist. in hopping cond. range 4-75889
Ge:Ga, interface demarcation obs. of facet growth and dopant segregation 4-61314
Ge:Ga, photoelectric current emission into electrolytic solution of KCl 4-57670
n-Ge:Li, impurity interaction with disordered regions formed by fast neutrons 4-56780
n-Ge:Ni I-V characts. at low photoexcitation levels, double injection and current instability 4-67260
Ge:P, Ga, heavily doped and compensated, resistivity, direction depend. 4-72773
n-Ge:P(As)(Sb)(Bi), γ-irrad., acceptor levels, annealing obs. 4-60761
Ge:S(P), impurity location using ion-induced X-rays, technique 4-53612
Ge:S(P), impurity location using ion-induced X-rays, expt. results 4-53613
Ge:Sb, absorption edge in direct transition region 4-73145
Ge:Sb, far i.r. photocond., intermediate impurity conc. region 4-82450
n-Ge:Sb, neutron irradiated, electrical props. investigation 4-67216
Ge:Sb, phonon cond., phonon-scatt. calcs. 4-63951
Ge:Sb(Ga), dislocation motion, surmounting of local obstacles *(Russian)* 4-79042
Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4-61309
Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4-61310
Ge/GaAs heterojunction, gas transport and vacuum condensation, struct. effects *(Russian)* 4-73258
Ge-GeS film interface, LEED obs. 4-56949
Ge-PbTe n-p heterojunction, elec. characts. and spectral response 4-53139
Ge-Si heteroepitaxial system, struct. perfection 4-67125
Ge(Li) detectors, preparation 4-77184
Ge(111), surface states, tight-binding calcs. 4-64124
Ni-Si, Schottky barrier, increasing effective height by low energy ion implantation 4-72864
SI elec. cond. variation induced by shock wave produced on laser interaction *(Russian)* 4-77700
Se, amorphous, carrier lifetime change in glass transition region 4-57106
Se, amorphous, electroabsorption investigation 4-45318
Se, amorphous, far i.r. optical absorption meas. 4-76250
Se, amorphous, high-field mobility 4-70031
Se, amorphous, impurities effect on charge transport 4-75989
Se, amorphous, origin of anomalous photocond. 4-75925
Se, amorphous film, photocrystn. by light or electrons 4-75737

elemental semiconductors continued
Se, amorphous film, polaron conduction, optical absorption 4-49097
Se, amorphous struct., mol. dynamic computer expt. 4-75450
Se, charge density of valence electrons determ. from pseudo-wavefunctions calc. 4-67147
Se, cryst. and amorphous, electronic spectra calc. 4-44845
Se, cryst. and amorphous, electronic structure determ. by photoemission 4-44846
Se, electrical conductivity, conduction activation energy, heat treatment effect 4-57090
Se, film, laser light irradiation, reversible phase transformations 4-62859
Se, liq., optical absorpt. and photocond. 4-75920
Se, liq. and amorphous, hole transport mechanism 4-75885
Se, optical props., far i.r. 4-53408
Se, photoconductivity spectrum, 0.71 μm, recombination mechanism *(German)* 4-49044
Se, structural nature of amorphous phase, photoemission meas. 4-75452
Se, thin film, amorphous, polarized memory switching 4-64144
Se, vitreous, bulk and films, struct. ageing 4-75462
Se amorphous, anomalous photoconductivity, book 4-60831
Se amorphous, very pure, crystallization under compression, conductivity obs. *(German)* 4-52888
Se amorphous film, crystn. in cylindrical morphology 4-75732
Se electronic spectra, struct. disorder effect calcs. *(German)* 4-79266
Se layer, amorphous, deep trapping levels rel. to struct. 4-44863
Se layer, amorphous, photoinduced discharge characts. 4-72818
Se single crystals, d.c. conductivity 90 to 250K based on barrier model 4-53089
Si, 80 keV ion irrad., defect distrib., i.r. absorpt. obs. 4-57719
Si, (100) and (111) f.e.t.s, p-type inversion layers, quantum oscills. 4-70078
p-Si, (100) surface, cond. electron transport props. in n-type inversion layers 4-44977
Si, (111) and (100) surfaces, electron orbital energies of adsorbed O_2 4-79239
Si, (111) faces, surface band structure, pseudopotential calc. 4-75941
Si, adsorption of H and surface struct. determ. 4-56979
Si, amorphisation influence on ion implanted B distrib. 4-73271
Si, amorphization during ion bombardment, electron diffr. obs. 4-48657
Si, amorphous, thermoelectric power, prep. conditions depend. 4-79374
Si, amorphous film, deposition conditions effect on props. 4-76407
Si, amorphous film, field induced conductance change, band struct. 4-64143
α-Si, amorphous film, i.r. vibr. spectra meas., disorder effects 4-45388
Si, amorphous Si-insulator interface, density of states 4-72869
Si, amorphous structure, clathrate model 4-75456
Si, amorphous/crystalline junction, r.f. sputtered, elec. characts. exam. 4-75954
Si, atomic structure factors, imaginary parts calc. using Hartree-Fock and H-like wavefunctions 4-78986
Si, α-particle implantation damage, X-ray and Berg Barrett obs. 4-52793
Si, band gap, temp. depend., 2-300K, wavelength modulation spectra obs. 4-60734
Si, behaviour during high temp. heat treatment 4-67729
Si, calc. of opt. absorpt. between surface states 4-57571
Si, carbon and carbon-containing inclusions content rel. to growth method 4-67723
Si, cleaning, B and O surface contamination due to common solvents, nuclear microanal. obs. 4-45475
nSi, Co acceptor state, temp. depend. of energy level and capture cross section 4-75812
Si, compensated, energy depend. of capture cross section and instability producing spatial charge-exchange waves 4-48997
Si, condensation of injected electrons and holes, recomb. radiation spectra 4-67655
Si, cryst., form., elimination of vacancy clusters, effect of growth parameters 4-63778
Si, crystals exciton spectra, absorpt. and luminesc., exciton-exciton interaction effects 4-75829
p-Si, cyclotron resonance investigation of carrier heating by impurity absorbed CO_2 laser radiation 4-72705
n-Si, degenerately doped, low temp. resist., dielec. screening effects 4-64085
n-Si, degree of compensation determ. from Hall mobility 4-73270
Si, diffused zone carrier conc. and mobility meas. using gate controlled structure 4-57696
Si, diffusion from doped SiO_2, elec. parameters of diffusion structures 4-61299
Si, diffusion of Al, plastic deform. effect, thread like model *(Russian)* 4-75650
Si, diffusion of Ga through SiO_2 film, h.f. capacitance and inversion voltage obs. 4-53621
Si, diffusion of P, excess vacancy generation mechanism 4-61305
Si, directional photoelectron emission from negative electron affinity 4-49530
Si, dislocation kinetics, X-ray topography 4-44538
Si, dislocation loop nature, determ. by residual contrast at g.b=0 and s=0 4-69816
Si, doped, amorphous antiferromagnetism, cluster approach 4-64195
Si, doped, secondary ion mass spectrometry analysis 4-77312
Si, doped by recoil-atom method, impurity and carrier distrib., and appl. in semicond. technology 4-57717
Si, doped oxide source diffusion, theory 4-82824
Si, doping effect on position lifetime 4-72486
Si, E-centres, calc. of energy of form. and conc. 4-48953
Si, electrically active rod defects, TEM obs. 4-44552
Si, electron density spatial distrib., Morse potential calcs. 4-79263
Si, electron escape depth 4-67688
Si, electron irrad. defects, spherical square well potential model 4-48929

elemental semiconductors continued
Si, electron irradiation damage, 50 MeV, i.r. absorpt. obs. *(Russian)* 4−82198
Si, electron microscopy of plasmons 4−79317
n-Si, electron scatt. due to plastic deformation *(Russian)* 4−72780
Si, electron-hole liq., self-consistent calcs. 4−79319
Si, electron-hole liquid, ground state energy calc. 4−75823
Si, electron-hole pair creation average energy, bandgap dependence 4−79316
Si, electroreflectance, 3.1-3.6 eV, line shape, fine struct., band parameters 4−61183
Si, energy distrib. of surface states in cond. band region 4−82468
Si, epitaxial growth, and Ge and Si-Ge, remarks on exptal. system design 4−57721
Si, epitaxial growth, for solar cell p-n junction applic. 4−57722
Si, epitaxial growth, process improvement for high performance microwave diodes 4−64519
Si, epitaxial growth by solid-phase transport 4−70414
Si, epitaxial layer doping, trimethylstibine as Sb source 4−70423
Si, epitaxial wafer growth technique 4−45480
Si, expt. Compton scatt. cross sections, thermal diffuse scatt. contribs. 4−45386
Si, far i.r. photoconductivity from majority and minority impurities 4−82454
Si, film on sapphire, minority carrier lifetime, spatial depend. 4−70083
Si, film on sapphire, P, B ion implantation 4−45437
Si, granular metal Schottky barrier, Au or Ni cosputtered with SiO$_2$ or Al$_2$O$_3$ 4−44993
p-Si, H$^+$ and He$^+$ irrad., ionisation effects 4−66948
n-Si, Hall coeff. anisotropy, theory 4−49016
Si, Hall effect, scattering parameters determ. 4−44941
n-Si, Hall factor conc. depend., 300 and 77K 4−60817
Si, Harrison's first principle pseudopotential method appl., form factor calcs. 4−79254
Si, heavily doped, Cu and Au equilibrium solubility calc. and obs. 4−53620
Si, helical plasma instability conditions 4−49031
Si, high power wafer devices, HCl gettering 4−45468
p-Si, high-resist., photocurrent relax. time, uniaxial deform. effects 4−82458
Si, hole saturation velocity, temp. depend. 4−48971
Si, homoepitaxial, neutron exposure damage 4−66941
n-Si, hot-electron pulse, X-ray scattering from non-thermal phonons 4−75588
Si, i.r. reson. absorpt. in electric field induced surface accumulation layer 4−53136
Si, implantation by ^{12}C$^+$, SiC film production and characterization 4−45473
Si, impurity redistrib. during epitaxial growth and device processing, model 4−45471
Si, in m.i.s. multilayer, photoelectric current pulses, photodiode 4−75966
Si, influence of dislocations on diffusion of Au 4−79187
n-Si, intervalley scatt. obs. by magnetophonon effect 4−57110
Si, ion bombardment induced defects, interaction, e.s.r. obs. 4−82207
Si, ion implantation of phosphorus, substrate thermal contact influence on evolution of disorder *(French)* 4−75556
Si, ion implantation with P$^+$, investigation for doses in excess of amorphisation value 4−66949
Si, ion implanted impurity energy levels 4−69993
Si, ion implanted P, range, standard deviation 4−64514
Si, ion-implanted, defect generation, role of sequential annealing, oxidation and diffusion 4−61308
Si, irrad. with accelerated ions, high temp., annealing of defects 4−72501
Si, junction f.e.t., n- and p-channel, electron and neutron irrad. damage 4−67275
Si, lamellar growth phenomena, $\langle 111 \rangle$ oriented dislocation free float zoned crystals 4−57714
Si, lateral spread of ion implanted impurities 4−67735
p-Si, lattice thermal cond. investigation at low temp. 4−67010
p-Si, lifetime of photocarriers heated by light 4−49041
Si, low-level surface-diffused impurities, nondestructive identification method 4−49591
Si, magnetorefl., carrier conc. and diffusion length meas., 34 GHz 4−82767
n-Si, magnetoresist., influence of compensation 4−57111
Si, minority carrier lifetime meas., separation of bulk and surface effects 4−54990
Si, minority carrier lifetime, effect of annealing 4−57174
Si, Mott-Anderson localisation in two-dimensional band tail of inversion layers 4−48916
Si, n-channel (100) inversion layers in FETs, negative magnetoresistance at 2 to 10K 4−57175
Si, n-type, warm electron cond. *(Russian)* 4−79365
p-Si, neutron irrad. defect cluster form., O and Cu effect 4−79067
Si, neutron-irrad., e.p.r. defect study, quenched-in alignment under uniaxial stress 4−64262
Si, non-ideal exciton gas and condensation into electron-hole plasma drops, luminesc. spectra 4−76302
Si, obs. of anisotropic scatter characts. of β-particles 4−48663
Si, on sapphire, Hall effect, gate bias depend. 4−67232
Si, optical pumping, electron-hole drops or excitonic mols. 4−53061
Si, orientation dependent etching and deposition 4−45467
Si, oxidation, formation of stacking faults and enhanced diffusion 4−61306
Si, oxidation, water vap. press. and Na impurity conc. depends. 4−75719
Si, oxidation effects of HCl and Cl$_2$ on SiO$_2$ growth kinetics 4−57707
Si, P diffused, He beam induced impurity displacement during channelling meas. 4−49620
Si, P ion implanted, surface Au-Si eutectic layer, deep penetrating ohmic contacts 4−70425
Si, p-n function, h.v. reverse bias currents 4−82476
Si, p-n junction, epitaxy on polycryst. ribbon substrates 4−76392
Si, p-n junction, P, As and B implanted, annealing props. 4−76394

elemental semiconductors continued
Si, p-n junctions based on dislocation, V-I characteristics *(Russian)* 4−82479
Si, p-type inversion layers, oscillatory magnetoconductance 4−44940
Si, p-v-n diode, l.f. current pulses 4−82475
Si, Pd contact, film form., struct. and phase vars. *(Russian)* 4−60675
a-Si, photocond., temp. depend., mechanism 4−79379
n-Si, photoelectrochem. passivation and activation at stationary polarisation rel. to temp. 4−53634
Si, photoemission, doping and oxidation effects 4−45410
Si, photoresponse, flying light spot scanned *(Bulgarian)* 4−57130
Si, photosensitive field emission obs. 4−79852
Si, plasma anodization, insulating film growth and characts. 4−45464
Si, plasmon damping *(Japanese)* 4−44875
Si, polarisation effects in electroabsorption, theory 4−67556
Si, polycryst., pure, electronic props., Schottky barrier, p-i-n junctions 4−44925
Si, polycryst. field plate in m.o.s. struct., Fermi level from work function obs. 4−60870
Si, polycrystalline film, deposition on steel for solar cell 4−45466
Si, polycrystalline films, obs. of deform. during deposition 4−57701
Si, precipitation of oxides, distrib. pattern, morphology 4−75630
Si, preparation techniques for transmission electron microscopy *(German)* 4−56592
Si, programmed oxidation, and ion implantation *(Polish)* 4−61298
p-Si, proton irrad., 0.4-200 MeV, carrier recomb., influence of disordered regions 4−49000
Si, proton planar channelling, crit. angles, min. yields 4−72513
Si, Pt-Si contact formation, kinetics and mechanisms 4−57691
Si, pure and n-type, u.s. attenuation calc., 298K 4−79106
Si, quantized (110) inversion layers, anisotropic relax. time 4−75965
Si, quantized inversion layers with many occupied elec. subbands, elec. cond. 4−44920
Si, Raman spectra, ion implantation effect 4−57541
Si, resistivity nonhomogeneity meas., point-probe equip. *(Polish)* 4−54979
Si, Schottky barriers, deep trap levels determ., ion implantation, C-V meas. 4−72720
Si, second indirect band gap obs., absorption spectra 4−48913
Si, secondary electron emission resulting from ion bombard, relax. effects in surface layers 4−57659
Si, selective resonant enhancement in two-phonon Raman spectrum 4−57551
Si, self-diffusion mechanism, theory 4−82291
Si, shallow and deep donors, pseudo impurity theory appl. 4−79308
Si, simultaneous diffusion of P and Sb, doping profile 4−82826
Si, single cryst. of extreme perfection, for IC development 4−57711
Si, Sn diffusion parameters in doped oxide method, backscattering and channelling anal. 4−82819
Si, stacking fault growth anisotropy, oxidation induced 4−44551
Si, stacking fault nucleation and growth, orientation depend. 4−44550
Si, stacking faults, oxid. induced, electrical effects in p-n diodes 4−44549
Si, stacking faults and partial dislocations, diffraction contrast in h.v. electron microscopy meas. 4−78874
Si, striations and swirls, rel. to elec. props. of p-n junctions 4−72859
Si, subthreshold impact mechanisms in radiation defect formation 4−56768
Si, supersaturation and rate of growth from SiCl$_4$-HCl-H$_2$ mixture 4−67722
Si, surface inversion layers, hot carriers, field-dependence behaviour 4−60801
Si, surface layer of single cryst., effect of machining *(Russian)* 4−69951
Si, surface oscills., Shubnikov-de Haas effect 4−75967
Si, surface props. determined using signal photovoltage pulses, influence of trapping 4−75936
Si, surface vibrational amplitudes, LEED obs. 4−56955
Si, thermal stability of electrophys. parameters, high resist. monocryst. 4−82401
Si, thermally cycled to 850K, resistivity, Hall coefficient and mobility 4−44945
Si, thermally oxidized surface inversion layers, two-dimens. electron-lattice scatt. calcs. 4−44921
Si, thermoreflectance, obs. of struct., 4-9 eV 4−53466
n-Si, transverse linear magneotocond. calc. in heating elec. field 4−72801
Si, uniaxial press. effect on 1.8 μm absorption peak of divacancies 4−57588
Si, vaporization and growth, electron microscope obs. *(Russian)* 4−73257
Si, vapour-deposited, chemical-reaction engineering aspects 4−49619
Si (111) surfaces, covalent superlattice struct. study by LEED and photoemission 4−52972
n-Si accumulation layers, energy levels and optical absorpt. at low temps. 4−82362
Si and B$_{13}$P$_2$, double-layer epitaxial growth on Si substrate, Si layer electrical props. 4−70426
Si chemical vapour deposition obs. by time-of-flight mass spectrometry 4−53622
Si deposition, high temperature reactions in Si-H-Cl system 4−70420
Si deposition on Si by SiH$_4$ pyrolysis, kinetics, mass spectrometric obs. 4−70419
Si diode-Ross filter detector system for X-ray spectra of nanosec. plasma 4−48450
Si epitaxial layer, impurity distrib., comparison of measuring methods 4−64520
Si epitaxy, evaporation coefficient of B, determ. for autodoping model 4−49601
Si epitaxy from low pressure pyrolysis of SiH$_4$, expt. 4−49599
Si film, amorphous-polycryst. transition, influence on elec. cond. and optical density 4−60709
Si film, vacuum deposition on SiO$_2$ substrate, diode and m.o.s. device fabrication 4−57702

elemental semiconductors continued
Si inversion layer, Anderson localisation of holes 4−60748
Si inversion layer, in semicond.-insulator struct., evidence for mobility edge 4−60869
Si inversion layers, localized wavefunctions, spatial extent 4−70072
Si junction migration during epitaxial growth, obs. 4−49600
Si low-pressure epitaxy for minimal autodoping 4−49598
Si m.o.s. devices, peaked struct. in field effect mobility, liq. He temp. 4−82485
Si m.o.s. devices, peaked struct. in field effect mobility, above 20K 4−82486
Si m.o.s.t. structures, photoeffect analysis w.r.t. to surface states 4−57170
Si p$^+$nn$^+$ junction, alloyed, formation *(Japanese)* 4−60852
Si photodetectors, low temp. charge transfer electrophotographic systems 4−71215
Si photoelastic tensor compounds meas. using an acousto optical method 4−53391
Si single cryst. film, dielectrically isolated and defined by electochem. etching, carrier lifetime 4−57098
Si single crystal film, dielectrically isolated and defined by electrochem. etching, mobility obs. 4−57097
Si stopping power for low velocity channelled heavy ions 4−56784
Si surface, clean, cleaved, recomb. kinetics of photo-created carriers 4−67250
Si surface, sputtering kinetics, ionic purification applic. to Al-Si Schottky barrier prod. *(Russian)* 4−82776
Si surface, weakly inverted, carrier mobility, m.o.s. expt. and model 4−53152
Si surface barrier detector, radiation damage effects 4−58923
Si surface barrier detectors, rectifying props. of semiconductor contacts 4−62541
Si wafer, annealing effect in loop defect generation 4−82818
Si wafer heat cycling, thermal stress relaxation obs. 4−49603
Si:[B$^-$(s)−Li$^+$(i)], high pair concentration, electro irradiation damage 4−82200
Si:Al(Ga), electron irradiated, impurity effects on photoluminesc. 4−76305
Si:As, impurity conc., mobility, elec. and backscatt. meas., drive-in diffusion 4−64503
n-Si:As, P, Sb, shallow donor polarizability determ. 4−61098
Si:Au, optical props. of donor and acceptor levels 4−67246
Si:Au,Pt,Pd,Rh, level props., constant capacitance obs. in p-n junc. and Schottky barrier depletion layer 4−82376
Si:B, anomalous B diffusion from Bn planar source 4−57704
Si:B, As, Sb proton-enhanced diffusion, theory and expt. 4−49590
Si:B, charge carrier and B implantation conc. profiles comparison 4−64504
Si:B, chem. deposited, polycryst., B analytical determ., sheet resist. meas. 4−70424
Si:B, compression and low temp. laser irradiation, obs. of exciton recombination spectra 4−49438
Si:B, diffusion from gas, B surf. conc. control by elec. field 4−44556
p-Si:B, γ-irrad., steady state photocond. and excess carrier lifetime, theory 4−53118
Si:B, Hg$^+$ implantation damage assessment using SEM 4−82208
Si:B, high-dose implanted, characterization of incomplete activation 4−61312
Si:B, interstitial props. from internal friction meas. after implantation 4−66909
Si:B, isothermal annealing effect on sheet resist. 4−76404
Si:B, lattice location and diffusion of B after implantation, B point defects 4−67740
Si:B, low-temp. photoluminesc., lattice damage due to ion implantation 4−75547
Si:B, profile redistrib. during P diffusion, ion microprobe meas. 4−49593
Si:B, Raman spectra, interaction between localised vibrs. and electronic excitations investig. 4−64390
Si:B, uniaxally deformed, resistivity and magnetoresistance obs., valence band splitting 4−67238
Si:B,P, modified relation for plastic deform. diffusion enhancement factor 4−61321
Si:B diffusion from chemical vapour deposited BN 4−49595
Si:B epitaxial film, diffusion profile investigation 4−64521
Si:B(P), lattice parameters, dopant conc. depend. 4−60453
Si:B(P) thin films, X-ray microanalysis in TEM 4−77294
Si:Be, H, i.r. absorp., Be-H complexes obs. 4−49400
Si:Cd, current oscills., theory 4−60808
Si:Cr, diffusion and solid solubility 4−73266
Si:Li, implanted, annealing effects on doping profile 4−57718
Si:Li, Si:Li-O, thermal cond. meas. rel. to temp., phonon scatt. investig. 4−63950
Si:Li, thermal cond., 1.2-50K, phonon scatt. mechanism 4−60567
Si:Li(B)(P), obs. of photoluminesc. line due to multiexciton decay at impurity centre 4−49448
Si:N pseudo impurity theory for binding energy of first-row deep donors 4−57049
Si:Ni, i.r. quenching of photocond. 4−57138
Si:Ni, in m.o.s.f.e.t., capacitance studies 4−49071
Si:O_2, second phase state of SiO_2 dispersed particles, elec. and optical meas. 4−73144
Si:P, 2 MeV He$^+$ irradiated, resistivity, conductivity and etching meas. 4−82822
Si:P, annealing effect on polycrystn. film resist. 4−45027
Si:P, autoepitaxial growth, model of doping process 4−45445
Si:P, B, As, interstitial-induced diffusion enhancement obs. 4−49592
Si:P, depth distrib. of implanted ions in misaligned cryst. 4−73267
Si:P, diffusion of ^{14}C and ^{35}S, successive-layer radiometric analysis 4−56915
Si:P, dislocation interactions, X-ray topography and electron microscopy obs. 4−82180
Si:P, doping and radiation damage profiles for [110] axis 4−73268
n-Si:P, far i.r. photoconductivity under uniaxial compressional stress 4−64114
Si:P, Fermi contact interaction anal. of shallow donor electron, ENDOR line interpretation 4−44869
n-Si:P, interacting donor clusters, e.s.r. obs., 0.5-4.2K 4−57050

elemental semiconductors continued
Si:P, n.m.r., temp. depend., cond. type effect 4−49248
Si:P, photoluminescence, electron-hole droplets 4−70337
Si:P, resistance changes induced by e.s.r. and spin relax. 4−64093
n-Si:P, resistivity, following thermal neutron irradiation, isochronous annealing 4−75860
Si:P diffusion source using ZrO_2:SiP_2O_7 system 4−49594
Si:P film, polycryst., elec. props., thickness depend. 4−57189
Si:P(As), epitaxial, impurity alloying using flux of GaP(As) 4−49626
Si:P(S), donor energies, Kohn-Luttinger effective mass theory 4−79307
Si:Pd, carrier density meas., heat treatment influence, acceptor levels 4−75857
Si:S, photocond. and i.r. quenching, impurity absorpt. 4−75922
Si:Sb,As ion implantation and drive-in diffusion effects 4−49609
n-Si:Zn, low resistivity, recombination times calcs. 4−44962
Si:Zn, nonadditive photocond. due to combined illumination 4−49042
p-Si:Zn, photoconductivity, field induced quenching 4−75924
Si:Zn, photocurrent, i.r. quenching bands 4−49039
Si/Ag, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61309
Si/Ag, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61310
Si/SiO_2 boundaries, determ. of sign of carrier transported across SiO_2 film 4−70070
Si/SiO_2 film boundary, interface state generation by Au diffusion, m.o.s. and neutron activation analysis obs. 4−60864
Si-βSiC, and Si-βSiC-Si_3N_4 systems, vapour deposition and morphology 4−69739
Si-Ge heteroepitaxial system, struct. perfection 4−67125
p-Si-Hf, Schottky barrier height for holes determ. 4−67279
Si-metal interface states, density and relax. time determ. *(French)* 4−49066
Si-SiO_2 interface, B segregation, ion microprobe analysis 4−49596
Si-SiO_2 interface, nature of recomb. centres 4−67283
Si-SiO_2 system, B diffusion under oxidizing conditions after implantation at 80 keV 4−57703
Si-SiO_2-metal structure, ionic clustering effects on C-V characts. 4−72871
Si(111), surface states, tight-binding calcs. 4−64124
α-Sn, electron irrad. damage effects on carrier conc. and mobility 4−75852
α-Sn, high mag. fields, mag. sub-bands, k_z depend. 4−75789
α-Sn, Raman spectrum in mag. field, energy depend. 4−64388
α-Sn, zero-gap semiconductor, mag. sub-band struct. calc., anisotropic effects 4−67163
Te, amorphous, valence band X-ray photoemission spectrum 4−53571
Te, applic. to SQUID tunnel junctions 4−45056
Te, charge density of valence electrons determ. from pseudo-wavefunctions calc. 4−67147
Te, comparison of Mossbauer spectra for amorphous and crystalline films 4−76202
Te, cryst. and amorphous, electronic spectra calc. 4−44845
Te, cryst. and amorphous, electronic structure determ. by photoemission 4−44846
Te, crystal, a-edge-dislocated, hole mobility 4−64084
Te, influence of electric field on interaction of sound with carriers 4−72837
Te, laser irrad., photocond., hole heating effects 4−53121
Te, m.o.s. structure, thermally stimulated currents obs. 4−45006
p-Te, microwave Faraday effect, carrier props. 4−44952
Te, mobile holes, nonlinear optical responses 4−55518
Te, ordered and disordered, photoemission, electronic struct. obs. 4−70393
p-Te, photon drag, longit. 4−75921
Te, photon drag and other e.m.f.'s induced by TEA CO_2 laser 4−57128
Te, quantitative photometric meas. of cyclotron resonance absorption 4−69982
Te, quantum theory of photon-drag transport phenomena 4−75848
Te, thermally activated deform. of single crysts. 4−66962
Te, trigonal warping of valence band Fermi surfaces 4−82363
Te, undeformed and plastically deformed, hole transport, ohmic conductivity and Hall effect 4−82411
Te, Zeeman effect in acceptor centres, negative magnetoresistance *(Russian)* 4−64105
Te crystals, with vacancies, LCAO calcs. 4−75809
Te electronic spectra, struct. disorder effect calcs. *(German)* 4−79266
Te film, hole mobility, surface scatt. effects 4−49094
Te single crystals, transport props. meas., plastic deform. influence, 77 to 300K 4−60814
Te single crystals, transverse Dember and photomag. effects, combined meas. 4−72831
Te structural nature of amorphous phase, photoemission meas. 4−75452
Te thin film transistor electrical properties 4−82501
Te-based m.o.s. structure, photoelec. props. 4−60873

elementary particle coupling constants
angular moment coupling coeffs. calc. procedure *(Russian)* 4−65752
asymptotically free theories, arbitrariness 4−59482
asymptotically free theories, arbitrariness of coupling constants 4−51674
asymptotically free theories, sum rules for coupling parameters 4−51675
baryon coupling in Serber-type h.o. model 4−66048
BBS coupling consts. test of GOR model relns. 4−77782
chiral SU(4) × Su(4), spontaneous symmetry breakdown and scale invariance 4−71642
cosmic ray coupling coefficients latitudinal investigation *(Russian)* 4−80435
cosmic rays, neutron and meson components *(Russian)* 4−80445
field theory model broken supergauge symmetry and renormalisation 4−62886
G, strong gravity field constant, f-meson mediation, meson and baryon masses 4−43403

elementary particle coupling constants continued
  large-momentum behaviour of Green's functions, analyticity in coupling constant 4−43391
  meson-nucleon coupling, rel. to vector-meson propagator calcs. of nucleon form factors 4−47495
  multichannel unitarity equations, solns., reson. and background addition, appl. to pole model of photoprod. 4−77787
  neutral current, deep inelastic contribution to effective coupling constants 4−55590
  quark-gluon, upper bounds 4−55630
  quark-gluon in renormalisable asymptotically free gauge field theory 4−66049
  renormalized, as differential operator in usually nonrenormalizable theories 4−71597
  SU(3) symmetric meson-baryon coupling, strong D/F ratio 4−66004
  sum rules for weak processes, Fermi constant and neutral currents calcs. 4−59533
  unitarity sum rules in one-particle-exchange approx., high energy bounds 4−74584
  Yukawa couplings, determ. using Feynman diagram compensation relations 4−69107
  $(\gamma\gamma)$ $(\nu\nu)$, upper limits *(Russian)* 4−47491
  $K_l \to \gamma\gamma$ in PCAC theory, non-cancellation of Schwinger and seagull terms 4−66031
  μ- and β-decay coupling const. ratio, model dependence 4−59534
  N*, high mass, e.m. couplings in $\gamma N \to N\pi$ up to 2000 MeV 4−62940
  $N^*N\gamma$, in partial-wave anal. of π^+, π^-, π^0 photoproduction from first through third resonance region 4−47511
  $N\Lambda K$, determ. from dispersion reln. anal. of $k^\pm$ p forward scatt. comp. 4−59618
  πN, Coulomb barrier effects on calculation of f^2 and a_1-a_3 4−59605
  πN, from experimental tests for forward dispersion relations 4−63044
  $\pi + p$, unitarity equation in fixed momentum transfer representation 4−47454
  ρ-meson, size of longitudinal coupling in $\pi N \to \rho N$, broken $SU(6)_w$ symmetry 4−47590
  ^3H, d-n coupling consts., peripheral model calcs. 4−77970
  ^4He, ^3He-n coupling consts. peripheral model calcs. 4−77970

elementary particle decay
  see also electromagnetic decays; elementary particle coupling constants; hadron decay; leptonic decays; muon decay; semileptonic decays
  Galilean quantum field theory, transitions 4−69109
  resonance inclusive decay amplitudes, lower bound for total cross section 4−47617
  review of particle properties, particle data group 4−51743
  singularities in three-body final state amplitudes 4−59665
  theory of processes, alternative groups of mutually consistent assumptions 4−59528
  three-body decays, weak, impulse approx. calcs. of final state interaction 4−59537

elementary particle electromagnetic interactions
  basic theory, Didcot summer school report (1973) 4−69149
  dual pion model, supergauge algebra and photon gauge substitution 4−55642
  form factors and covariant parametrisation of e.m. current arbitrary spin, Breit reference frame *(Russian)* 4−77812
  gauge invariant theory with $\Delta T = 1/2$ rule for hadron nonleptonic decays *(Russian)* 4−47477
  gluons, massless vector, in unified gauge theory of weak, e.m. and strong interactions 4−66053
  hadronic current e.m. props. and e.m. current hadronic props. 4−69157
  high-energy, theoretical and exptl. aspects, reln. to weak interactions 4−51705
  lengthy electron, nonlocal quantum electrodynamics 4−77758
  scaling phenomena, general review 4−77805
  second-order process, scaling and bound state model of baryons 4−55571
  unified gauge models of weak and e.m. interactions without charmed hadrons 4−81400
  unified gauge models without charmed hadrons 4−62914
  unified gauge theory, with spontaneous parity breaking 4−77789
  unified gauge theory without heavy leptons, vector anomaly, magnetic moment of W-boson 4−71648
  unified models, renormalisable in spontaneously broken gauge theories 4−77792
  unified weak and e.m. interaction models, universality without heavy leptons 4−62913
  unified weak and e.m. interaction theory, light cone algebra description in various quark models 4−62908
  unified weak and e.m. theories, $\Delta I = 1/2$ rule for nonleptonic weak decay 4−66021
  γ-hadron interactions, book 4−62943

elementary particle inclusive reactions
  absorptive pion exchange in triple Regge model for $pp \to \Delta^{++} + X$ reaction 4−59657
  annihilation processes in φ^4 field theory 4−59564
  asymptotic behaviour of form factors 4−71688
  binary-collision theory for multihadron production amplitudes 4−59595
  charge exchange study from multiparticle production data 4−77945
  charge multiplicity distribs. produced via intermediate clusters and KNO scaling puzzle 4−59642
  charge transfer distribution in neutral cluster models 4−74650
  charged particle left-right multiplicities, generating function techniques 4−47560
  cluster emission model, semi inclusive rapidity distrib., pionization component 4−74695
  clustering, one dimensional models applied to forward backward correlations and charge transfer variables 4−74707
  clustering, transverse motion, two-particle correlations 4−77885
  coherent proton-nucleus inelastic interactions 200 GeV/c, multiplicity of generated charged particles *(Russian)* 4−66113
  conjugated process relationships in QED *(Russian)* 4−66114
  correlations, short-range ordering and clustering 4−55706
  cosmic ray hadron-nuclear reactions, ang. distribs. and scaling at very high energy *(Russian)* 4−65028

elementary particle inclusive reactions continued
  decay spectra of particles and resonances produced in a central plateau 4−66110
  diffractive dissociation and early KNO scaling 4−69201
  doubly-inclusive, correlations *(Russian)* 4−71757
  dual Regge theory using optical model 4−59662
  dual-two-pomeron graph, asymptotic behaviour in missing mass resonance region 4−59588
  duality and the approach to scaling 4−59661
  electroproduction, deep inelastic, single-particle inclusive cross section in dual resonance model 4−47528
  electroproduction, one-particle inclusive, connection with e^+e^- annihilation and pair production 4−59560
  electroproduction of hadrons, test of SU_3 breaking 4−77834
  exchange-degeneracy relations, self consistent, and accidental early scaling 4−55705
  exotic exchange processes, investigation using resonance production with ordinary exchange 4−55708
  factorization, logarithmically rising total cross-sections and Pomeron 4−81431
  Fermi-Landau hydrodynamic model and multiperipheral model reconciled with transverse momentum damping 4−47613
  Feynman-Yang scaling, Regge Mueller and exclusive component approaches 4−63046
  fireball model, statistical chain decay, effects of internal quantum number conservation 4−55649
  fluctuations in angular distributions, hydrodynamical model *(Russian)* 4−47623
  forward-backward asymmetry, reflection of diffractive to nondiffractive mechanism switch 4−51741
  geometrical aspects of multiplicity distribution, inelastic overlap functions 4−66106
  Gribov Reggeon calculus, Pomeron-Pomeron cut evaluation from inclusive data 4−77871
  hadron + hadron → lepton pair + hadrons, parton-model description of hadron distrib. 4−59654
  hadron collisions, geometrical anal. of increasing associated multiplicity with increasing transverse momentum 4−77928
  hadron collisions, high-energy, bounds on average multiplicity and transverse momentum 4−71748
  hadron interactions, multiplicity distrib. under clustering assumption 4−66107
  hadron-nucleon total cross sections, three-component model using quark counting 4−74699
  heavy-particle production in high-energy collisions, cluster models 4−59594
  Heisenberg semiclassical model of multiparticle production 4−71745
  high-energy, new physical characteristics determ. 4−71754
  high-energy models, rel. to screening in deuterium 4−74697
  independent cluster production at high energies, quark model interpretation 4−43444
  inelastic cross sections, secondary particle multiplicity depend. on at. wt. of target *(Russian)* 4−69202
  interpolation formula describing spectra in whole kinematical region 4−74702
  KNO multiplicity scaling, extension to low energies 4−55707
  Koba-Nielsen-Olesen scaling at ISR energies, eikonal tower-graph approx. 4−47620
  large angle scattering, correspondence principle relating inclusive and exclusive processes 4−55626
  left-right multiplicates and Pomeranchuk singularity 4−47554
  longitudinal geometry in inclusive spectra and multiplicity scaling 4−77931
  meson production at large transverse momentum, quantitative results 4−66111
  minimal rule of Chou and Yang, test by summation of exclusive reactions giving inclusive spectrum 4−47558
  model for processes at large transverse momenta assuming short range correlations 4−55711
  Mueller singularities, nonfactorised and inclusive distribs. 4−47604
  Mueller-Regge analysis in central region 4−63055
  Mueller-Regge models for inclusive pion data in central region 4−59653
  multi-Regge model, kinematical effects and approach to scaling in central region 4−47611
  multi-Regge model with vanishing PPH vertex, self-consistent pomeron with unit intercept 4−77877
  multihadron production, absorptive corrections and Pomeron unit intercept 4−77943
  multihadron production at high energies, diffractive component 4−66075
  multiparticle final states production by coherent excitation of projectiles in nuclear targets 4−47618
  multiparticle processes, close correlations in Regge model *(Russian)* 4−71724
  multiparticle production, two-component picture 4−81444
  multiparticle variables, one dimensional distribution offering distinction between models 4−63042
  multiperipheral and hydrodynamic theories, comparison *(Russian)* 4−55703
  multiperipheral multifireball model with rising total cross section 4−59655
  multiplicity distribution in impact-parameter space, inclusive overlap function 4−47602
  multiplicity distributions and correlations in Mueller-Regge theory 4−63047
  multiplicity of nonlepton-nonlepton inelastic reactions, and inelastic interactions with nucleus *(Russian)* 4−71758
  nonsense wrong-signature zeros, Pomeranchukon-ρ cut estimate for πN scatt. 4−59591
  one-dimensional solvable models for particle production 4−63003
  one-particle distribution, Chew-Pignotti two-component model, dual model interpretation 4−55643
  one-particle distributions, self-consistent diffraction in multiperipheral model 4−77884
  parton-parton scattering in large transverse momentum events, cross sections for various inclusive processes 4−74637
  perturbative treatment, diffractive dissociation leading to rising plateau 4−74709
  pion correlation in $ab \to \pi^\pm\pi^\pm + X$ 4−63038

elementary particle inclusive reactions continued
polarisation in beam fragmentation region, Regge-cut model 4−47612
Pomeranchuk pole structure, scaling, multiperipheral model *(Russian)* 4−63054
Pomeron cut contributions to inclusive cross sections 4−55718
Pomeron structure based on multiperipheral and diffractive production processes 4−66070
pp scatt. exchange mechanism in polarised beam meas. 4−71753
quark model anal. 4−66054
quark model correlation of cross sections, selection rule 4−51740
quark-parton fragmentation models, Feynman's quantum number conjecture and triality 4−62977
quark-quark meson multiple production in hadron-hadron high energy collisions 4−55628
Regge phenomenology, duality, exotic channels, factorisation and triple Regge behaviour *(Hungarian)* 4−63036
Regge-Mueller models, constraints of momentum conservation in pionisation region 4−66068
resonance inclusive decay amplitudes, lower bound for total cross section 4−47617
restricted cross sections, multiperipheral anal. 4−81446
rising cross-sections, three- or four-pomeron vertex models 4−63034
rising total cross sections, partially due to massive free quark production 4−62973
rising total hadronic cross section systematics 4−47600
scaling distribution of large transverse momenta, parton or multiperipheral models 4−59649
scaling of multiplicity distributions, statistical mechanics analogy 4−55709
semi inclusive, failure of light cone physics, use of massive quark model 4−77785
semi-inclusive, average transverse momenta as function of prong number 4−74700
semi-inclusive, decay of clusters in independent cluster emission models 4−74649
semi-inclusive deep electroproduction, threshold connection with annihilation processes 4−62964
semi-inclusive rapidity correlations in cluster emission models 4−47615
sequential decay approach to multiple production 4−47605
sequential decay scheme for multiparticle phenomena 4−51738
single particle spectra, interpretation based on flow patterns of urbaryon lines 4−43445
single-particle distrib. in hydrodynamic and statistical thermodynamic models 4−74652
statistical bootstrap model, single-cluster formation cross section 4−62981
strong interactions at high energy, expt. review 4−81439
sum rule derivation in central region, charge conservation and Regge couplings 4−59656
thermodynamic model, large transverse momenta 4−71725
total cross section, 26 to 54 GeV neutron interactions with protons and nuclei *(Russian)* 4−66210
total cross section constancy with energy, approximated absorbed multiperipheral models investigation 4−66073
total cross sections, multiperipheral and diffractive components in Gribov's reggeon calculus 4−74708
total cross sections, new upper bound 4−63045
transverse momentum correlation features, kinematical constraints 4−55658
transverse-momentum distribution of pions coming from ρ meson decay 4−55720
two particle azimuthal correlations, independent-cluster emission model 4−63032
two particle correlations, central region, multiperipheral model 4−63033
vector meson production, physical trajectories in dual resonance model 4−62988
virtual photon + virtual photon → hadrons, parton-model description of hadron distrib. 4−59654
$e^+ + e \to \text{hadrons} + X$, phenomenological anal. 4−74614
e^+e^- annihilation senile scaling, massive spark model framework 4−62952
$e^+e^- \to e^+e^- + \text{hadrons}$, deep inelastic structure functions of photon 4−59571
$e^+e^- \to e^+e^- + \text{hadrons}$, equivalent polarised-photon approx. 4−55613
$e^+e^- \to \gamma \to \pi X$, isospin bounds for two particle correlations, Bose condensation 4−77843
$e^+e^- \to \text{hadron} + X$, differential cross section for arbitrary polarisation states, weak interaction effects 4−59552
$e^+e^- \to$ hadrons, 1.2 to 3.0 GeV, energy depend. of cross-sections 4−69166
$e^+e^- \to$ hadrons, asymptotic behaviour of form factors 4−71688
$e^+e^- \to$ hadrons, charge fluctuations in parton and generalised vector meson dominance models 4−62962
$e^+e^- \to$ hadrons, constancy of total cross section in vector meson model, scaling breakdown 4−55621
$e^+e^- \to$ hadrons, scaling behaviour in model with pointlike couplings between resonances and photons 4−55619
$e^+e^- \to$ hadrons diffractive interaction and lepton composite structure 4−66045
$e^+e^- \to$ hadrons total cross section, relative magnitude of one- and two-photon processes 4−59568
($e^+e^- \to \text{hadrons}/e^+e^-\mu^+\mu^-$) cross section ratio variation as evidence of quark substructure 4−71690
$e^+e^- \to \mu^+\mu^- + \text{hadrons}$, differential cross section in deep inelastic region 4−59570
e^+e^- one-particle inclusive annihilation with polarised beams, weak neutral current effects 4−62946
e^+e^- annihilation, two-particle distribs. and correlations in quark-parton model 4−43418
$ep \to e\mu^+\mu^- + X$, calc. in light-cone limit 4−59562
$ep \to e\mu^+\mu^- + X$, cross section anal. in field theoretic parton model 4−71689
$e^-p \to e^-\pi^\pm X$, meas. of cross-section 4−59561
$e^-p \to e^-\pi + \text{anything}$, quark-parton fragmentation function 4−47529
$\gamma_{(\nu)}$ processes, duality, quark and parton models, scaling 4−77852

elementary particle inclusive reactions continued
$\gamma^*N \to hX$, hadronic features of photon, generalized vector meson dominance model 4−51715
$\gamma_{(\nu)}N$ total cross sections, H_2 and D_2 targets 4−77853
$\gamma_{(\nu)}p$ inclusive production of π, K, p, n, review of data 4−77851
K/π ratio in central plateau, dynamical and symmetry effects 4−74710
$K^\pm$ d total cross sections, 50-200 GeV/c 4−77938
K^-p, inclusive production of Λ hyperon and K^0 at 3.93 and 14.3 GeV/c 4−69197
$K^-p \to \gamma + \text{anything}$, 14.3 GeV/c, inclusive cross section, π° invariant distribution 4−66103
$K^-p \to pX$, 14.3 GeV/c, obs. in p fragmentation region 4−63037
$K^+p \to (\pi^-, K^0, \pi^-\pi^-, \pi^-K^0) + X$, 10 GeV/c, anal. of spectra correlations 4−59643
$K^+p \to K^0X^{++}$, triple Regge anal., K* resonance decay and Regge trajectory 4−47610
$K^\pm p$ total cross section calculation, 10-400 GeV/c 4−74706
$K^\pm p$ total cross sections, 50-200 GeV/c 4−77938
N-nucleus scatt. pionization effects using unitary model 4−71892
$NN \to l^+ + l^- +$ anything, predictions based on quark parton distributions in hadrons 4−71694
np total cross section 30 to 280 GeV/c 4−77935
ν, ν, induced, tests of charge symmetry and scaling 4−47488
$\nu(\nu)N \to l^\mp + \text{anything}$, charge symmetry and neutral current in Salam-Weinberg model 4−81405
ν-induced deep inelastic reactions, charge symmetry and isospin constraints on pion multiplicities 4−55605
$\nu_\mu(\nu_\mu)N \to \mu^-(\mu^+) + \text{hadrons}$, high energy, scaling variable distribs. C invariance test 4−81406
νN, exptl. review 4−81407
$\nu N \to$ multiparticle final state, coincidence hadron production, peripheral model 4−59542
$\nu N \to \nu + \text{hadrons}$, phenomenological anal. of neutral-current interaction 4−59544
$\nu_\mu N \to \mu' + \text{hadrons}$ CERN experiment, lower limit for heavy muon mass 4−51708
p interactions, multiplicity distribution at high energies, two component model 4−81438
p production at ISR energies, peripheral or central 4−63039
p-nucleus, 200 GeV/c, study of multiplicity distributions of relativistic and slow particles *(Russian)* 4−47622
$p + p \to \pi + \text{anything}$, superhigh energy, bound on average multiplicity of pions 4−74694
$pBe \to e(\mu) + \text{anything}$, 300 GeV direct lepton production source study 4−77934
pd and pd total cross sections, 50-200 GeV/c 4−77937
$p\gamma \to \pi^0\eta + X$, 21 GeV, cross-section meas. 4−77838
pn inelastic interactions 200 GeV/c, multiplicity of generated charged particles *(Russian)* 4−66113
pN interactions 200 GeV/c, angular distrib. and correl. of secondary particles *(Russian)* 4−66112
$pN \to l^+l^- + X$, upper bounds on cross section in coloured quark-parton model 4−69199
$pn \to m\pi$, $m \geqslant 3$, 1.0-1.6 GeV/c, thermodynamic and Regge-Muller analysis 4−63035
pp, 1.5-10 GeV/c, charged particle production at CERN ISR 4−74701
pp, 205 GeV/c charged particle multiplicity distribution 4−63051
pp, absorbed independent cluster emission model for multiparticle production and elastic scattering 4−81445
pp, and pp total cross sections, 50-200 GeV/c 4−77937
pp, at ISR, correlations between forward proton and central pion 4−47603
pp, charged particle associated multiplicities in collisions at 19 GeV/c 4−47607
pp, high energy, impact parameter anal. of multiplicity distrib. 4−55702
pp, inclusive and semi-inclusive, 205 GeV/c, azimuthal correlations 4−74704
pp and pp total cross section calculation, 10-400 GeV/c 4−74706
pp annihilation, props, statistical bootstrap model 4−77893
pp charged particle multiplicities associated with large transverse momentum photons, ISR energies 4−59650
pp charged particle multiplicity distribution model, 5-300 GeV/c 4−59658
pp collisions, anal. of massive muon pair prod. 4−74712
pp collisions, high energy, correl. between charged particles emitted at large angles 4−74693
pp collisions, inclusive two charged particle correlations, 45 and 53 GeV 4−77941
pp collisions, massive lepton-pair production related to $\rho(\omega)$ inclusive production via duality in q^2 4−66064
pp collisions, maximum-rapidity-gap distrib. determ. of amount of diffraction 4−47561
pp collisions, multiperipheral cluster model long range correl., pionization component 4−77929
pp collisions, production of particles with large transverse momenta 4−77939
pp collisions, scaling of multiplicity distribution, diffractive-excitation like models 4−71744
pp collisions, total cross sections from ISR to EAS energies 4−55704
pp collisions studied in reggeised π-exchange model, nucleon spectra *(Russian)* 4−47624
pp differential cross section, Bose distrib. and Lorentz-contracted geometric model 4−47621
$pp \to \Delta^{++} + X$, 303 GeV/c, pion exchange, triple Regge model 4−59657
$pp \to \Delta^{++}(1236) + \text{anything}$, π- and ρ-Regge exchange analysis, absorption effect 4−66105
$pp \to \gamma + \text{anything}$, 12.4 GeV/c, cross section for π^0 production 4−63041
$pp \to \gamma + \text{anything}$, 50-400 GeV/c, invariant π^0 cross section behaviour in terms of scaling variable 4−69198
pp inclusive, semi-inclusive and two-particle distribs. at 70 GeV, multiperipheral model *(Russian)* 4−66081
pp inclusive and semi-inclusive two-particle rapidity correlations, 205 GeV/c 4−51742
pp inelastic interactions 200 GeV/c, multiplicity of generated charged particles *(Russian)* 4−66113

elementary particle inclusive reactions continued

- pp interactions, 5-200 GeV/c, multiplicity distributions, 2n-prong cross-section 4−63031
- pp interactions, 69 GeV/c, correlations between two charged particles in central region *(Russian)* 4−71755
- $pp \to K^+ + X$, positive particle production in fragmentation region at CERN ISR 4−47609
- $pp \to K^+ +$ anything, 15.3-26.5 GeV/c cross section meas. at ISR 4−59651
- $pp \to K^\pm X$ inclusive distrib. anal. using Kuti-Weisskopf quark-parton model 4−66104
- $pp \to l^+l^- + X$, possible effects of weakly coupled neutral currents 4−59644
- $pp \to l^+l^- +$ anything, kinematics, massive lepton pair prod., model calcs. 4−63050
- $pp \to \Lambda(\Sigma) + X$, anal. using one-particle (Regge) exchange mechanisms 4−71747
- pp multiplicities, topological cross sections and single particle inclusive distrib., 12 and 24 GeV/c 4−51739
- $pp \to \mu^+\mu^- X$, final state interactions in Drell-Yan formula, decrease of cross section 4−77863
- $pp \to \mu^+\mu^- X$, final state interactions in Drell-Yan formula, no change in cross section 4−77864
- $pp \to \mu^+\mu^- +$ anything, Kuti-Weisskofp relativistic quark model 4−59648
- $pp \to NN(\pi)^l$, statistical charge distrib., rel. between π^+/π^- ratio and average multiplicity 4−63049
- $pp \to pX$, 23 GeV and 31 GeV, missing mass spectra anal. 4−47608
- $pp \to pX$, 28.5 GeV/c, comparison of associated multiplicity with other reactions 4−77927
- $pp \to pX$, bremsstrahlung model for hadron production at large transverse momentum 4−69180
- $pp \to pX$, in triple Regge region with very large triple-Pomeron coupling and bare Pomeron, description 4−47619
- $pp \to pX$, quark-Pomeron coupling model anal. of diffraction excitation 4−74713
- $pp \to pX$, very high energies, pomeron-particle cross section and triple-pomeron vertex determination 4−59647
- $pp \to pX$ in triple Regge region incorporating f/P universality 4−69200
- $pp \to p + X$, 102 to 405 GeV, scaling of multiplicity distribs. as functions of missing mass 4−55710
- $pp \to p + X$, diffractive fireball production and rising total cross sections at high energies 4−63048
- $pp \to p + X$, positive particle production in fragmentation region at CERN ISR 4−47609
- $pp \to p +$ anything, 12 and 24 GeV/c, rapidity-gap separation and study of single-diffraction dissociation 4−66102
- $pp \to p +$ anything, 15.3-26.5 GeV/c cross section meas. at ISR 4−59651
- $pp \to p +$ anything, charged particle multiplicity distribs. 4−55713
- $pp \to pc +$ anything, quasi-elastic, 23 and 31 GeV, correlations 4−77942
- $pp \to \pi_1^- \pi_2^- +$ anything, 69 GeV/c, two body correlations 4−55715
- $pp \to \pi^- +$ anything, 69 GeV/c inclusive spectra in central and fragmentation region 4−55714
- $pp \to \pi^0 + X$, correlations between π^0 and charged particles at 52.7 GeV at CERN ISR 4−71751
- $pp \to \pi^0\pi^0 + X$, correlations between large transverse momentum π^0 mesons at CERN ISR 4−71752
- $pp \to \pi^+ + X$, positive particle production in fragmentation region at CERN ISR 4−47609
- $pp \to \pi^+ +$ anything, 15.3-26.5 GeV/c cross section meas. at ISR 4−59651
- $pp \to \pi^\pm X$, inclusive distrib. anal. using Kuti-Weisshopf quark-parton model 4−66104
- $pp \to \pi^\pm +$ anything, 102 GeV/c, preliminary results 4−74705
- $pp \to \pi^\pm +$ anything, 9.1 and 4.6 GeV/c, factorisation predictions 4−74696
- $pp \to \pi X$, 6 to 400 GeV/c, pion prod. in proton fragmentation regime 4−77936
- pp rising inelastic cross sections at high energies, contribution of stopping protons 4−47614
- pp rising inelastic cross sections in ISR region, inclusive contributions 4−55719
- pp rising total cross section, perturbative treatment of threshold contributions 4−63043
- pp scatt. high-energy, limiting regime of cross sections 4−81447
- pp scattering, rising cross sections, Regge models, high energy 4−77926
- pp single particle production, invariant cross section behaviour in terms of scaling variable 4−66108
- pp single-particle distribs., 300 GeV/c, new scaling hypothesis 4−66109
- pp two-prong events at 205 GeV/c, elastic and inelastic contribs., cross sections 4−59652
- $pp \to X$, 14.75 GeV/c, charged multiplicity distribs. and neutral prod. 4−77944
- $pp \to X$, 175 to 400 GeV, differential cross-sections determ. 4−71750
- π production, effect of Bose-Einstein statistics on multiplicity distribs. and correlations 4−74711
- π^0 inclusive spectra, cosmic ray and ISR data, decay of uncorrelated clusters 4−77930
- $\pi^\pm$ d total cross sections, 50-200 GeV/c 4−77938
- π^-C, 40 GeV/c, inclusive and topological cross sections for Λ and K^0 production 4−77932
- $\pi^-{}^{12}C \to \gamma +$ anything, 40 GeV/c, inclusive γ- and π^0 spectra, normalized structure functions 4−59663
- $\pi^-{}^{12}C \to \gamma(\pi^0) +$ anything, 40 GeV/c, γ and π^0 spectra obs. *(Russian)* 4−71756
- $\pi^+ d \to \pi^- +$ anything, 24 GeV/c, inclusive spectra, longitudinal momentum distribs., two particle correlations 4−59645
- πN forward dispersion relations, high and low energies, methods of testing 4−63044
- $\pi N \to l^+ + l^- +$ anything, predictions based on quark parton distributions in hadrons 4−71694
- $\pi^- n$, 40 GeV/c, inclusive and topological cross sections for Λ and K^0 production 4−77932
- $\pi^- n \to \pi^\pm + x$, 40 GeV/c, reaction characteristics 4−47606

elementary particle inclusive reactions continued

- $\pi p \to \mu^+\mu^- +$ anything, Kuti-Weisskopf relativistic quark model 4−59648
- $\pi^- p$, 40 GeV/c, inclusive and topological cross sections for Λ and K^0 production 4−77932
- $\pi^- p$, two particle correlations, 40 GeV/c particle production mechanisms 4−74698
- $\pi^- p$ charged particle multiplicity cross sections, 100 GeV/c 4−71746
- $\pi^- p \to \gamma +$ anything, 40 GeV/c, inclusive γ- and π^0 spectra, normalized structure functions 4−59663
- $\pi^- p \to \gamma(\pi^0) +$ anything, 40 GeV/c, γ quanta and π^0 spectra obs. *(Russian)* 4−71756
- $\pi^- p \to p + X$, 102 to 405 GeV, scaling of multiplicity distribs. as functions of missing mass 4−55710
- $\pi^- p \to p + X^-$ differential cross section and scaling invariance, 25 and 40 GeV/c 4−59659
- $\pi^- p \to \pi^\pm + x$, 40 GeV/c, reaction characteristics 4−47606
- $\pi^+ p$, 4.1 GeV/c, $a + b \to c + X$ type, limiting fragmentation of target and beam for exotic abc 4−63040
- $\pi^+ p \to \pi^- + X$, 16 GeV/c, thermodynamical model calc. 4−59593
- $\pi^+ p \to \pi^0(\pi^+) + X$, inclusive spectra anal. near 1 GeV 4−47601
- $\pi^\pm p \to K_1{}^0 +$ anything, 18.5 GeV/c, cross sections, multiplicities and polarisation data 4−55717
- $\pi^\pm p \to \Lambda^0 +$ anything, 18.5 GeV/c, cross sections, multiplicities and polarisation data 4−55717
- $\pi^\pm p \to pX^\pm$, recoil-proton polarisation in A_2 region 4−55716
- $\pi^\pm p$ total cross section calculation, 10-400 GeV/c 4−74706
- $\pi^\pm p$ total cross sections, 50-200 GeV/c 4−77938
- $\pi\pi \to \pi + X$, physical trajectories in dual resonance model 4−62988
- $\pi^0\pi^0$ total cross-section, lower bound 4−43446

elementary particle interaction models

see also bootstrapping; composite models of hadrons; duality and dual models; peripheral models

- absorbed independent cluster emission model for multiparticle production and elastic scattering, high energy pp collisions 4−81445
- baryon-antibaryon threshold resonances, role in high energy interactions 4−74651
- binary-collision theory for multihadron production amplitudes 4−59595
- book, currents in hadron physics 4−62882
- Bose distribution and Lorentz-contracted geometric model for pp inclusive cross sections 4−47621
- bremsstrahlung emission of pions from high energy nucleons in strong interaction 4−74664
- bremsstrahlung mechanism, e^+e^- and $\mu^+\mu^-$ pair prod. in colliding electron beams *(Russian)* 4−66038
- bremsstrahlung model, appl. to $pp \to l^+l^- +$ anything 4−63050
- bremsstrahlung model for hadron production at large transverse momentum 4−69180
- bremsstrahlung model of diffractive production, total cross section behaviour at high energies 4−63001
- Cabibbo's model, test in hyperon semileptonic decays 4−47481
- channel likelihood technique for multibody final states 4−62999
- charge symmetry and neutral current unified model of weak and electromagnetic interactions 4−81405
- Chew-Pignotti two-component model, dual model interpretation 4−55643
- Chou-Yang model for ISR energies, incorporation of energy depend. 4−51728
- CKP model, muon underground coupling functions 20-1000 hg. depth 4−70856
- cluster, pp collisions, inclusive two charged particle correlations, 45 and 53 GeV 4−77941
- cluster emission, semi-inclusive rapidity correlations 4−47615
- cluster emission model, semi inclusive rapidity distrib., pionization component 4−74695
- cluster emission model and of inclusive reactions 4−55706
- cluster models, consequences for heavy particle production in high-energy collisions 4−59594
- clustering, transverse motion, two-particle correlations 4−77885
- clustering model for many particle production 4−74707
- coherent production model for $K_s{}^0$ regeneration on nuclear targets 4−55890
- coherent production models for multiparticle final states produced from nuclear targets 4−47618
- coherent state formalism for high-energy pion production 4−55657
- constitutive interchange model, anal. of inelastic Compton scatt. 4−77839
- cosmic ray fast cluster model, role of fluctuations in anal. of families of photons and hadrons *(Russian)* 4−65030
- cross-channel isospin anal. of $\pi^\pm p \to \pi(N\pi)$, 3.9 GeV/c 4−59631
- diffraction dissociation, high energies 4−77902
- diffraction dissociation of neutrons in $dp \to ppp\pi^-$ at 25 GeV/c 4−74684
- diffractive dissociation and impact picture for high-energy two-body processes 4−55701
- diffractive fireball production in $pp \to p + X$, rising total cross sections 4−63048
- diffractive scattering, self-consistent Regge eikonal model with crossed-channel unitarity 4−55647
- diffractive-excitation type for pp multiplicity distributions 4−71744
- education, Heisenberg's explosion shower model, high energy cross sections, Froissart bound 4−73949
- eikonal approximation for effective potential and off-shell two-body scattering amplitudes 4−43432
- eikonal approximation justification of absorption in multiproduction amplitudes 4−66078
- electroproduction, deep inelastic, diffractive behaviour in resonance excitation model 4−62961
- factorizable eikonal models for pp elastic scatt. at ISR energies, energy dependence 4−47582
- Fermi's statistical model for multiparticle production at high energy, quantum effects 4−55656
- Fermi-Landau hydrodynamic model and multiperipheral model reconciled with transverse momentum damping 4−47613
- fermion-loop model for $e^+e^- \to \gamma$-mesons (three and four) 4−62963
- fireballs, statistical chain decay, effects of internal quantum number conservation 4−55649
- fixed-pole model for pp diffraction 4−55648

elementary particle interaction models continued
fragmentation effect on eikonal phase, total cross sections and absorptive effects 4-55655
gauge, radiative decay of excited neutrons 4-55591
gauge model of weak and e.m. interactions with $\Delta T = 1/2$ rule for hadron nonleptonic decays *(Russian)* 4-47477
general cluster model of particle production, inclusive and exclusive distribs. 4-63003
generalized vector meson dominance model, photon shadowing in heavy nuclei 4-74616
geometrical anal. of increasing associated multiplicity with increasing transverse momentum in hadron collisions 4-77928
Georgi-Glashow model, calc. of heavy electron decay rate $E^0 \rightarrow \nu\gamma$ 4-59532
Georgi-Glashow model of weak interactions 4-81401
GOR model test, through meson baryon σ-terms and BBS coupling consts. 4-77782
Gribov Reggeon calculus, Pomeron-Pomeron cut evaluation from inclusive data 4-77871
hadron clusters with quark core, multiplicity distrib. 4-77858
hadron fireball dimensions determ. by second-order interference between identical particle pairs 4-55652
hadronic bremsstrahlung model without partons for large momentum transfer reactions 4-63004
Heisenberg strong coupling model of multiparticle production 4-71745
Higgs model of spontaneous mass generation, weak interactions 4-81401
Hiroshima model, effects of $\nu_\mu e^-$ scatt. obs. 4-66025
hydrodynamic, fluctuations in angular distributions in multiple production processes *(Russian)* 4-47623
hydrodynamic theory of multiparticle production *(Russian)* 4-55703
hydrodynamical model for multiparticle prod., transverse momentum bounds and scaling 4-59596
inclusive spectra, Mueller-Regge analysis in central region 4-63055
independent cluster emission, decay in semi-inclusive processes 4-74649
independent-cluster emission, two particle azimuthal correlations 4-63032
inelastic processes, limits on impact parameters 4-55653
invariant phase space model for e^+e^- and pp annihilation processes 4-62951
Landau's hydrodynamical model for multiparticle production at high energy, quantum effects 4-55656
Landau hydrodynamic theory, high inelastic electroproductions and hadron collisions *(Russian)* 4-81433
like-particle correlations as tool to study multiple production mechanism 4-63038
limiting fragmentation, in two-component picture of multiparticle production 4-81444
maximum-rapidity-gap distrib. determ. of amount of diffraction dissociation in proton collisions 4-47561
minimal rule of Chou and Yang, test by summation of exclusive reactions giving inclusive spectrum 4-47558
modified Born term model for $\pi^\pm\Delta$ electroproduction 4-74613
Mueller-Regge model, calc. of left-right multiplicities 4-47560
Mueller-Regge model, for π^-p 40 GeV/c inclusive reactions 4-74698
Mueller-Regge models for inclusive pion data in central region 4-59653
multi-Regge model, kinematical effects and approach to scaling in central region 4-47611
multicomponent models, rapid multiplicity rise as function of momentum transfer 4-62998
multifireball expansion and bare pomeron for s-channel unitarity equations solution 4-62994
multiparticle completely unitary models, amplitudes and opaqueness 4-47562
multiplicity distribution in impact-parameter space, inclusive overlap function 4-47602
multipole anal. of $\gamma + p \rightarrow \pi^0 + p$ interaction at 220 to 500 MeV 4-47522
neutral cluster models, charge transfer distribution 4-74650
neutral current, obs. of neutrino like interactions without muon or electron in Gargamelle expt. 4-47486
neutral currents, weak and e.m. interactions, gauge theory, spontaneous parity breaking 4-77789
neutral weak currents, exptl. state-of-the-art review 4-69151
new force existence in high GeV range *(Hungarian)* 4-47564
nonperipheral, validity for strange K^* and K^{**} exchanges in $K^-p \rightarrow \eta(\eta')\Lambda$ reactions 4-71737
nucleon pole model of $pp \rightarrow pp\pi^0$ and $pp \rightarrow pn\pi^+$ reactions 4-47569
one-dimensional, of particle production, inclusive and exclusive distribs. 4-63003
optical Chu-Hendry model, appl. to polarisation struct. in pp elastic scatt. 4-51732
optical model analysis of ρ^0 photoproduction on complex nuclei 4-47513
optical model for large-angle elastic proton-proton polarisation at 5.15 GeV/c 4-55682
optical model of strong interactions and eikonal approximation in scattering theory 4-51729
optical theorems for general collisions, Regge behaviour of scattering function discontinuities 4-66077
parametrisation for total hadronic cross sections, 10-400 GeV/c 4-74706
pole model of $\Delta(1220)$ resonance with background addition 4-63059
pole-resonance model for $K^-p \rightarrow \Lambda\pi^0$ reaction, 440-800 MeV/c, role of interference terms 4-47574
Pomeranchuk statistical model, high energy collision, secondary particles, final-state interaction and comp. *(Russian)* 4-77890
potential model for low-energy baryon-baryon scatt. in triplet state 4-69186
quark model with parton fragmentation hypothesis for semi-inclusive neutrino interactions 4-55601
quasipotential approach to backward πN scatt. at high energy 4-74668
random fragmentation type model for pp inclusive production of large transverse momenta particles 4-77939

elementary particle interaction models continued
Regge poles, complex, review *(Russian)* 4-81429
reggeised π-exchange, study of nucleon spectra in pp collisions *(Russian)* 4-47624
Reggeized Deck model calc. for $\pi^-C \rightarrow \pi^+\pi^-\pi^-C^*_{4.44}$ process 4-55891
Reggeized-Deck model for $\rho'(1500)$ photoproduction 4-55625
s-channel impact parameter model of inelastic diffraction dissociation, momentum transfer distributions 4-66079
s-channel models for Pomeron, dynamical mechanism and absorptive effects 4-66074
Soding model for extraction of ρ^0 photoproduction cross sections from dipion mass spectra 4-47512
statistical, multiparticle production, influence of incoherence effects on correlations 4-74647
statistical anal. of charge multiplicity distribs. produced via intermediate clusters 4-59642
statistical bootstrap model, single-cluster formation cross section 4-62981
statistical charge distribution validity for $pp \rightarrow NN(\pi)^l$ type processes 4-63049
statistical model for particle ratios in energetic hadron collisions in central region 4-59598
statistical models for early onset of Koba-Nielsen-Olesen scaling in hadronic collisions 4-47559
statistical thermodynamic theory, calc. of mag. susceptibility of neutron stars 4-62163
strong absorptive cuts model, polarisation phenomena as test 4-51725
strong gravity model of semileptonic and nonleptonic processes *(Russian)* 4-47476
SU(n) unified gauge theory, Weinberg angle test 4-71636
tensor-meson dominance, role of Pomeron 4-63000
thermodynamic, single-particle distribs. in multiparticle prod. 4-74652
thermodynamic model, large transverse momenta 4-71725
thermodynamic model analysis of $pn \rightarrow m\pi$, $m \geqslant 3$, 10-1.6 GeV/c 4-63035
thermodynamical model calcs. on meson fireballs and πp reactions 4-59593
three component using quark counting, for hadron total cross sections 4-74699
transverse momentum correlation features, kinematical constraints 4-55658
triple-Regge physics, role of pion mass, pion pole dominance model for couplings 4-77870
two-component model, $\pi^\pm p \rightarrow \pi(N\pi)_{dd}$, diffr. dissoc., 3.9 GeV/c, s- and t-channel helicity conservation 4-77917
two-phase model of hadronic matter and high energy nuclear production 4-66159
uncorrelated jet model, multiparticle phases character in pp annihilations 4-51737
uncorrelated-jet model, pionisation process analysis 4-77888
unified gauge models of weak and e.m. interactions without charmed hadrons 4-81400
unified model of reaction rates for undergraduate instruction 4-54781
unified weak and e.m., renormalisable in spontaneously broken gauge theories 4-77792
vacuum polarizations, e^+e^- annihilation 4-77821
vector dominance model test by forward and backward ρ^0 and ω^0 production 4-74673
vector meson dominance, generalized, for γ^*N and $\gamma^*\gamma^*$ reactions, hadronic features of photon 4-51715
vector meson dominance, new form relating $\pi N \rightarrow VN$ and $\gamma N \rightarrow \pi N$ 4-66080
vector meson dominance generalised, rel. to charge fluctuations in $e^+e^- \rightarrow$ hadrons 4-62962
vector meson dominance in hadronic and radiative weak non-leptonic decays of hyperons 4-77797
vector meson dominance model, generalized for photon structure function $\nu W_2^\gamma(\nu,q^2)$ 4-62947
vector meson dominance theory of photon-nucleus point interactions 4-71692
vector meson series model of $e^+e^- \rightarrow$ hadrons giving constant total cross section 4-55621
weak cuts model, polarisation phenomena as test 4-51725
weak Hamiltonian, current current form, two-nucleon system, pseudoscalar interaction 4-77895
weak interaction renormalizable models, introduction 4-81401
Weinberg, neutral currents in neutrino interactions 4-77791
Weinberg unified theory, gauge independence and unitarity 4-77749
Weinberg weak-interaction model, calc. of $I = {}^1/_2$ contributions to $\nu_\mu N \rightarrow \nu_\mu N\pi^0$ reaction 4-47489
Weinberg-Salam models, neutral current effects in leptonic and semileptonic processes 4-77790
Weinberg-Salem model of weak interactions 4-81401
$e^+e^- \rightarrow$ hadrons, phenomenological model for time dependence of cross section 4-62949
$\gamma N \rightarrow V^0\Delta(1236)$, absorption model study *(Russian)* 4-47518
$K^+ \rightarrow \pi^+\pi^0\gamma$, direct decay, rel. to other weak radiative decays 4-77799
$NN \rightarrow NN + n\pi$, relativistic eikonal formulae 4-55651
pp elastic scattering, two-component analysis of inelastic overlap function 4-77910
$pp \rightarrow pp + n$ pions, comparison between two models for isospin dependence of cross section 4-43439

elementary particle interactions
see also alpha-particle interactions; cosmic ray effects and interactions; deuteron interactions; elementary particle coupling constants; elementary particle electromagnetic interactions; elementary particle inclusive reactions; elementary particle strong interactions; elementary particle weak interactions; hadron interactions; helium-3 interactions; high-energy cosmic ray interactions; lepton interactions; nuclear reactions and scattering; photon interactions; quantum field theory of interactions; triton interactions
book, undergraduate introduction to particle physics 4-59471
colliding beams, conference, Trieste, Italy (June 1974) 4-77730
colliding beams review *(Hungarian)* 4-62911

elementary particle interactions continued
collision amplitudes optimisation methods, outline review 4−62909
conference, Honolulu, Hawaii (August 1973) 4−81364
experimental viewpoint, undergraduate book 4−62883
high-energy, characteristic points 4−69188
intersecting storage rings, high energy particle collisions 4−77147
review of current problems 4−62881
simulation program, design criteria 4−42850
spin-structure of reaction with 4 spin 1/2 particles, consequences of conservation laws 4−66016
unified theory 4−77773

elementary particle scattering
see also alpha-particle scattering; bootstrapping; deuteron scattering; hadron scattering; helium-3 scattering; lepton scattering; Mandelstam representation; photon scattering; Pomeranchuk poles and trajectories; quantum field theory of scattering; Regge poles and trajectories; relativistic scattering theory; S-matrix theory; triton scattering
: 4−69147
amplitude determ. in problems with two and three charged particles, T-matrices 4−51698
analytic continuation of functions defined on subgroups of complex Lorentz group 4−51726
analyticity and noise in numerical analytic continuation of scatt. data 4−65996
analyticity of forward scattering amplitude in terms of mass^2 4−47409
best representation of data by analytic functions in L_2-norm with positivity constraints 4−47452
Bethe-Salpeter equation, closed form solutions for total scattering amplitude 4−71604
Bethe-Salpeter equation solution requirements using causal Green's function 4−69122
book, undergraduate introduction to particle physics 4−59471
charge exchange study from multiparticle production data 4−77945
eikonal cross sections, elastic and inelastic, approximate dynamical relation 4−47425
elastic amplitude, upper and lower bounds for overlap functions and imaginary part 4−55587
experimental viewpoint, undergraduate book 4−62883
forward amplitude, integral relns. between real and imaginary parts from analyticity and crossing symmetry 4−55586
Galilean quantum field theory, transitions 4−69109
high-energy, Polya multiplicity distrib. in parton description 4−55632
inelastic unitarity equations, complete diagonalisation using time reversal invariance 4−65997
partial-wave amplitudes, representation by power moments, consequences 4−51703
partial-wave amplitudes satisfying Froissart Gribov representation, constraints 4−51704
polarization phenomena as test for models of cuts generation 4−51725
reaction amplitudes determ. from exptl. observables 4−74378
resonance width, t-channel exchange effect, high energy 4−47557
scalar particles, unitarity amplitudes with cut-plane analyticity from given scattering data 4−47453
singularities in three-body final state amplitudes 4−59665
spin arbitrary, scatt. amplitude Lorentz-invariant expansion 4−55578
two-body large angle, interpolation formula for differential cross section 4−74702

elementary particle strong interactions
see also composite models of hadrons; duality and dual models; hadron classification schemes; peripheral models; quantum field theory of strong interactions
absorption in multiproduction amplitudes, eikonal approximation 4−66078
basic theory, Didcot summer school report (1973) 4−69149
charge exchange vector meson prod. anal. 4−74681
diffraction dissociation, S-channel impact parameter model, momentum transfer distributions 4−66079
dynamics, generalised dimensional analysis and scaling principle 4−69184
Feynman diagrams compensation, based on hadron octets, nonets and vector bosons 4−69107
fireball model, statistical chain decay, effects of internal quantum number conservation 4−55649
gauge theories, spectral-function sum rules, chiral symmetry breaking 4−69144
gluons, massless vector, in unified gauge theory of weak, e.m. and strong interactions 4−66053
gravitational soldering of dynamical and internal symmetry groups 4−77891
high energy, exptl. review 4−81439
impact parameter analysis of multiplicity distrib. in high energy pp collisions 4−55702
inelastic cross sections, secondary particle multiplicity depend. on at. wt. of target *(Russian)* 4−69202
initial ensemble of states, tests for purity 4−74654
initial states, new description 4−74653
intermediate energy physics topical meeting, Engadin, Switzerland (Apr. 1973) 4−69185
large momentum transfer reactions, hadronic bremsstrahlung model without partons 4−63004
large-momentum-transfer, form factor and structure functions 4−63012
one-dimensional solvable models for particle production 4−63003
optical models, review 4−51729
QED viewpoints and techniques, book 4−62900
quark-gluon renormalisable asymptotically free gauge field theory coupling constant upper bound 4−66049
singularities in three-body final state amplitudes 4−59665
$SU_2 \times SU_2$, chiral, hidden symm. K_{l3} form factors, strong interactions 4−77775
theory, development, symm., analytic approach, algebra of currents *(Russian)* 4−77857
two-particle azimuthal correlations, comparison with π^+p experimental data 4−63028
ultra-high energy, theory of pomeron field self interaction *(Russian)* 4−77880

elementary particle strong interactions continued
K-processes, determ. of new conservation laws *(Russian)* 4−47457
π production charge ratio explained in terms of branch cuts 4−47551
$\pi p \rightarrow \pi(N\pi)$, 3.9 GeV/c, two-component model of diffraction dissociation 4−69196

elementary particle symmetry
see also conservation laws; helicity (elementary particles); nonlinear symmetries; SU_n theory
$\Delta I = 1/2$ rule for non-leptonic weak decays in unified theories 4−66021
$\Delta I = 1/2$ rule for nonleptonic decays in asymptotically free field theories 4−62920
$\Delta I = 1/2$ rule in intermediate boson unitary triplet scheme 4−66018
$(3,3)\oplus(3,3)\oplus(8,8)$ chiral-symmetry breaking, algebraic approach 4−51701
Born reciprocity theory invariants 4−71629
breaking in gauge theories based on quarks to explain $\eta \rightarrow 3\pi$ problem 4−66058
broken SU(4) × SU(4) symmetry implications 4−59515
broken supergaue symmetry in field theory model 4−62886
chiral, physical consequences of theories 4−47459
chiral (8,8) symmetry breaking, tadpole term 4−71668
chiral breaking, spectral function sum rules 4−69144
chiral breaking in meson-meson scattering, exotic σ commutators 4−71732
chiral breaking in threshold dominant framework 4−71719
chiral SU(3) × SU(3) breaking, bounds from K_{l3} decay parameters 4−74589
chiral SU(4) × Su(4), spontaneous symmetry breakdown and scale invariance 4−71642
chiral symmetry and the dual resonance model, investigation of soft meson zeros 4−59586
chiral symmetry breaking, η-η' mixing and C_k/C_π ratio 4−65998
chiral symmetry breaking, meson-nucleon σ commutators, review 4−77778
chiral symmetry breaking in linear σ model, meson masses, anomalous thresholds 4−71638
chiral symmetry breaking in stringlike model of hadrons, similarity to ferromagnetism 4−47463
chiral symmetry breaking model, pion phase transition 4−62904
chiral symmetry relationship to non-Abelian gauge group, Weibberg sum rule considerations 4−69146
compound symmetry groups, spontaneous breakdown 4−81394
conformal, kinematical and dynamical, discrete mass spectrum 4−47465
conformal symmetry application to massless QED, single-electron-line vertex function 4−59509
coplanar breaking of SU(6)$_w$, application to baryon pionic decay 4−71655
CP nonconservation, spontaneous symmetry breaking 4−43397
finite temperature restoration after breakdown at zero temp. 4−74564
finite temperature restoration of gauge and global symmetries in renormalisable quantum field theory 4−74565
gauge symmetries dynamical, breakdown, recent progress 4−71615
gauge symmetry, spontaneously broken, renormalization counter terms 4−55557
gravitational soldering of dynamical and internal symmetry groups, meson mass formulae 4−77891
hadron states in ladder U(6,6) symmetry 4−51724
hadronic symmetry breaking in unified gauge model 4−71637
Higgs mechanism, spontaneous symmetry breaking and gauge theories, review 4−55562
high symmetries, cross-section relations, breaking as in Regge-pole exchange 4−66003
isotopic, nonlinear and algebraic realisation 4−59519
light-like charges connecting local field theory and generators of broken internal symmetry transformations 4−47466
mesons, $0^\pm$, broken chiral symmetry model, mass formulas in SU_3 sigma model 4−55645
models of approximate symmetries, construction in renormalisable gauge field theories 4−71639
multi-pion Born amplitude, symmetric group construction 4−47548
non-Abelian gauge theories, Schwinger mechanism 4−55556
Poincare group, mass zero indecomposable representations 4−69141
Poincare group representations in free quark model 4−62971
Poincare invariance of paraquantised classical string 4−74640
Poincare invariant field theory, conformal props. 4−59514
position and spin operators of relativistic systems, general expressions 4−43398
quark wave function relations for lowest lying U(6) meson multiplet 4−66050
Regge-Regge cuts, new selection rules and symmetry relations 4−47553
relativistic unstable particles, Poincare group, indecomposable representation 4−74580
scale symmetry breaking, πN sigma term 4−77774
scattering, forward amplitude, integral relns. between real and imaginary parts from analyticity and crossing symmetry 4−55586
spontaneous break-down origin, effective pots. via background field method and dimensional regularization 4−71634
spontaneous symmetry breakdown and Regge intercepts 4−62985
spontaneous symmetry breaking in unified gauge theory determ. from generalised minimal principle 4−74548
spontaneous violation of discrete symmetry, cosmological consequences *(Russian)* 4−76780
spontaneously broken, gauge invariant theories, renormalization procedure *(Russian)* 4−77737
spontaneously broken gauge symmetries, Higgs scalars anal. of O(n) and SU(n) groups 4−69142
spontaneously broken in quantum field theory, anal. of Ward-Tahahashi identities 4−62888
spontaneously broken SU(2) theory, transformations on in-fields and Heisenberg fields 4−71608
strong interactions theory, development *(Russian)* 4−77857
$SU_3 \otimes SU_3$ symmetry breaking, $(3,3)\oplus(3,3)$ model, noninvariance of vacuum 4−71635
SU(3) × SU(3) chiral symmetry, algebraic realisation with non zero π, K, η, κ masses 4−65999

elementary particle symmetry continued
SU(3) breaking of strong interactions, superfluidity of hadronic matter 4−62979
$SU(4) \times SU(4)$ on approximate symmetry of hadrons, breaking parameter constraints 4−59516
$SU(4) \times SU(4)$ symmetry breaking 4−71640
$SU(6)_w$ and SU(3) invariance breaking effect on observables in quark field theories 4−71695
SU(6) symmetry in relativistic dual quark model 4−66052
supergauge symmetries, spontaneous violation, emergence of Goldstone fermions 4−51681
supergauge symmetries, spontaneously broken, and Goldstone spinors 4−77752
supergauge transformations, Weiss−Zumino, systematic method of construction 4−66000
U_n, irreducible representation, in chain $U_n \supset Sp_n$, polynomial basis 4−51700
unified theory of interactions 4−77773
η-X mixing angle in chiral symmetry breaking model 4−62905
$K \rightarrow 2\pi$ decays, $\Delta I = 1/2$ selection rule, gauge theories 4−74590
$K \rightarrow \pi\mu(e)\nu$, correction to Dashen-Weinstein theorem assuming $(3,\bar{3}) + (\bar{3},3)$ symmetry breaking 4−55598
$K^{\pm}p$ elastic scatt. amplitudes determ. 4−63013
$np \rightarrow d\gamma$, meson-exchange diagrams using charge symmetry 4−63008

elementary particle theory
see also Bethe-Salpeter equation; complex angular momentum plane; current algebra; dispersion relations; electron theory; elementary particle interaction models; elementary particle symmetry; Feynman diagrams; form factors; group theoretical schemes; helicity (elementary particles); Lee model; quantum field theory; S-matrix theory; scaling phenomena; sum rules
analytic continuation to region out of N circles 4−59045
analyticity in forward elastic scatt., deductions from causality 4−47409
book, currents in hadron physics 4−62882
book, undergraduate introduction to particle physics 4−59471
causality, implications for analyticity in forward elastic scattering 4−47409
classical relativistic spin theory, generalised constraints, mass spectra 4−71391
conference, high energy electron and photon interactions (Bonn, Germany, Aug. 1973) 4−77804
continuity of boosts for each orbit 4−74581
cosmological models, isotropic, spatially homogeneous, masses and spins 4−76777
dispersion inequalities, unification in self-reproducing kernel theory 4−66008
Einstein equations modifications *(Russian)* 4−71595
equations of motion in six dimens. space with curvature *(Russian)* 4−74569
group theory in nonlinear problems, conference, Istanbul, Turkey (August 1972) 4−47026
hyperons, neutron oscillator model of decay scheme 4−66139
magnetic structure, self- and binding energy in generalisation of general relativity 4−71408
nucleon fragmentation, analogy to nuclear processes 4−71729
photon structure functions from γ-γ collisions in e^+e^- storage rings 4−62966
polarisability, K meson calc. 4−59527
spin discreteness, topology of Bondi-Metzner-Sachs group 4−71630
structural theory, role of muons, pions, protons *(German)* 4−69183
structure function, neutron, from μd deep inelastic scattering, 7.3 GeV 4−71685
structure function for deep inelastic electroproduction, triple pomeron coupling modification 4−74626
structure function q^2 dependence in asymptotically free theories 4−74655
structure functions, spin, theoretical study of effects in $e^+e^- \rightarrow$ hadrons 4−74618
time, the grand illusion, elementary particle explanation, de Sitter's expanding universe concepts 4−71395
unified conformal invariant self-interacting theory 4−59479
unified field theory 4−47419
unified theories of $e^+e^- \rightarrow$ hadrons 4−69165
vertex functions, on- and off-mass shell asymptotic behaviour 4−71607
p structure function, Brodsky and Farrar scheme in softened field theory 4−77905
π structure function, Brodsky and Farrar scheme in softened field theory 4−77905
$\pi N \rightarrow \pi N$, s-channel helicity amplitudes of vector exchange contribution 4−55684

elementary particle weak interactions
see also quantum field theory of weak interactions
asymptotic behaviour of amplitudes and total cross sections *(Russian)* 4−66027
basic theory, Didcot summer school report (1973) 4−69149
charmed particle production by neutrinos, quark parton model formalism 4−59540
conference, high energy electron and photon interactions (Bonn, Germany, Aug. 1973) 4−77804
CPT invariance, experimental tests 4−47458
current-current weak Lagrangian, generalisation to arbitrary dimensions 4−77780
Feynman diagram compensation, in theory of elementary couplings 4−69107
first-order process, scaling and bound state model of baryons 4−55571
formulae and results 4−71659
gauge invariant theory with $\Delta T = 1/2$ rule for hadron nonleptonic decays *(Russian)* 4−47477
gluons, massless vector, in unified gauge theory of weak, e.m. and strong interactions 4−66053
hadronic weak current, construction using conventional quantum number gnome fields 4−55589
high-energy, theoretical and exptl. aspects, reln. to e.m. interaction 4−51705
intermediate boson theory, detection possibilities, Duffin-Kemmer formalism and possible decay modes 4−47473
intermediate boson unitary triplet scheme 4−66018

elementary particle weak interactions continued
lepton-antilepton massless vector bound states, $O_4^{\Pi c}$ analysis 4−81399
mass shift for hadrons logarithmic divergence, light-cone algebra framework 4−55588
model, renormalisable $SU(3) \times SU(3)$ intermediate scalar boson coupling scheme 4−66019
neutral current, coherent effects in elastic neutrino-nucleus scatt. 4−59530
neutral current, deep inelastic contribution to effective coupling constants 4−55590
neutral current, isotopic and chiral structure *(Russian)* 4−71651
neutral current, nuclear charge exchange corrections to leptonic π^0 production in (3,3) resonance region 4−74767
neutral current, strangeness changing, suppression in unified gauge models of weak and e.m. interactions 4−81400
neutral current, study of $\nu p \rightarrow \nu n \pi^+$ and $\nu p \rightarrow \nu p \pi^0$ 4−69154
neutral current contributions in e, μ interactions 4−74627
neutral current effects in e^+e^- annihilation with polarised beams 4−62946
neutral current effects in leptonic and semi-leptonic processes 4−77790
neutral current effects on unified gauge models, deep inelastic cross section estimation 4−47472
neutral current interaction anal. in inclusive neutrino reactions 4−59544
neutral current weak pion production, parton model expectations 4−55601
neutral currents, exptl. state-of-the-art review 4−69151
neutral currents, four-fermion interaction concept *(Russian)* 4−71650
neutral currents, general review 4−77805
neutral currents, neutrino interactions, Weinberg unified gauge theory 4−77791
neutral currents, possible effects in $pp \rightarrow l^+l^- + X$ reactions 4−59644
neutral currents, possible obs. in neutron optics expt. 4−59529
neutral currents, $SU(4) \times SU(4)$ symmetry breaking 4−71640
neutral currents characterisation, phenomenological study including conservation 4−59531
neutral currents in atoms and μ-mesic atoms *(Russian)* 4−72109
neutral currents in deep inelastic neutrino scatt. 4−71657
neutral currents inducing asymmetries in inclusive cross sections for $\mu^{\pm}$ polarised beams on unpolarised targets 4−66044
nonleptonic, odd-parity effects in models based on current-current weak Hamiltonians 4−77895
QED viewpoints and techniques, book 4−62900
quark decay to leptoquarks and leptons *(Russian)* 4−71643
quark model and current algebra anal. *(German)* 4−43405
renormalizable models, introduction 4−81401
semi-leptonic processes $\Delta T = 0$, neutral currents 4−62912
strangeness conserving second class current, sum rule determ. 4−66007
sum rules for weak processes, Fermi constant and neutral currents calcs. 4−59533
superweak interaction theory, neutron electric dipole moment test 4−71661
unified gauge models of weak and e.m. interactions without charmed hadrons 4−81400
unified gauge models without charmed hadrons 4−62914
unified gauge theory, with spontaneous parity breaking 4−77789
unified gauge theory without heavy leptons, vector anomaly, magnetic moment of W-boson 4−71648
unified models, renormalisable in spontaneously broken gauge theories 4−77792
unified weak and e.m. interaction models, universality without heavy leptons 4−62913
unified weak and e.m. interaction theory, light cone algebra description in various quark models 4−62908
unified weak and e.m. theories, $\Delta I = 1/2$ rule for nonleptonic weak decay 4−66021
weak neutral currents, anal. of structure using light cone algebra 4−71649
Weinberg model with Han-Nambu quarks, exptl. implications 4−43404
$E^0 \rightarrow \nu\gamma$, decay rate of heavy electron in Georgi-Glashow model 4−59532
e^+e^- colliding beams, differential cross section for arbitrary polarisation states, weak interaction effects 4−59552
$K \rightarrow 2\pi$ decays, $\Delta I = 1/2$ selection rule, gauge theories 4−74590
μ mag. moment, weak corrections calc. using causal mass operator approach in unified gauge theories 4−71647
n β-decay in intense e.m. field *(Russian)* 4−55594
ν interactions, neutral currents, inclusive reaction, exptl. review 4−81407
$\nu_e d \rightarrow np\nu_e$, 2.2 to 5.0 MeV, neutral current limit meas. 4−59541

elementary particles
see also bosons; composite particles; cosmic rays; fermions; gamma-rays; hadrons; hypothetical particles; leptons; mass differences; particle detectors; quantum field theory; strange particles
book, history and modern problems of physics 4−62361
CERN, its work and facilities 4−77016
CERN high energy projects 4−77017
conference, technology arising from high-energy physics, Geneva (April 1974) 4−77138
experimental viewpoint, undergraduate book 4−62883
high energy physicists summer school, Didcot, England (July 1973) 4−69106
neutral, time of flight analysis using disc chopper 4−71226

elements (chemical)
for specific metals and non-metals see appropriate chemical names
see also element origin; element relative abundance; periodic system of elements
groups III, IV and V, X-ray and Mossbauer spectra, chemical shifts *(Russian)* 4−49477
lighter than Si, X-radiometric analysis, using proportional flow counter *(Russian)* 4−51158
metamorphism of silt water in South Eastern Atlantic *(Russian)* 4−73529
superheavy element compound, $E110F_6$, mol. orbitals calc. by self-consistent multiple scatt. $X\alpha$ method 4−66373

elements (chemical) continued
  Z=12 to 92, total atomic photoelectric cross-sections for 88 keV to 1.33 MeV gamma-rays 4−81722
ellipsometers *see ellipsometry; polarimeters*
ellipsometry
  alignment procedure, high precision 4−51043
  angle of incidence variations, sensitivity of ellipsometric parameters 4−68690
  anisotropic crystal appl., generalized ellipsometry 4−42808
  automated high temp. ellipsometer, design and construction 4−71204
  beam deviation errors analysis 4−74056
  conference, Washington, USA, Spring (1974) 4−46624
  ellipsometer, fast, self-compensating 4−68691
  film, absorbing, on metal substrate, optical consts. and thickness, ellipsometric meas. method 4−65447
  film, anisotropic, reflection props. calcs., ellipsometry 4−64457
  h.f. two-coil Faraday modulator 4−62463
  laser media, nonlinear refr. index meas. 4−54943
  optical system ratio of complex eigenvalues determination 4−51052
  organic long-chain compounds, skeletonised films, ellipsometric studies of optical consts. 4−79821
  polarimeters using phase plates combination 4−51051
  polarisation-modulated ellipsometer, mirror surfaces for laser applications improvements 4−77108
  quarter-wave multilayers, Brewster-angle conditions at non-normal incidence, reflecting polariser design 4−62806
  rare earth metal films, optical props. and mag. ordering 4−79823
  rotating analyzer, precision optimisation technique theory 4−62464
  rotating analyzer system, component optical activity effect 4−74057
  two-film coatings on metal substrates, ellipsometric study 4−49509
  Al, damage characteriz. by photoemission, ellipsometry and Auger spectra 4−53781
  GaP(110), chemisorption 4−48858
  Ge, electron-hole plasma generation, picosec. ellipsometry meas. 4−53067
  Nb oxide film, uniformity on plasma oxidation of Ta 4−60696
  Ta oxide film, uniformity on plasma oxidation of Ta 4−60696
elliptical polarisation *see polarisation*
e.m. waves *see electromagnetic waves*
embrittlement *see brittleness*
e.m.f. *see electric potential*
emission nebulae *see nebulae*
emission spectra *see spectra*
emissivity
  see also brightness
  alkali metal halide, light absorption coeff. meas. 4−68661
  anisotropic media, ratio of emissive to absorptive powers 4−51522
  baffled cylindrical cavities, apparent hemispherical emittance 4−51488
  calorific emission distribution meas. calorimeter *(French)* 4−68641
  ceramics, optical props. and areas of appl., review 4−70275
  differential emissivity calorimeter for physiological heat meas. 4−58972
  diffuse cavities, isothermal and nonisothermal, cones and cylinders 4−42745
  graphite, isotropic pyrolytic, wide temp. range, density 1.76-2.19 g/cm^3 4−69937
  light scattering media, layers, luminosity characts., calc. 4−65850
  light scattering media, layers, luminosity characts., calc. 4−68973
  nonisothermal semi-infinite cylinder, evaluation as blackbody source 4−42741
  nonmetals, spectral emissivity, high temperature 4−62437
  nuclear reactor blowdown accident, heat conductivity and thermal emissivity effects on core heatup and meltdown 4−81597
  optical materials, fused silica, semitransparent materials, thermophysical properties 4−63949
  refractory alloys, subsecond duration pulse heating method 4−74093
  semi-infinite absorbing and isotropically scattering medium with refr. index >1, emittance calc. 4−47243
  thermally ionized gas, spectral characts., 5000-30000K 4−60317
  three-dimensional bodies, and ang. coeffs. in real-medium systems 4−51479
  two-wavelength technique for simultaneous meas. of high temp. and emittance temp. depend. 4−58759
  CO_2, furnace emissivities investig., band model calcs. of spectral intensities 4−69488
  CO_2, i.r. lasing emission investig., emissivity, radiancy calc. *(French)* 4−65900
  Fe, simultaneous thermophysical measurements above 1500K, transient (subsecond) technique 4−74017
  $LaCrO_3$-Cr cermets, monochromatic emittance, 300-1900K, oxidation effects 4−61485
  LiF slabs, spectral thermal emission meas. in far i.r. 4−67050
  Mo, effect of surface finish on the normal spectral emittance 4−63927
  V heat capacity, electrical resistivity, hemispherical total emittance, simultaneous meas. new results presentation format 4−74018
emitrons *see television camera tubes*
emitter-coupled logic *see current-mode logic*
employees *see personnel*
employment
  see also personnel
  No entries
emulsions
  see also nuclear track emulsions; photographic emulsions
  calcium laurate-xylene-water emulsion, dispersion intensity and standing time effects on rheology *(Russian)* 4−53907
  conductive emulsion, in MHD separator, particle dynamics *(Russian)* 4−63622
  critical, as lyophilic colloidal systems, form. conditions and stability 4−73386
  critical, as lyophilic colloidal systems, stability 4−73385
  drop evaporation in still air 4−53916
  droplets, disruption, effect of turbulence depression by polymers 4−52500
  flow in porous solid, model 4−78712
emulsions continued
  liquid density changes in liquid-solid emulsions, conc. depend. 4−64653
  mineral oil in water, u.s. absorption, 9 to 21 MHz *(Russian)* 4−52827
  oil-water dispersion, phase-volume ratio effect on phase-inversion and viscosity 4−80139
  particles formed in suspension polymerization, analysis of math. model and diff. distrib. curves *(Russian)* 4−53908
  polymer, grain size distrib. meas., comparison of methods *(Polish)* 4−80120
  polystyrene latex, particle size, electron microscopy error anal. 4−57789
  PVC, high internal phase ratio, struct. 4−57788
  sound velocity, spatial dispersion 4−57790
  specular optical density 4−53921
  structure and properties, conf. Ottawa, Canaha (Jun. 1973) 4−56963
emulsions (nuclear track) *see nuclear track emulsions*
emulsoids *see emulsions*
encapsulation
  see also packaging
  liquid crystals, microencapsulation in spheres *(German)* 4−63758
  X-ray technique for observing liquid encapsulation Czochralski growth 4−61316
  AlN encapsulation dielectric on ion-implanted GaAs 4−53616
  GaAs, native oxide growth, struct., comp., elec. and encapsulating props. 4−67123
  Ge high-purity detector encapsulation 4−46817
  Si_3N_4 encapsulation dielectric on ion-implanted GaAs 4−53616
  SiO_2 encapsulation dielectric on ion-implanted GaAs 4−53616
encoding
  see also codes; decoding
  coded aperture imaging technique and applications 4−55450
  image optical processing by random diffuser 4−51537
  pecten oculi of bird as possible coded aperture mask 4−54661
  seismic prospecting, pulse coding, SOSIE and SEISCODE 4−61894
  three-dimensional object encoding by grooved light box 4−51013
  three-dimensional objects, X-ray source distrib., deconvolution using zoom lens, point hologram 4−81045
  time-modulated coded apertures for γ imaging 4−54704
  TV colour boundary threshold sharpness rel. to coding for digital transmission 4−54908
  X-ray imaging generalised systems, tomosynthesis and coded imaging 4−71121
ENDOR
  aromatic nitroxide radicals, trapped in matrix with Ag atoms, ENDOR investig. of intramol. interactions 4−49263
  copper acetate monohydrate, Zn-doped and gamma irradiated, hyperfine and quadrupole interactions 4−79643
  L-cysteic acid monohydrate, X-irrad., proton transfer 4−57859
  α,α'-diphenyl-β-picryl hydrazyl radical, hyperfine coupling, e.s.r., ENDOR investig., spin densities meas. 4−53339
  diphenyl-d_{10}:diphenyl-h_{10}, e.p.r. and ENDOR, crystal struct. 4−49264
  glycylglycine HCl, X-irrad., mol. struct. 4−79639
  histidine hydrochloride, cryst., X-irradiated, free radical form., mechanism investig. using ENDOR spectroscopy 4−60514
  hyperfine structure of paramagnetic centre energy spectrum and ENDOR freqs., cryst. field effect *(Russian)* 4−82637
  methanol glass, matrix proton ENDOR at 77 K, trapped electron wave-function overlapping 4−53341
  methyl cytosine, irrad., free radical obs. 4−57860
  methyl group, tunnelling frequency in magnesium lactate powder meas. ENDOR 4−79641
  1-methyl uracil, long range spin interactions and radical struct. ENDOR obs. 4−80691
  nonlinear effects, piezohyperfine interactions and crystal deform. 4−57427
  phenanthrene, diphenyl host, photoexcited to lowest triplet state 4−76190
  ruby, PENDOR, Cr-Al hyperfine and electric quadrupole interactions 4−49265
  spectrometer, computer-controlled 4−58873
  succinic acid, γ-irradiated, ENDOR obs. H-bonded proton superhyperfine coupling consts. 4−76191
  thymidine, irradiated, free radical ENDOR obs. 4−76937
  tyrosine, X-irrad., prods. investig. by ENDOR, mechanism 4−83030
  CaF_2, h.f. interaction of U^{3+} by r.f. discrete saturation technique *(Russian)* 4−67447
  CaF_2:Ho^{2+}, spectrum obs. at 4K, hyperfine interactions 4−73050
  CaF_2:V^{3+}, transient processes, time consts. 4−79644
  $CsAl(SO_4)_2.12H_2O$:$^{53}Cr^{3+}$, at 4.2K and 9.4 GHz 4−79636
  GaP:Fe^{3+}, first meas. on defect centre in III-V compound *(German)* 4−76193
  KCl, of F_a(Li) centres, applied elec. field effect 4−61065
  KCl:OH^-(OD^-), obs. of H_2O^-(D_2O^-) centre 4−48943
  Kl:H_i^0, superhyperfine and quadrupole interactions determ. 4−57425
  LiF with F-centres, nucl. relax. by means of electron spin cross-relax. *(Russian)* 4−79645
  MgO, form. and stability of V^-, V_{al} centres, ENDOR identification 4−44535
  MgO:Li, ENDOR spectrum of V_{li} centre at 4.2K, nuclear quadrupole coupling meas. 4−70233
  $NH_4H_2AsO_4$, γ-irradiation, $HAsO_3^-$ radical ENDOR obs., H bond antiferroelectricity depend. 4−61064
  NaOH alkaline ice glass, α-substituted, γ-irrad., e.p.r., ENDOR studies of trapped electrons 4−70197
  $RbAl(SO_4)_2.12H_2O$:$^{53}Cr^{3+}$, at 4.2K and 9.4 GHz 4−79636
  Si:P, Fermi contact interaction anal. of shallow donor electron, ENDOR line interpretation 4−44869
  SrF_2:Ti^{2+}, transient processes, time consts. 4−79644
energies, molecular dissociation *see molecular dissociation energies*
energy, binding *see binding energy*
energy, lattice *see lattice energy*
energy, surface *see surface energy*
energy bands *see band structure*

energy bands, electron *see band structure*

energy conversion, direct *see direct energy conversion*

energy gap
- anthracene, molecular crystal from autoionisation data 4−79285
- asymmetric band edge gradient semiconductor, carrier distrib. 4−64117
- cubic semiconductor, rel. to lattice const. 4−44848
- diamond-like crystals, rel. to dielec. theory of chem. bonding 4−48538
- ferroelectrics, improper, temp. depend. in phase transition region 4−45257
- ferromagnetic metal, band structure and band-gap effects for photoelectron spin polarisation 4−64473
- Hubbard model, half-filled-band, single-particle spectrum, effect of temp. 4−82547
- metal, interband tunnelling in strong magnetic fields, contribution to non-linear effects in Landau damping 4−49045
- multiple scattering by Dirac comb 4−73944
- narrow gap semiconductor, O_2 chemisorption 4−72639
- polymer, LCAO density matrix calc. precision 4−60138
- rocksalt structures, ionicity as function of valence band gap 4−72695
- semiconducting alloys, variation with composition, virtual crystal approximation 4−44854
- semiconductor, electric dipole spin flip resonance 4−75788
- semiconductor, influence of lattice vibrs. 4−48906
- semiconductor, strongly degenerate, with Kane dispersion relation, deduction from optical and carrier density meas., theory 4−60743
- semiconductors, enthalpy and entropy of formation of holes and electrons 4−53041
- semiconductors, tetrahedrally coordinated, bonding energy rel. to band gap, hardness, melting temp. 4−82130
- superconducting alloys with local states within gap, temp. depend. of Josephson tunnelling current 4−45065
- superconductivity, microscopic theory, verifications and extensions, review 4−60896
- superconductor, effect of dislocations 4−72901
- superconductor, strong coupling, eqn. for zero temp. energy gap 4−57206
- superconductor, strongly-coupled, energy gap parameter and electron-phonon interaction function determ. *(Russian)* 4−76004
- superconductor under pressure, effect of scatt. processes on thermodynamic characts. *(Russian)* 4−79447
- surface states, Penn three-dimensional model 4−64129
- TCNQ complex, (NMePh)(TCNQ), far i.r. transmission spectra obs., low temp. *(Russian)* 4−72719
- tetracene, molecular crystal from autoionisation data 4−79285
- transition metal compound, two-band Hubbard model, insulator-metal transition temp. and energy gap 4−79306
- Weaire-Thorpe model, band edge determ., spectral limits 4−82344
- zincblende structures, ionicity as function of valence band gap 4−72695
- $AgGaS_2$, temp. depend. in simple direct transition model, optical rotatory dispersion calcs. 4−73098
- $AgInS_2$, 1.86 and 1.98 eV lowest gaps at 300 K, chalcopyrite and orthorhombic phases respectively 4−44851
- $AgXTe_2$, X=Al, Ga, In, band struct. obs. using luminesc. and electroreflectance spectra 4−75778
- Al, superconducting, tunnelling investigation of energy gap anisotropy 4−45042
- AlAs, from photoluminesc. excitation spectra 4−48909
- $Al_xGa_{1-x}P$ solid solns., epitaxial film, forbidden band width determ. from photoluminesc. spectra 4−67657
- AlP, from photoluminesc. excitation spectra 4−48909
- As_2Se_3, obs. of energy levels by stimulated dielec. relax. currents 4−49301
- BAs, film, optical absorpt. meas. 4−45456
- BN, cryst., AO pots. of B and N determ., energy gap calc. 4−69983
- $BaCl_2$, Kβ-emission and K-absorpt. X-ray spectra obs. 4−61248
- $Ba_{0.5}Sr_{0.5}Nb_2O_6$, temp. depend. of forbidden-band width in phase transition region 4−79754
- Bi, film, superconducting, electron tunnelling obs. 4−60927
- BiSb alloy, gapless state transition in mag. field, galvanomag. meas. rel. to band edge motion 4−57115
- n-Bi_2Se_3, Burstein shift of absorpt. edge, reflectivity obs. 4−49382
- $CaCl_2$, Kβ-emission and K-absorpt. X-ray spectra obs. 4−61248
- Cd, spin orbit energy gap, induced torque data 4−64013
- $CdInGaS_4$:Au, photocond., luminesc. and thermally stimulated cond. obs. trapping and recomb. levels 4−67254
- CdP_2, anisotropy of two-photon absorpt. 4−74530
- Cd_3P_2, optical props. and energy band struct. investigation 4−70318
- CdS, luminesc., free to bound recomb., temp. and excitation depend., 4.2-80K 4−49420
- Cu-Pb sandwiches, supercond. proximity effect 4−49110
- Fe, b.c.c. paramag., projected surface energy bands 4−79393
- n-$Ga_{1-x}Al_xAs$, temp. depend., photocond. determ. 4−60830
- GaAs, dependence on electron-hole pair creation average energy 4−79316
- $GaAs_{1-x}P_x$, rel. to uniaxial stress effects on red emission characts. of l.e.d. 4−53535
- $GaAs_xSb_{1-x}$, intrinsic photocond. in presence of mag. field to 65 kG *(French)* 4−49034
- $Ga_yIn_{1-y}As_xP_{1-x}$, band gap and lattice constant as function of alloy comp. 4−72697
- GaN, determ. from photolum. excitation spectra 4−79291
- GaS(Se)(Te), effect of thermal expansion 4−82366
- GaSb, $\Gamma(000)$ conduction band parameters, Faraday effect meas. 4−44852
- GaSe, effect of interaction of holes with optical phonons 4−75893
- GaSe, optical absorpt. edge press. depend. 4−45321
- GaTe, derivative reflectivity lineshape meas. near fundamental edge, exciton binding energy 4−49376
- Ge, film, elec. and optical props., impurity and defect effects 4−79419
- $Ge_{10}As_{30}Si_{13}Te_{47}$, obs. of energy levels by stimulated dielec. relax. currents 4−49301
- $(HgI_2)_x(HgBr)_{1-x}$, temp. and comp. depends. 4−52868
- HgSe, intrinsic carrier conc., temp. depend., overlap energy 4−75895
- HgTe high mag. fields, mag. sub-bands, k_z depend. 4−75789

energy gap continued
- In, supercond., longit. u.s. absorpt. meas., energy gap parameters 4−57215
- In-Sn(0.01-0.09 at.%Sn), supercond., longit. u.s. absorpt. meas., energy gap parameters 4−57215
- $(InSB)_x(CdTe)_{1-x}$, solid solution, bound parameters 4−72702
- InSb, mag. resolved fine struct. at E_1 edge 4−79748
- InSb, Raman scattering, obs. of stress induced splitting from TO phonons 4−53444
- In_2Te_5, grown by chem. transport, characterization 4−72457
- LiH(:Na), width determ., refl. and luminesc. spectra *(Russian)* 4−73164
- Mg-Bi alloy, d.c. and a.c. cond. and optical transmission 4−49092
- Mg_3Bi_2, small forbidden energy gap, rel. to props. *(Bulgarian)* 4−57031
- $MgCl_2$, Kβ-emission and K-absorpt. X-ray spectra obs. 4−61248
- Mg_2Pb, small forbidden energy gap, rel. to props. *(Bulgarian)* 4−57031
- Nb, supercond., energy gap fit for u.s. attenuation data 4−57214
- Ni, photoelectron spin polarisation, band struct. and band-gap effects 4−64473
- Pb films, strain-free, superconductive tunnelling parameters 4−45066
- $PbMg_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, temp. depend. of absorption coeff. 4−64394
- $PbSb_2S_4$, photocond. obs., 300 and 77K 4−49043
- PbTe film, refractive index singularity reln. to band gap, 25-300K 4−61127
- $PbZn_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, temp. depend. of absorption coeff. 4−64394
- Sb-Cs-Bi, intermetallic compounds, photoemissive props., variable comp. *(Bulgarian)* 4−82785
- Sb-S-Br, glass formation region characts. 4−44473
- SbSI film, direct allowed transitions, optical absorption coefficient, band gaps 4−76338
- $Sb_{1-x}Te_x$, amorphous film, rel. to optical and transport props. 4−44824
- Se, liq., optical absorpt. and photocond. obs. 4−75920
- Si, dependence on electron-hole pair creation average energy 4−79316
- Si, photoelastic tensor and volume depend. of average gap 4−53391
- Si, second indirect band gap obs., absorption spectra 4−48913
- Si, temp. depend., 2-300K, wavelength modulation spectra obs. 4−60734
- α-Sn, high mag. fields, mag. sub-bands, k_z depend. 4−75789
- SnO_2, band struct. calc. by self consistent APW method 4−60738
- SnTe, small forbidden energy gap, rel. to props. *(Bulgarian)* 4−57031
- $SrCl_2$, Kβ-emission and K-absorpt. X-ray spectra obs. 4−61248
- Tl, single crystal, transition temperature and energy gap calc., anisotropy in supercond. props. 4−82513
- Tl-Te, thin film, amorphous and cryst., supercond. props. *(German)* 4−53176
- Tl_2Te, liq., pseudogap determ., diffusive transport 4−82348
- Tl_2Te, liquid, mobility edges, pseudogap model 4−44820
- V_2O_3, nonstoichiometry effect on elec. and optical props. 4−79756
- $YAlO_3:Er^{3+}(Eu^{3+})(Ho^{3+})(Pr^{3+})$, f→f and d→f radiationless relax., coupling strength and band gap depend. 4−53499
- $Y_3Al_5O_{12}:Er^{3+}(Eu^{3+})(Ho^{3+})(Pr^{3+})$, f→f and d→f radiationless relax., coupling strength and band gap depend. 4−53499
- YIG:Ca(Mg), d.c. conductivity and Seebeck coeff. meas., 1200-1700K varying O press. 4−67214
- YbS(Se,Te), high pressure effect, optical absorption meas. 4−61182
- $Zn_xCd_{1-x}Te$, $0 \leqslant x \leqslant 1$, refl., 2.9-9,5 eV, energy gap determ. 4−82715
- ZnO, temperature dependence of the band gap from reflection data 4−67609
- Zn_3P_2, optical props. and energy band struct. investigation 4−70318
- ZrO_2, Y_2O_3-stabilised, microwave and optical spectroscopy 4−61197

energy level crossing
- *see also Hanle effect*
- hyperfine multiplet in external field, position and state vectors of level crossings 4−72225
- methyl fluoride Stark tuned level crossing reson. obs. by nonlinear microwave absorption 4−66450
- numerical study using Graffi-Grecchi method 4−68920
- spectroscopy, recent developments in optical spectroscopy reviewed *(German)* 4−77084
- ^{133}Cs, collisional broadening of level crossing signals in $6^2P_{3/2}$ and $7^2P_{3/2}$ states 4−47853
- ^{133}Cs, investigation of highly excited $^2D_{3/2}$ states using c.w. tunable dye laser 4−59914
- Cu I, oscillator strengths for spontaneous transitions 4−66286
- H_2, para, anticrossing and microwave transitions between electronic states 4−74995
- H_2, singlet-triplet separation using level-anticrossing technique 4−63421
- He, electron impact excitation, singlet-triplet anticrossings 4−72054
- Hg, vapour, crossing effects in selective reflection in transverse magnetic field 4−81719
- ^{193m}Hg, determ. of 6s6p $^3P_1$ h.f.s. dipole constants 4−59932
- ^{23}Na hyperfine structure of $3^2P_{3/2}$ level, time-resolved level-crossing spectroscopy 4−59926
- Ne, Zeeman coherence effect in saturated absorpt. expt. *(French)* 4−74844
- Rb, 4^2D state hyperfine Hamiltonian, cascade anticrossing spectroscopy 4−56017
- Tl, $7^2S_{1/2}$ state, lifetime investigation using zero-field level crossing technique *(Spanish)* 4−63456

energy level transitions, atomic *see atomic spectra*

energy level transitions, molecular *see molecular spectra*

energy level transitions, nuclear *see nuclear energy level transitions*

energy levels
- *see also atomic structure; band structure; energy level crossing; molecular electronic structure; nuclear energy levels; population inversion*
- anharmonically coupled quantum oscillators, energy level and matrix element calc. 4−59236

- **energy levels** continued
  - kets not strongly symmetry adapted, in electronic system descriptions 4−59227
  - nuclear physics research, rel. to high energy levels *(Hungarian)* 4−81450
  - particle-in-a-box problem, systematic and accidental degeneracy 4−71369
  - secular equation for energy levels in third order perturbation theory *(Russian)* 4−65753
  - symmetry adaptation and spin-free and space-spin formulations of electronic struct. 4−59226
  - time dependent Schrodinger equation, for two level system in sinusoidal field 4−77525
  - H-like atoms, energy spectrum in strong magnetic field 4−69415
- **energy levels, atomic** *see atomic structure*
- **energy levels, molecular** *see molecular electronic structure*
- **energy levels, nuclear** *see nuclear energy levels*
- **energy levels of electrons in solids** *see band structure*
- **energy levels of lasers** *see laser theory*
- **energy loss of particles**
  - *see also channelling; radiation effects*
  - 44 MeV protons in bone-soft tissue interfaces, frequency distrib. obs. protons, 44 MeV, in bone-soft tissue interfaces, freq. distribution obs. 4−46494
  - aliphatic carbonyl compounds, electron impact of energy 100 eV 4−66500
  - benzene, electron spectra of solid and vapour, opt. const. calc. 4−67545
  - Bragg rule, test for energy loss of ^{4}He ions in solid compounds 4−60527
  - bulk density effects on calc. n log response 4−46797
  - changed particles in thin absorbers, programs for Landau and Vavilov distribs. and random numbers 4−55032
  - charged particle ionisation-loss distrib. Monte Carlo calcs. 4−46796
  - charged particles, Z_1^3-dependent range contributions 4−77167
  - concentration profiles in thin films, meas. using nonresonant nucl. reactions 4−63835
  - concrete, radiation transport, cross-section sensitivity study 4−81699
  - cosmic ray muons, underground coupling functions in range 20-1000 hg. 4−70856
  - cross section, nuclear stopping, approx. formula 4−63843
  - crystals, charged particle calcs. 4−72510
  - cyclohexane, cyclohexene, cyclohexadienes, electron spectra of solid and vapour, opt. const. calc. 4−67545
  - diamond, electron energy loss spectra 4−52795
  - dose rates through concrete shielding with rectangular ducts 4−81700
  - elec. beams, pulsed, meas. of absorbed energy distribs. in water using holographic interferometer 4−74075
  - electron beam energy meas., rapid process film 4−74110
  - electron beam transmission and reflection by foils 4−62513
  - electron energy dissipation, 15-30 keV, obs. by beam-induced currents in m.o.s. capacitor 4−52794
  - electron plasma, ultra-high density, ion slowing down cross sections, fusion chain reaction occurrence 4−52546
  - electron-photon showers in Pb/Cu layered absorbers, transitional effects *(Russian)* 4−55033
  - electrons, high-energy, ionisaton loss in Al, C and Cu 4−58918
  - excitations of optical uniaxial dielectric slab for relativistic electrons *(German)* 4−72515
  - fast particle energy losses under channelling conditions *(Russian)* 4−69841
  - in ferromagnet, muon$^+$ precession meas. in transverse fields to 1900Oe *(Russian)* 4−66953
  - film, on thick substrates, Monte Carlo simulation 4−81076
  - film on thick substrate, electron scatt. Monte Carlo simulation 4−48660
  - fluorene, single crysts. and vapour, 55 keV electrons 4−75553
  - fusion plasma, athermal neutrons and ions, energy loss collisions and reactions 4−52545
  - gamma-gamma logging, pulsed, approx. for time relationships 4−80986
  - graphite, electron energy loss spectra 4−52795
  - heavy charged particle interaction with matter, energy straggling 4−75555
  - heavy ion path, spatial energy distrib. 4−60526
  - heavy ion track lengths in mica 4−68772
  - heavy ions, stopping power of solids, calc. for Si 4−56784
  - heavy particle range and energy deposition distribs. in solids reln. to CTR studies 4−79079
  - heavy-ion backscatter, differential energy loss from infinitely thick solid targets 4−62509
  - hemispherical slow-electron spectrometer for solid surface expts. 4−81024
  - ion implantation, stopping and range of ions in solids, review *(Czech)* 4−52797
  - ion in periodic potential of crystal, excitation probability 4−44576
  - ion small angle multiple scattering, in screened Coulomb region 4−74111
  - ion wake in solids, bound electron states, binding energy 4−63844
  - metal, electron m.f.p. effect on formation of track around trajectory of charged particle 4−79085
  - metal, electronic stopping power of low-velocity channelled heavy ions 4−79078
  - metal, irradiated, effect of voids on charged particle range and energy deposition 4−82210
  - metal surface positron large angle scatt., Landau-Lifshitz anal. 4−49515
  - monochlorobenzene, electron spectra of solid and vapour, opt. const. calc. 4−67545
  - multilayer target, fast electrons, penetration and energy deposition 4−44575
  - munucleonic atoms, spin precession of μ^- polarisation vector *(Russian)* 4−72108
  - muon$^+$ depolarisation in electrolyte solns. *(Russian)* 4−79086
  - muon precession in condensed media 4−70195
  - muon precession in ferromagnetic materials 4−70196
  - neutron pulses slowing down in heavy media analysis with lead spectrometer applics. 4−62508
- **energy loss of particles** continued
  - neutron slowing down in cylindrical pile 4−74770
  - neutron slowing down in two-component medium, collision density in intermediate resons. 4−55898
  - neutrons, kinetic energy randomness in slowing down by elastic collisions 4−81524
  - Pauli principle model, electronic stopping power of channelled ions 4−69836
  - pion treatment planning, three-dimensional, computer code 4−46440
  - PMMA, electron scatt. models, expt. evaluation 4−48659
  - polymer film, electron beam scatt., rel. to lithography 4−66951
  - polymer film, electron energy deposition profiles, Monte Carlo simulation 4−79088
  - proton range-energy reln. determ. in Cu from mean excitation energy meas. 4−58919
  - protons, 7 MeV, stopping powers of various elements 4−56783
  - pyridine, electron spectra of solid and vapour, opt. const. calcs. 4−67545
  - range-energy studies as future growth area in nuclear physics 4−59669
  - relativistic electrons in single crystal, bremsstrahlung interference 4−79818
  - rocks and soil, neutron slowing down length calc. method 4−57934
  - solar neutrinos, energy loss mechanism rel. to Davis experiment 4−61958
  - solid, attenuation lengths of low-energy electrons 4−63846
  - solid, depth profiling of ^{3}He, ^{2}H, ^{3}He(d,p)^{4}He resonance non-destructive probe 4−56765
  - solid media, fission fragments, universal range velocity and stopping power 4−63845
  - steel side shield, secondary particle flux distrib. 4−55011
  - stopping power, excitation potentials and shell corrections determ. influence of Z_1^3 contrib. 4−48662
  - stopping power and range, empirical approximations, computer program 4−74113
  - student experiment, energy loss of electron beam in thin target 4−54788
  - therapeutic energy deposition by pions, calc. 4−46441
  - thermoelastic effect, acoustic pulse generation *(Russian)* 4−63848
  - thin crystals, interaction and spatial distrib. of protons, review *(Russian)* 4−79081
  - tissue energy deposition spectra from proportional counters, computation 4−46495
  - toluene, electron spectra of solid and vapour, opt. const. calc. 4−67545
  - transition metal films, electron energy loss spectra and optical consts., 2 to 120 eV 4−69837
  - transport in air, importance of coherent-incoherent scattering 4−81693
  - void-containing materials, particle range and energy deposition calcs. for protons and Cu^{++} ions 4−82211
  - α-particles in tissue equivalent gases *(Japanese)* 4−80984
  - p elastic scattering for aerosol light element analysis 4−51213
  - π-stopping telescope, improvement with time-of-flight technique 4−68771
  - π^- beams stopping, tissue equivalence calcs. for Shonka type A-150 plastic 4−58916
  - π^- stopping in Si detectors, pulse height spectrum calc. 4−74112
  - Ag, stopping power for 0.5 to 1.75 MeV ^{4}H ions 4−72512
  - Ag, stopping power for 7.2 MeV protons 4−60528
  - Ag film, optical absorpt. coeff., 20 to 120 eV, electron energy loss calcs. 4−53387
  - Al, electron energy loss at 600 eV *(Russian)* 4−44574
  - Al, heavy ion loss due to inner shell excitation, ^{59}Pr and ^{60}Nd 4−79083
  - Al, stopping power for 7.2 MeV protons 4−60528
  - Al absolute electron energy deposition profile meas., calorimetric method 4−42873
  - Al-Ag, high energy electron transmission, obs. of plasma energy loss increase with Ag conc. 4−44577
  - Al_3 absorber, positron and electron emission, comparison keV region 4−53559
  - Al_2O_3, low energy electron attenuation by photoelectron spectroscopy 4−79084
  - Ar, liq., average energy per ion-pair, electron scatt. 4−56785
  - Ar + H$^+$, proton straggling, 100 MeV, transport eqn. 4−52007
  - Ar$^+$ bombardment of SiO_2 surface, sputtering, specific energy losses 4−73226
  - Au, stopping power for 7.2 MeV protons 4−60528
  - Au film, optical absorpt. coeff., 20 to 120 eV, electron energy loss calcs. 4−53387
  - Bi, electrons in film, loss function, permittivity and optical absorption meas. 4−66952
  - Bi, film, vacuum evaporated, He ion stopping cross-section 4−69839
  - C, amorphous, electron energy loss spectra 4−52795
  - C, atomic displacement cross sections from ENDF/B-III data 4−59843
  - C foil, of H_2^+, mol. binding and correlated scatt. effects 4−60529
  - CO_2, K-shell energy-loss spectra of 2.5 keV electrons 4−52276
  - ^{12}C ions, 2.1 GeV/nucleon, fragmentation cross section determ. using W scintillator ionization spectrometer 4−74114
  - Cd, electron impact spectra, obs. of charact. energy loss peaks 4−61267
  - Co film, electron charact. energy losses *(Russian)* 4−48658
  - Cu, stopping power for 7.2 MeV protons 4−60528
  - Cu film, low energy He ion penetration 4−63842
  - Cu film, optical absorpt. coeff., 20 to 120 eV, electron energy loss calcs. 4−53387
  - Fe, of μ^+, hyperfine field interpretation 4−44578
  - Fe, stopping power for 7.2 MeV protons 4−60528
  - Fe film, electron charact. energy losses *(Russian)* 4−48658
  - GaAs, electron energy loss spectra of surface states 4−72840
  - Ge, atomic displacement cascades, struct. disordered region form., machine modelling 4−75548
  - Ge, electron energy loss spectra of surface states 4−72840
  - Ge, thin single crystals, energy loss and straggling, 24.8 MeV electrons 4−72503
  - H_2, spatial energy deposition by electrons, Monte Carlo method 4−75033

energy loss of particles continued
^2H passage through metallic absorbers, energy dispersion, surface effects *(French)* 4−62512
He + H_2, binary encounter stopping cross sections 4−56030
He + multielectron atom, binary encounter stopping cross sections, target Z dependence 4−56031
LiF, of protons, deuterons, α-particles, damage meas. 4−56782
$^7Li^*$ produced in $^{10}B(n,\alpha)$, collision cross section determ. by nuclear Doppler shift 4−65513
MgO, close collisions of 20 MeV positrons and electrons with string atoms 4−75551
MgO, electron diffraction energy loss analysis in Bloch waves 4−56595
Mo, stopping power for 0.5 to 1.75 MeV ^4He ions 4−72512
Mo, stopping power for 7.2 MeV protons 4−60528
N_2O, K-shell energy loss spectra of 2.5 keV electrons 4−52276
Nb, coherent bremsstrahlung by electrons and positrons *(Russian)* 4−75554
Ni film, optical absorpt. coeff., 20 to 120 eV, electron energy loss calcs. 4−53387
^{16}O ions, 2.1 GeV/nucleon, fragmentation cross section determ. using W scintillator ionization spectrometer 4−74114
Pb, film, vacuum evaporated, He ion stopping cross-section 4−69839
Pd film, optical absorpt. coeff., 20 to 120 eV, electron energy loss calcs. 4−53387
Pt film, optical absorpt. coeff., 20 to 120 eV, electron energy loss calcs. 4−53387
$^{33}S(1)$, precision lifetime meas. by coincident high-velocity DSA method using $^2H(^{32}S,p\gamma)$ reaction 4−58917
Sb, of N ions, 1-10 MeV, stopping power and cross section 4−72506
Se-As, vitreous alloy film, fast electrons, dielec. const. determ. 4−64324
Si, (111) and (100) surfaces, energy loss spectroscopy 4−79239
Si, adsorption of H and surface struct. determ. 4−56979
Si, atomic displacement cascades, struct. disordered region form., machine modelling 4−75548
Si, channelled He ions, energy distrib., impact parameter method 4−75550
Si, coherent bremsstrahlung by electrons and positrons *(Russian)* 4−75554
Si, energetic ion penetration, ion charge state investig. by X-ray prod. 4−75552
Si, ion implanted P, range, standard deviation 4−64514
Si, proton planar channelling, crit. angles, min. yields 4−72513
Si absorbers, energy-loss fluctuations of heavy charged particles 4−55034
Si:As, ion backscatt., doping conc. and mobility meas. 4−64503
Si:Sb,As ion implantation and drive-in diffusion effects 4−49609
SiH_4, energetic ion penetration, ion charge state investig. by X-ray prod. 4−75552
Sn, stopping power for 7.2 MeV protons 4−60528
Ta, stopping power for 0.5 to 1.75 MeV ^4He ions 4−72512
Ta, stopping power for 7.2 MeV protons 4−60528
Ta absolute electron energy deposition profile meas., calorimetric method 4−42873
Ti, stopping power for 0.5-1.75 MeV ^4He ions 4−72512
Ti, stopping power for 7.2 MeV protons 4−60528
U film, optical constants, 2 to 220 eV, electron energy loss spectra 4−53388
W, Cs^+ scatt. fine struct., group and successive pair collisions 4−53563
W, sputtered film, He ion stopping cross-section 4−69839
W, stopping power for 0.5 to 1.75 MeV ^4He ions 4−72512
W crystal, determ. of channelled particles from backscatt. spectra 4−72511
Xe ions in C foil, charge-state and energy distribs. at 300 to 700 keV 4−62511
Zn, electron impact spectra, obs. of charact. energy loss peaks 4−61267
ZnTe, film, energy loss and projected range of 0.3-2 MeV alpha particles 4−69840

energy measurement *see power measurement*

energy-range relations *see energy loss of particles*

energy resources
see also fuel
Arctic *(Norwegian)* 4−57940
climatological effects of man's use of energy (burning coal etc.) 4−58153
fusion power, R&D, laser reactors 4−43695
nuclear fission as general source of energy 4−55903
oil, North Sea, Navigational requirements 4−70816
oil, North Sea, navigational systems 4−70817
physics and the energy problem, conference Chicago, USA (February 1974) 4−73937
solar, for domestic and industrial usage, prospects 4−58219
solar, utilisation by phys. methods 4−70899
solar collection by photosynthesis 4−70898
solar plants, location feasibility, climatic survey 4−80314
solar plants, radiation climate calc. results 4−80315
thermonuclear 4−69305
thermonuclear power expansion strategy, mathematical model 4−63306
wave power, equipment to extract energy 4−58150
U enrichment provision and economics 4−47802
U fuel, need for increased exploration rate 4−47801
U reserve in USA 4−47799

energy states in solids *see crystal electron states*

energy storage
see also capacitor storage; direct energy conversion; energy storage devices
engineering problems of fusion research, symposium, Princeton (1973) 4−55933
exploding Cu foil fuse package for Z-pinch inductive energy storage system 4−59865
fusion reactor inductive energy storage circuit analysis and choice of circuit-breaker 4−59864
fusion reactor pulsed power supply from homopolar motor-generator 4−59863

energy storage continued
inductive energy storage with capacitive or homopolar transfer to toroidal θ-pinch 4−59862
observable stored energies of e.m. systems, supplementary definition 4−71461
superconducting magnetic energy transfer and storage driven θ-pinch plasma physics reactor expt. 4−59861

energy storage devices
heading is late addition, see also energy storage; storage devices
capacitive, modular assembly, imploding liner expt. SUZY II 4−60312
capacitor bank current pulse prolongation using magnetically stored energy 4−56504

energy transfer collisions, molecular *see molecular energy transfer collisions*

engineering
see also biomedical engineering; civil engineering; design engineering; electrical engineering; environmental engineering; high-voltage engineering; maintenance engineering; mechanical engineering; project engineering; systems engineering
seismic prospecting, economic aspects *(Russian)* 4−58130

engineering applications of computers
see also control engineering applications of computers; electrical engineering applications of computers; electronics applications of computers
aerodynamics appl. of generalised capacity matrix 4−78619
anomaly detection system of reactor core 4−69282
centrifugal pump performance prediction 4−80857
colour matching by computer 4−54885
electroacoustic transducer, acoustic testing, digital processing applic. 4−42734
environmental monitoring system, process computer applic. 4−58634
first-reactor core subassemblies, dynamic response 4−74783
flow, least squares finite element analysis of laminar boundary layer flow 4−81830
fluids, lifting-surface programs evaluation 4−78618
fluids, rotating cascades, solid particle flow eqns. 4−78616
fluids, shock propagation, noncentred analysis 4−78629
hydrologic simulation program for urban water management 4−83067
large deflection elastic-plastic dynamic response of stiffened shells of revolution, computer code DYNAPLAS 4−81134
magnetohydrodynamic flow past circular cylinder, numerical methods 4−81943
materials tensile testing machine, computer-controlled *(German)* 4−61551
measurement results, influence of external factors, precision model algorithm *(Bulgarian)* 4−46547
mechanical, bar with random props., impact problem, anal. 4−81163
mechanical, double-link level luffing crane, optimal synthesis 4−81141
MHD induction devices, param. eval. *(Greek)* 4−66777
multi-mass systems, time history calc. inc. non-linearities or dry friction, SWING-R computer code 4−81142
nozzle flowfield computation, integral relations method 4−75151
nuclear reactor, destructive excursions in Al-water system, simulation by Pajarito dynamics code 4−78185
nuclear reactor, high-temperature, with Th/U fuel cycle, start-up phase *(German)* 4−47747
nuclear reactor coated fuel particles, Walther model simplification without accuracy loss 4−74785
nuclear reactor coolant, rod array crit. heat flux data, sources, information 4−71984
nuclear reactor LMFBR core, thermal design, expansion of correl. temps. method 4−71983
nuclear science symposium and nuclear power systems symposium, San Francisco (November 1973) 4−47740
ORMAK data acquisition and analysis by small computers 4−59868
plate bending analysis, finite element method *(Greek)* 4−43080
prestressed concrete reactor vessels, finite element analysis 4−78169
reactor vessels, axisymm. rectangular element, stress anal., heat cond. problem 4−71329
room acoustics of auditoria, pre-construction examination, acoustic models *(Japanese)* 4−58658
sheet metal dished ends, explosively formed, deformation characts., anal. 4−61413
simulation of radioactive corrosion product transport in LMFBR 4−81570
steam-generating channel, thermo-hydraulic low-freq. stability, computer investigation using D-partitioning 4−43939
stiffened shells of revolution, inelastic nonlinear analysis by numerical integration, computer program STARS-2P 4−81186
structural mechanics, finite element discretization, stiffness props. and stresses 4−78170
structural mechanics constitutive modelling, numerical solns., field problems 4−74784
surface stress meas., holographic interferogram processing 4−50965
transient temperature fields, with finite elements in space and time dimensions 4−62757
viscoelastic solid, finite linear, periodic excitations, computer programs for finite difference eqns. soln. 4−81200

engineering facilities
see also test facilities
Oak Ridge Tokamak Feasibility and Burning Experiment facility 4−59870

engineering societies *see societies*

engines
see also aerospace engines; heat engines; internal combustion engines; ion engines; propulsion
Stirling, power output expressions 4−65859

enthalpy
see also heat of adsorption; heat of crystallisation; heat of mixing; heat of reaction; heat of solution; heat of transformation
alkali and alkaline earth metal alloys, liq., pseudopot. theory of enthalpy of mixing *(German)* 4−70434

enthalpy continued
alkali and alkaline earth metal alloys, liq., pseudopot. theory of enthalpy of mixing *(German)* 4–73274
alkali metal-nonmetal solutions, model approach, enthalpy of soln. calc. 4–60399
n-alkane mixtures, excess props. interpret. with Prigogine's soln. theory 4–68034
binary III-V liquidus lines, thermodynamics and computer fits 4–52864
Boltzmann's H, monotonic evolution in weakly coupled gravitational systems 4–51495
cis-o-bromostyrene, thermodynamic functions calc. 4–63409
cis-o-chlorostyrene, thermodynamic functions calc. 4–63409
compensation, enthalpy-entropy, in water, macroscopic source, simple model 4–76575
dimethylsulphoxide-water system, 25°C 4–54088
ethyl chloride, pure and with H_2, ion-mol. reactions, 190-400K, thermodynamic props. 4–53969
cis-o-fluorostyrene, thermodynamic functions calc. 4–63409
gas heated by electric arc, generalized relationship for enthalpy *(Russian)* 4–63721
gases, determ. by Joule-Thomson effect meas., apparatus, applic. to N_2 4–52907
heavy water, equation of state 4–79137
liquid, meas. apparatus *(Russian)* 4–50984
liquid crystal, DMC, adiabatic calorimetry, 300-550K 4–78891
liquid mixtures, excess enthalpy meas. using Teflon-diaphragm calorimeter 4–62434
liquid-vapour/gas equilibria, equilib. consts. evaluation, entropy, enthalpy, heat of mixing calc. *(German)* 4–60603
metal, meas. by e.m. crucible method 4–50977
naphthalene-ethane (ethylene or methane) systems, solid-fluid equil., excess free enthalpy 4–61641
organic molecules, empirical force field calcs. evaluation 4–43804
polyethylene, chain defects effect on thermal behaviour 4–61545
polymer, molecular orientation effects on melting temp. and crystn. rates *(Polish)* 4–44488
polymer solution with upper and lower crit. temps. of mixing, temp. depend. of thermodynamic functions *(Russian)* 4–50223
propylene carbonate-water system, 25°C 4–54088
rare earth compounds, form., calc. from cryst. chem. 4–44682
rare earth trifluorides, and other thermodynamic props., 100-1600°C 4–52905
refractories, transition metals, high temperature techniques 4–63930
semiconductor, phase diagram, theory, appl. 4–64035
semiconductors, enthalpy and entropy of formation of holes and electrons 4–53041
tetraalkylammonium bromides, solvation enthalpies in dioxane-water mixtures 4–50213
transition metal carbides and diborides, thermophys. props. 4–63931
α-Al_2O_3, corundum, enthalpy, heat of fusion and m.p. rel. to calorimetric standards 4–63902
As-Te amorphous alloys, structural and thermal properties, compositional dependence 4–66829
Ca-Sr(Ba) systems, liq., energetics of alloy form., thermodynamic meas. *(German)* 4–48768
Co-Cr alloys, thermodynamic props., equil. phase boundaries 4–45529
$CsMnCl_3$, enthalpy and enthalpy of fusion 4–56888
Cs_2MnCl_4, enthalpy and enthalpy of fusion 4–56888
Cs_2MoO_4, cryst., heat capacity, thermodynamic props., standard Gibbs energy of form. determ. 4–52904
Cs_2ZrCl_6, enthalpy and enthalpy of fusion 4–56888
Cu, liquid, using liquid Ar calorimeter, above 2000K 4–60623
Dy_2O_3, and thermal capacity at high temps. 4–69916
EuSe, sublimation thermodynamics 4–63910
EuTe evaporation, 1200-2050°C, Knudsen effusion and Langmuir methods *(German)* 4–79148
β-Ga_2O_3, and thermal capacity at high temps. 4–69916
GaSb dissociation, ΔH_0°, D_0° determ. 4–80177
Ge-Cu alloys, binary liquid, investigation of thermodynamic props. 4–45492
GeF_3^-, enthalpy of formation by electron impact dissoc. of tetrafluoride 4–48117
GeO_2 meas. of by method of mixtures at high temp. 4–69913
H_2 enthalpy measurement, 1 to 100 bar, 367.00 to 222.15K 4–66543
H_2-D_2 liquid solutions, excess thermodynamic functions *(Russian)* 4–52910
Hg-In alloys, liq., association equilibria, conc. depend. of enthalpy of mixing *(German)* 4–72423
Hg-Tl, liquid, enthalpy of mixing, equilibrium of association *(German)* 4–69924
Hg_5Tl_2, thermodynamic properties, enthalpy of formation *(German)* 4–69924
LiCl, solvation enthalpies in dioxane-water mixtures 4–50213
Mg_2GeO_4, olivine-spinel transition, enthalpy, olivine-spinel-phenacite stability relations, thermodynamics 4–67043
N_2O, enthalpy-press. behaviour determ., Joule-Thomson effect studies 4–78554
NaCl, solvation enthalpies in dioxane-water mixtures 4–50213
$NaNO_2$, between 450 and 800°K 4–56891
Ni-Ga alloys, thermodynamic study by e.m.f. meas. using solid electrolyte cells *(Japanese)* 4–64532
$Pb(Fe_{0.5}Nb_{0.5})O_3$-$BiFeO_3$, magnetic ferroelectrics, adiabatic calorimeter heat capacity meas., entropy and enthalpy evaluation 4–82673
Rh_2, gaseous mols., thermodynamic investig. 4–43874
ScF_3, and other thermodynamic props., 100-1600°C 4–52905
$SmFeO_3$, calc. from expt. equilib. consts. 4–70413
$Sm_{0.55}Tb_{0.45}FeO_3$, thermodynamic properties, on reduction, calc. from expt. equilib. consts. 4–70413
SnS, thermodynamic props. *(German)* 4–69923
SnSe, thermodynamic props. *(German)* 4–69923
SnTe, thermodynamic props. *(German)* 4–69923
Sr-Ba system, liq., energetics of alloy form., thermodynamic meas. *(German)* 4–48768
$TbFeO_3$, calc. from expt. equilib. consts. 4–70413
TiRh, Ti_2Rh, gaseous mols., thermodynamic investig. 4–43874
$TiSi_2$, above 1200K, enthalpy and specific heat 4–67053

enthalpy continued
U, liquid, thermodynamic equilib. to 9000K, eqn. of state, soft sphere theory 4–63888
U, liquid, using liquid Ar calorimeter, above 2000K 4–60623
U_3O_{8-x}, non-stoichometric, high temperature phase transitions, thermogravimetric meas. 4–78232
VSi_2, above 1200K, enthalpy and specific heat 4–67053
Zn-Al alloy, eutectoid, enthalpy of transform. and interfacial enthalpy 4–53643
Zn-Ga liq. systems, errors due to side reactions 4–45526

entropy
see also entropy of substances
black holes, generalised second law of thermodynamics, infall of an entropy-bearing system 4–76850
Bose system, Bogolyubov hydrodynamics, condensate density 4–75656
chemical lasers, thermodynamic anal. of chem. react., efficiency, operating conditions investig. 4–69042
chemically reacting systems, entropy prod. 4–83011
de Broglie's cyclical action integral, mathematical form 4–55403
dimethyl sulphide, adsorpt. on γ-alumina, entropy calc. using heat of adsorpt. meas. 4–52987
dimethyl sulphide, adsorpt. on SiO_2 gel, entropy calc. using heat of adsorpt. meas. 4–52986
enthalpy-entropy compensation, in water macroscopic source, simple model 4–76575
entropy increase principle 4–59314
ethanethiol, adsorpt. on γ-alumina, entropy calc. using heat of adsorpt. meas. 4–52987
ethanethiol, adsorpt. on SiO_2 gel, entropy calc. using heat of adsorpt. meas. 4–52986
excess entropy of mixing of liquids, calc. using eq. of state 4–83037
Faddeev's theorem on infinite system of functional eqns. reduction 4–59073
fine, appl. to dissipative mechanics, variable rest mass *(French)* 4–55402
generalised expression, comparison with Boltzmann formulation, probalistic models 4–81261
generalised function, von Neumann algebra 4–65852
generalization using traces on von Neumann algebras 4–74442
Glansdorff-Prigogine stability criterion for non-equil. states, validity range 4–51496
Glansdorff-Prigogine stability criterion for non-equil. states 4–51497
hard sphere fluid, temp. depend. sphere diameter, Carnahan and Starling eqn. of state 4–59315
Heisenberg-Ising ring, $\Delta \geqslant 1$, finite temp. excitations and thermodynamics 4–67338
Hubbard model, linear half-filled-band, static thermodynamic props. 4–53204
Hubbard model, low density, third order expansion 4–45088
inhomogeneous media, phase separation, entropy production calc. *(German)* 4–75634
Ising chain, general, free ends, zero-temp. thermodynamics, third law violation 4–72940
lattice fluid with extended interaction, anal. of phase transitions 4–67074
liquid crystals, chain ordering, even-odd effect, transition entropy investig. 4–60404
liquid-vapour/gas equilibria, equilib. consts. evaluation, entropy, enthalpy, heat of mixing calc. *(German)* 4–60603
mathematical definition from information theory 4–74451
measurement and irreversible processes 4–71358
measurement error empirical distribution approximation method *(Bulgarian)* 4–46548
methanethiol, adsorpt. on γ-alumina, entropy calc. using heat of adsorpt. meas. 4–52987
methanethiol, adsorpt. on SiO_2 gel, entropy calc. using heat of adsorpt. meas. 4–52986
multicomponent systems, entropy prod., variational problem with free boundary conditions 4–59324
nonequilibrium thermodynamics, information theory approach 4–43221
nonequilibrium thermodynamics, space-time theory 4–59322
product distribution entropy and temp. parameters 4–61602
production on either side of shock branching, theorem 4–78634
production principle, instability effect *(French)* 4–47253
radiation field, relation between maximal entropy and degree of coherence 4–51544
steady state thermodynamics, weak entropy prod. 4–62767
time direction of increase, relation to time arrow of life 4–43137
two-phase system, irreversible process thermodynamics *(German)* 4–54102
Cs_2SbBr_6, heat capacity determ. rel. to temp., entropy investig. 4–52902
H_2S, adsorpt. on γ-alumina, entropy calc. using heat of adsorpt. meas. 4–52987
H_2S, adsorpt. on SiO_2 gel, entropy calc. using heat of adsorpt. meas. 4–52986
Rb_2SbBr_6, heat capacity determ. rel. to temp., entropy estimated 4–52902
$SmFeO_3$, calc. from expt. equilib. consts. 4–70413
$Sm_{0.55}Tb_{0.45}FeO_3$, thermodynamic properties, on reduction, calc. from expt. equilib. consts. 4–70413
$TbFeO_3$, calc. from expt. equilib. consts. 4–70413
U_3O_{8-x}, non-stoichometric, high temperature phase transitions, thermogravimetric meas. 4–78232

entropy of substances
benzene molecules, adsorption on alumina, entropy and mobility 4–52982
binary III-V liquidus lines, thermodynamics and computer fits 4–52864
cis-o-bromostyrene, thermodynamic functions calc. 4–63409
capillary-porous medium, phenomenological eqns. 4–50048
capron, transition from energetic stress components to entropy *(Russian)* 4–50020
chalcogenide vitreous compounds, configurational entropy 4–75635
cis-o-chlorostyrene, thermodynamic functions calc. 4–63409
cis-o-fluorostyrene, thermodynamic functions calc. 4–63409

entropy of substances continued
  heavy water, equation of state 4−79137
  hydrocarbons, caged, plastic crysts., orientational disorder, entropy of transition investig. 4−78937
  ice, III-IX transformation, thermal obs. 4−56877
  liquid alloys, binary, rel. to vol. change on form. *(Russian)* 4−52678
  liquid crystal, DMC, adiabatic calorimetry, 300-550K 4−78891
  liquid crystal, smectic C, B and H phases, simple molecular theory 4−60410
  liquid-liquid interface, heat of adsorption *(Flemish)* 4−44683
  metal, melting and vaporisation due to unloading wave *(Russian)* 4−76514
  metals in b.c.c. phase at high temperatures 4−52719
  molecular fluids, perturbation theory 4−72415
  molten salt breeder reactor fuels, chemistry and thermodynamics 4−51890
  nonelectrolyte solutions, excess entropy and enthalpy of mixing eval. from internal press. 4−45938
  octafluorotoluene, standard entropy of ideal gas determ. from thermodynamic props. meas. 4−52909
  octafluorotoluene, vibr. spectra and thermodynamic functions 4−56240
  polymer, molecular orientation effects on melting temp. and crystn. rates *(Polish)* 4−44488
  polymer solution with upper and lower crit. temps. of mixing, temp. depend. of thermodynamic functions *(Russian)* 4−50223
  semiconductors, enthalpy and entropy of formation of holes and electrons 4−53041
  solid, temp. depend., inflection points *(Russian)* 4−72578
  superconductor, dirty, entropy current of vortex motion 4−76011
  superconductor vortex motion, theory 4−72910
  variable entropy fluid layer, vortices by sound field interaction *(French)* 4−48234
  water, solvation, Monte Carlo calc. of hydrophobic interaction with non-polar mols. 4−48498
  water + acetic acid, thermodynamic props. *(German)* 4−79164
  Ag-Au alloys, nuclear component, thermodynamic treatment 4−44680
  Al, temp. depend. effect on vacancies, positron annihilation 4−79036
  BX_2SH, X = Cl, Br, I, barrier to internal rot. calc., Huckel, CNDO/2 methods, thermodynamic functions calc. 4−74934
  CSI, entropy of formation of Schottky defects 4−66905
  $Ca(NO_3)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4−69729
  $Cd(NO_3)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4−69729
  Co-Cr alloys, thermodynamic props., equil. phase boundaries 4−45529
  CsBr, entropy of formation of Schottky defects 4−66905
  CsCl, entropy of formation of Schottky defects 4−66905
  Cs_2MoO_4, cryst., heat capacity, thermodynamic props., standard Gibbs energy of form. determ. 4−52904
  Cs_2O, heat capacity determ. Gibbs energy of form., thermodynamic functions derived 4−52903
  Cu, shock compressed, temp. meas. using rarefaction wave parameters *(Russian)* 4−49757
  ErB_{12}, entropy of fusion, drop calorimetry 4−63901
  EuTe evaporation, 1200-2050°C, Knudsen effusion and Langmuir methods *(German)* 4−79148
  $Gd_3Ga_5O_{12}$, magnetothermodynamics, obs. along [111] axis 4−79512
  H_2-D_2 liquid solutions, excess thermodynamic functions *(Russian)* 4−52910
  ^4He, superfluid, entropy under s.v.p., 1-2K *(French)* 4−60660
  LiCl aqueous solns., surface layer thermodynamics 4−83036
  $Mg(OAc)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4−69729
  Mn_3Pt, antiferromagnetic-antiferromagnetic transition, thermodynamic investigation 4−72967
  N_2 adsorbed on mordenite, thermal entropy determ. eq. of state derived, motional state determ. 4−67104
  NH_4Cl aqueous solns., surface layer thermodynamics 4−83036
  $NaNO_2$, entropy of fusion 4−56891
  Ni, electronic sp. ht. and entropy, of 0-1200K 4−76075
  Ni-Ga alloys, thermodynamic study by e.m.f. meas. using solid electrolyte cells *(Japanese)* 4−64532
  $NiCl_26(NH_3)$, $NiBr_26(NH_3)$, heat capacity, anomalous entropy change obs. 4−48771
  $OH^- + C_2H_2 \rightleftharpoons C_2H^- + H_2O$, kinetics; $\Delta G_{298}{}^0$, $\Delta S_{298}{}^0$, $\Delta H_{,298}{}^0$ determ. 4−83013
  $Pb(Fe_{0.5}Nb_{0.5})O_3$-$BiFeO_3$, magnetic ferroelectrics, adiabatic calorimeter heat capacity meas., entropy and enthalpy evaluation 4−82673
  Pd-Ni-P metallic glasses, glass transition, mixing, ordering, effects 4−63769
  Pt-Ni-P metallic glasses, glass transition, mixing, ordering, effects 4−63769
  $^{242}PuF_3$, ht. capacity, entropy, enthalpy, 10-350K 4−79159
  S, monoclinic, crystal structure disordering, heat capacity anomaly 198K 4−69919
  Ti_2O_3, free energy model, high temperature transition 4−64034
  Ti_4O_7, heat capacity and entropy changes at 130K and 150K transitions metal-insulator transitions 4−53054
  UB_{12}, entropy of fusion, drop calorimetry 4−63901
  UO_{2+x}, nonstoichiometric, comp. depend. *(Japanese)* 4−45754
  UO_{2+x}, nonstoichiometry considerations 4−51887
  U_4O_9, phase transitions 4−51888
  V_2O_3, free energy model, high temperature transition 4−64034
  Xe, epitaxial, on graphite, entropy of adsorption *(French)* 4−56977
  ZnMn, dilute alloy, determ. from excess sp.ht. due to mag. interactions 4−64215
  $Zr_{0.6}Y_{0.4}B_{12}$, entropy of fusion, drop calorimetry 4−63901

environmental engineering
  see also air conditioning; cooling; ergonomics; lighting; safety; temperature control
  monitoring system, process computer applic. 4−58634
  nuclear energy, Czechoslovakian developments and environmental protection 4−43703
  organic manufacturing wastes, control 4−74184
  radioactive products release *(Czech)* 4−50901
  thunderhead-warning radar system 4−50402

environmental requirements *see environmental engineering*

environmental testing
  marine testing laboratory at Oceanological Centre of Brittany 4−70847
  porous material, thermal cond. meas. in gaseous environments 4−80151
  public transportation, passenger noise environment, levels meas. 4−71146
  solar energy concentrators, reflecting coatings, moisture effects 4−77063
  Ge high-purity γ detector performance after exposure to H_2, O_2 and water vapour 4−46819

ep scattering *see electron-proton scattering*

epitaxial growth
  (TTF)(TCNQ), on NaCl, characterisation 4−57185
  diamond, crystallisation from vapour with periodic pulse supersaturation 4−79869
  diamond powder epitaxial synthesis, intermixing influence 4−45866
  epitaxy, nucleation and crystallisation, review and information theory anal. *(Russian)* 4−69965
  f.c.c. metal on alkali halide, embryo accommodation 4−75727
  garnet, CVD using single metal alloy source 4−70407
  garnet, for bubble domains, homogeneous LPE fluxed melt prod. 4−45426
  garnet, liquid phase, large area, prep. for bubble domain devices 4−70411
  garnet, liquid phase epitaxial growth from BaO-B_2O_3 fluxes 4−79872
  garnet bubble film, l.p.e., from BaO-BaF_2-B_2O_3 solvent 4−70412
  garnet bubble film anisotropy variation by rotation rate increase and quenching 4−53263
  garnet bubble film uniaxial anisotropy and mag. moment rel. to rotation rate 4−49201
  garnet bubble film uniaxial anisotropy rel. to substrate rotation rate 4−53262
  garnet bubble films, optical sensing of bubble domains by reduction of Pb masking 4−53264
  garnet film, double layer self-biasing 4−70403
  garnet film, high perfection, for bubble domain appl., rapid liq. phase epitaxy 4−57683
  garnet film, liq. phase epitaxial, absence of hard bubbles 4−60991
  garnet film, liq. phase epitaxy 4−57681
  garnet film, LPE growth, rare earth species in PbO-B_2O_3 flux, diffusion coeff. 4−72647
  garnet film, prep., LPE, fast growth rates 4−72646
  garnet films, substituted, epitaxial growth by hydrothermal synthesis 4−49556
  III-V mixed compounds, cross section prep., TEM obs. 4−82092
  magnetic bubble film, mesa defect elimination in LPE 4−45427
  metal, on alkali halide, electron bombard. effect 4−44800
  metallic film, islet migration, effect on nucleation and epitaxial orientation *(Russian)* 4−72652
  metastable film characteristics 4−75735
  misfit dislocations in screw orientation, theory 4−44541
  molecular beam, distribution uniformity, expt. and calcs. *(Japanese)* 4−56321
  orientational matching of film and substrate lattices 4−82331
  semiconductor, heteroepitaxy on insulating substrate, review 4−49613
  semiconductor, on semicond. film. impurity conc. at interface, theory 4−82827
  semiconductor films, substrate surface impurity profiles influence 4−67124
  superconducting layer on PbTe, interface superconductivity, LEED obs. 4−45038
  Ag on PbSe film, epitaxial nucleation and growth meas., summary 4−76374
  AgCl/triglycine sulphate, ferroelectric, effect of local electric fields on crystal orientation *(Russian)* 4−69966
  $Al_xGa_{1-x}As$, liq. phase, on GaP, struct. perfection *(Russian)* 4−45439
  $Al_xGa_{1-x}As$, p-n junctions from mol. beam epitaxial layers 4−57163
  $Al_xGa_{1-x}Sb$, growth of film by liquid phase epitaxy with temp. gradient 4−45481
  AlN, on corundum, vapour deposition, epitaxial relations and piezoelec. coupling 4−49565
  α-Al_2O_e, sapphire, single cryst. growth by chem. vapour deposition *(Japanese)* 4−79868
  Au on PbSe film, epitaxial nucleation and growth meas., summary 4−76374
  $Bi_{40}Fe_2O_{63}$, crystal top seeding technique, growth from soln. in Bi_2O_3 4−67715
  $Bi_{40}Ga_2O_{63}$ crystals, epitaxial growth on $Bi_{12}SiO_{20}$ seeds 4−67715
  $Bi_4Ti_3O_{12}$, sputtered epitaxial film, constrained and metastable structures 4−75723
  CaF_2 film, single crystal, deposition on NaCl substrate 4−44797
  CdS, close spaced technique, film characts. 4−82813
  CdS, on $CuGaS_2$ substrate, for green l.e.d. prep. 4−45452
  CdSe, thermodynamic model for layer growth rate 4−44798
  CdSe, VPE growth on sapphire, CdS, elec. resist. meas. 4−70422
  $CdSnP_2$, liquid phase from Sn soln. on InP, heterodiode prep. 4−57708
  $CdSnP_2$/InP heterojunctions, LPE growth from Sn soln. and props. 4−61304
  CdTe, epitaxial growth in quasiclosed volume, effect of vapour comp. 4−67727
  CdTe film, epitaxial, synthesis 4−48871
  CdTe films, in hydrogen current 4−70418
  Co, on Cu, Ni, f.c.c. to h.c.p. phase transition, electrolytic growth 4−60713
  Cr_2O_3, formed by oxidation of Cr(110), symmetry influence on orientation *(French)* 4−44794
  Cu on (111) Ag film, initial epitaxy exam. by RHEED, TEM and TED 4−76376

epitaxial growth continued
- $Er_3Fe_5O_{12}$, garnet film, organometallic chem. vapour deposition 4−73243
- $(Eu,Y)_3(Fe,Ga)_5O_{12}$ mag. bubble films, rot. effects on isothermal growth by liq. phase epitaxy 4−45431
- $(Eu,Y)_3Fe_5O_{12}$, garnet film, organometallic chem. vapour deposition 4−73243
- $Eu_3Fe_5O_{12}$, garnet film, organometallic chem. vapour deposition 4−73243
- $Eu_xY_{3-x}Fe_5O_{12}$ film, mag. anisotropy, effect of growth temp. and substrate orientation 4−57329
- EuYbY garnet films, LEP, charact. 4−49202
- γ-Fe_2O_3, oxide nuclei formation on pure Fe surfaces *(German)* 4−75726
- $Ga_{1-x}Al_xAs$, liq. phase epitaxy on GaAs with mech. surface corrugations, SEM obs. 4−61290
- $Ga_{1-x}Al_xAs$ epitaxial layers, comp. determ. by electron probe microanalysis *(German)* 4−50161
- GaAlAsP, heteroepitaxial layers, dislocation elimination 4−45436
- GaAlAsP layer on GaAs substrate, dislocation elimination by controlled interfacial misfits 4−49602
- GaAs, adsorption of GaI_3, H_2 and mixtures during epitaxial growth 4−67724
- GaAs, from $Ga(CH_3)_3$-AsH_3-H_2 system, thermodynamics, kinetics 4−75724
- GaAs, from gaseous phase *(Czech)* 4−64506
- GaAs, from liquid phase *(Slovak)* 4−82823
- GaAs, in system $Ga(CH_3)_3$-AsH_2-H_2, epitaxial layer quality rel. to growth conditions *(German)* 4−48874
- GaAs, liq. phase, mechanism determ., by growth meas. 4−75725
- GaAs, liq. phase epitaxial layers, for microwave devices 4−45460
- GaAs, molecular beam epitaxy on GaAs, interface and doping profile characts. 4−61311
- n-GaAs, nondoped, electrophysical props. in temp. range 10-1100K 4−79242
- GaAs, nonuniformity of thicknesses, conc. field disturbances 4−67726
- GaAs, on corrugated GaAs substrate, for periodic p-n junction struct. production 4−73255
- GaAs, quartz sliding boat for liquid phase epitaxy 4−67736
- GaAs, Schottky barrier and p-n junctions from mol. beam epitaxial layers 4−57163
- GaAs, sputtered epitaxial film, constrained and metastable structures 4−75723
- GaAs, vapour phase, selective, for optically pumped mesa surface laser 4−55479
- GaAs, vapour phase epitaxial growth in $AsCl_3$-Ga-N_2 system 4−53611
- GaAs, vapour phase epitaxial growth, difference in (001) facet and vicinal planes 4−57680
- GaAs, vapour phase in N_2 atm., technique 4−70417
- GaAs epitaxial and polycrystalline growth in GaAs-I_2-He 4−44795
- GaAs film, morphology depend. on liq. phase epitaxy conditions 4−60701
- GaAs film, on $MgAl_2O_4$, effect of growth conditions on props. 4−45472
- GaAs films, growth from soln. by pulling between two parallel substrates 4−45446
- p-GaAs from liquid phase *(Czech)* 4−61293
- GaAs from Sn and Ga, strongly different kinetic inhibitions *(German)* 4−75470
- GaAs layers, liq. phase epitaxy technology 4−53606
- GaAs liquid phase epitaxial growth from supercooled solns. 4−49604
- GaAs:Ge, LPE, electrolum., photolum. and minority carrier diffusion length, dislocation effects 4−53008
- GaAs:Mn, wide-range thermometer 4−77041
- GaAs:O films, effect of growth temp. on phys. props. 4−45026
- GaAs:Se, strain, precipitation, misfit dislocations 4−82329
- GaAs:Si, fusion-epitaxial layer production for l.e.d's *(German)* 4−49629
- GaAs:Sn layers, liq. phase epitaxy, impurity conc. 4−49579
- $GaAs_{1-x}P_x$, epitaxial, chemical etching of structural defects 4−82324
- $GaAs_{1-x}P_x$, liq. epitaxy at const. temp. 4−82830
- $GaAs_{1-x}P_x$ ($x > 0.06$) vapour phase epitaxy, gas-solid relationships and optimum growth conditions 4−53618
- $GaAs_{1-x}P_x$:Se,Te, use of sandwich method *(Czech)* 4−67720
- GaAsSb-GaAlAsSb, liq. phase epitaxy, lattice matched heterojunction 4−45457
- $(GaAs)_{1-x}Si_x$, sputtering, nonequilib. solid soln. 4−82814
- $Ga_xIn_{1-x}Sb$ solid solns., liq. phase epitaxy, conditions for homogeneous growth *(French)* 4−53605
- GaN, epitaxial, built-in strain effect on luminescence and absorption spectra 4−82740
- n-GaN, epitaxial vapour deposition, carrier conc., mobility and photoluminescence *(Japanese)* 4−45438
- GaN, from Ga, HCl, NH_3, growth parameters, kinetics 4−45477
- GaN, X-ray obs. of thermal expansion for substrate matching 4−56893
- GaP, chloride transport method application, influence of temperature distribution obs. *(Czech)* 4−64507
- GaP, epitaxial layers, dislocation density 4−60702
- GaP, from fluid phase *(Czech)* 4−61297
- GaP, l.e.d. fabrication by heteroepitaxy on spinel substrate, props. 4−49624
- GaP, large area, from gaseous phase *(Czech)* 4−61294
- GaP, vapour phase epitaxy, dislocations, and effects on l.e.d. performance 4−57710
- GaP, zone recrystallisation with temp. gradient, growth kinetics *(Russian)* 4−73260
- GaP films, vapour deposition on NaCl and mica, structure obs. 4−49584
- GaP high-brightness yellow and green LED display prod. by vapour phase epitaxy 4−49630
- GaP layers on Ge substrate, prep. and struct. props. 4−48873
- GaP liquid phase epitaxy, N incorporation rel. to growth temp. and NH_3 partial pressure 4−53617
- GaP:N epitaxial layers, doping, use of GaN *(Czech)* 4−61296
- Ge, etching and growth in flow system with cyclic diffusion mass exchange 4−61302

epitaxial growth continued
- Ge, film, grown from mol. beam, elec. and optical props. 4−79419
- Ge, growth by solid-phase transport 4−70414
- Ge, remarks on exptal. system design 4−57721
- Ge transport by iodine in flow system 4−61300
- Ge-Si heteroepitaxial system, struct. perfection 4−67125
- InAs, minority carrier lifetime meas. with liquid and vapour phase epitaxial growth 4−45024
- $In_{0.5}Ga_{0.5}P$-$Ga_{0.4}Al_{0.6}As$, growth and laser operation 4−77682
- InP, liquid phase epitaxy, dopants Te, Se, S, effective distrib., coeffs. 4−45482
- InP, molar fraction effect in PCl_3-In-H_2 system 4−73263
- $LiNbO_3$, epitaxial film growth by discrete evap. in vacuum 4−61282
- $LiNbO_3$ film, for electro-optic modulation of guided waves 4−57501
- Mg on MoS_2, temp. depend., annealing effect, Moire fringe obs. *(French)* 4−60707
- NbN_x, single cryst. and polycryst. films, T_c and struct. comp. depend. 4−60902
- Ni, electrodeposition on Cu, struct. anal. 4−44808
- Pb, electrodeposition on Cu faces, current density effects 4−44796
- PbSe, vapour deposition, carrier conc., mobility and Hall effect meas. 4−53614
- PbSe on PbTe, heteroepitaxy, misfit dislocation form. 4−44799
- $Pb_{1-x}Sn_xSe$, from molten Sn and Pb, p-n junction characteristics 4−75956
- $Pb_{1-x}Sn_xSe$, vapour deposition, carrier conc., mobility and Hall effect meas. 4−53614
- $Pb_{1-x}Sn_xTe$, film on BaF_2, vac. evap. 4−73261
- $Pb_{1-x}Sn_xTe$, liq. phase, for laser heterostructures 4−64501
- $Pb_{1-x}Sn_xTe$, single cryst. vapour deposition on BF_2 4−67741
- $Pb_{1-x}Sn_xTe$, Th and In doped, liquid phase epitaxy 4−64517
- $Pb_xSn_{1-x}Te$, on BaF_2, NaCl, Ge(111) substrates, multicathode sputtering technique 4−61291
- PbTe, bulk and thin film thermodynamics, defect props., struct. correl. with elec. props. 4−79249
- PbTe, high mobility film, prep. by hot wall technique 4−73272
- Rh film, epitaxial growth and struct. 4−64495
- SbSI, thin films, vacuum sublimation, ferroelectric transition obs. 4−82330
- Si, epitaxial layer doping, trimethylstibine as Sb source 4−70423
- Si, evaporation coefficient of B, determ. for autodoping model 4−49601
- Si, for solar cells, design and construction 4−57722
- Si, growth by solid-phase transport 4−70414
- Si, high purity layer, properties 4−82809
- Si, impurity redistrib. during epitaxial growth and device processing, model 4−45471
- Si, junction migration obs. 4−49600
- Si, p-n junctions on polycryst. ribbon substrates 4−76392
- Si, process improvements for high performance microwave diodes 4−64519
- Si, rel. to device processes 4−45467
- Si, remarks on exptal. system design 4−57721
- Si, wafer, heating technique, continuous process 4−45480
- Si and $B_{13}P_2$, double-layer epitaxial growth on Si substrate, Si layer electrical props. 4−70426
- Si epitaxy from low pressure pyrolysis of SiH_4, expt. 4−49599
- Si low-pressure epitaxy for minimal autodoping 4−49598
- Si:B, diffusion from gas, B surf. conc. control by elec. field 4−44556
- Si:P, autoepitaxial growth, model of doping process 4−45445
- Si:P(As), epitaxial, impurity alloying using flux of GaP(As) 4−49626
- Si/Si(Ge), hetero- and homo-epitaxial growth during ionic sputtering *(Russian)* 4−73259
- Si-Ge, remarks on exptal. system design 4−57721
- Si-Ge, solid soln. epitaxial films, crystallisation mechanism effects on B diffusion 4−82828
- Si-Ge heteroepitaxial system, struct. perfection 4−67125
- α-SiC, on SiC, N and P doping, by sublimation 4−82815
- SiC on Si, by reaction with C_2H_2 4−57005
- $Sm_{0.4}Y_{2.6}Ga_{1.2}Fe_{3.8}O_{12}$, variously oriented epitaxial films, growth-induced mag. anisotropy 4−53268
- UO_2, thin films, vacuum evaporated, structure obs. 4−60703
- UO_2 thin films, evaporated on NaCl substrates with colloidal centres 4−60704
- Xe, epitaxial, on graphite, entropy of adsorption *(French)* 4−56977
- $Y_{2.4}Eu_{0.6}Fe_{3.8}Ga_{1.2}O_{12}$ 4−57681
- $Y_{3-x}Eu_xFe_{3.9}Ga_{1.1}O_{12}$ film, liq. phase epitaxial, on $Gd_3Ga_5O_{12}$ substrate, misfit strain 4−57004
- $Y_{2.14}Eu_{0.56}Tm_{0.30}Ga_{1.1}Fe_{3.9}O_{12}$, multiple film growth by liq. phase epitaxy 4−57682
- YIG and YIG:Ga, chem. vapour deposition and thermodynamic analysis 4−53597
- YIG films, liq. phase epitaxy, Pb ions incorporation, radioactive chem. analysis 4−60705
- YIG films, organometallic chem. vapour deposition 4−73243
- YIG films, Pb substitution effects 4−60706
- YIG:Pb^{2+},Si^{4+}, film, elec. and optical props., Pb^{2+} characts. 4−79420
- $Y_{2.6}Sm_{0.4}Ga_{1.2}Fe_{3.8}O_{12}$, growth induced anisotropy, annealing effect, temp. depend. 4−76101
- ZnO film, piezoelec., on oriented α-corundum substrates, crystn. kinetics 4−48872
- ZnS, influence of growth conditions in HCl:H_2 gas flow 4−53630
- ZnS, single cryst., thick films, substrate effects 4−70427
- ZnSe, nucleation and growth on Ge surfaces 4−76406
- ZnSe, sphalerite and wurtzite, on (111) Ge surface, reproducibility of struct. 4−53615
- ZnSe, sphalerite and wurtzite, on (111) Ge surface, reproducibility of struct. 4−57700
- ZnSe-Ge(100) heteroepitaxial system, struct. perfection, annealing, electron microscopy 4−67126

epitaxy *see epitaxial growth*

equations
- *see also Bethe-Salpeter equation; Boltzmann equation; differential equations; equations of state; functional equations; integral equations; nonlinear equations; Vlasov equation*
- Bernoulli's, inviscid flow integrated along streamline 4−66555
- linear, method giving variational formulation 4−47032

equations of state
- *see also equations of state of gases; equations of state of liquids; equations of state of solids; phase transformations; thermodynamics*
- anisotropic spheres in general relativity, equations of state and quasars 4−50438
- binary mixture of hard spheres, Percus-Yevick eqn., appl. and soln., eqn. of state derived 4−51447
- chain molecules, linear, flexible, excluded volume expansion and second virial coeff. 4−52300
- Einstein equations, exact time dependent with axial symmetry, numerical integration 4−74386
- entropy increase principle 4−59314
- Fermi gas, superdense degenerate, and sound vel., equilib. config., *(Russian)* 4−83171
- fluid, radial distribution function and thermodynamic props., quantum corrections 4−59318
- fluids, derivation from quantum mechanical correlation functions for Coulomb attractions 4−48154
- fluids, thermodynamic props. near critical point, accurate representation, appl. to methane and CO_2 4−51493
- hard sphere fluid, thermodynamic props., Carnahan and Starling eqn. of state 4−59315
- high density explosive products, thermal eqn. of state 4−53962
- Hubbard model, virial expansion, low density thermodynamics 4−45088
- inert gas adsorbed on solid surface, isotherm determ. from virial data model 4−69958
- liquid crystal gas of long rods phase transition, Onsager third virial coefficient 4−78900
- neutron star matter, correlation effects on energy shifts of Δ^- particles 4−65156
- nuclear and higher-density matter, relativistic quantum field theory 4−77983
- plasma, nonideal, descriptive model of thermophys. characts. *(Russian)* 4−63632
- polar fluids, frame-dependence of stress and heat flux 4−43222
- polar molecules, second virial coeff. eqns. force const. for BBD potential 4−69539
- relativistic particles, variable masses, equilib. statistical mech., nonquantal theory 4−71414
- seismic wave velocity and matter parameters of equations of state for pressure and density *(German)* 4−70628
- square well fluid 4−52857
- Tait compressibility equation, dense matter, generalisation procedure 4−79136
- Van der Waals equation, historical origins 4−71148
- Van der Waals equation, scaling laws development 4−68980
- Van der Waals model for mixtures, conc. fluctuation corrections 4−72272
- Van der Waals-Maxwell equation, exact derivation 4−71451
- virial coefficients for fluid of long thin rods, planar graph contribution 4−71449
- Ar, data to 13 kbar, test meas. of apparatus for simultaneous adiabatic and isothermal compressibility meas. 4−50997
- Cs plasma, determined by shock propag. hydromech. parameters 4−72384
- K crystals at high-temps. *(Russian)* 4−55416
- Na crystals at high-temps. *(Russian)* 4−55416

equations of state of gases
- air, dense high temp., isentropically compressed, in piston driven shock tunnel 4−72319
- Ar and Ar-alkane mixtures, second virial coeffs. meas., pot. parameters calc. *(German)* 4−56340
- Boltzmann's equation and dynamic methods development means *(German)* 4−52324
- Bose gas, model Hamiltonian of BCS type 4−55374
- coefficients near critical point, based on P-V-T-N data *(Russian)* 4−82256
- Coulomb gas, two-dimens. equilib. props. 4−72266
- Coulomb gas, two-dimens. Schrodinger eqn. eigenquantities 4−72267
- dense high temp. gases, isentropically compressed, in piston driven shock tunnel 4−72319
- ethane and ethene, PVT props. data eval., compressibility factors 4−56345
- heterogeneous equilibria, calc. of association and aggregation consts. in vapour and second virial coeffs. 4−61611
- ideal gas, Germain-Liger family of approximations 4−66538
- ideal gases and gas mixtures, numerical treatment *(German)* 4−78551
- liquid-vapour critical point, asymmetry of stratification curve *(Russian)* 4−67016
- methane, deuterated, isotope effects on second virial coeffs. investig. 4−60140
- methane, modified Benedict-Webb-Rubin eqn. of state, coexisting liq./vapour phases 4−63507
- new condition, Van der Waals and virial gases 4−60139
- Percus-Yevick equation of state calcs. of detonation 4−69586
- polar, second virial coeff., contrib. of bound double molecules having dipole and quadrupole moments 4−43901
- polar gas, third virial coeff. calc., transport and equilib. props. 4−52334
- pure spherical gases and binary gas mixtures, second virial coeff. meas. rel. to temp., pot. parameters calc. *(German)* 4−52322
- quadrupolar gases, second virial coeff. calc. 4−56341
- quantum dilute gas, two-particle approx. for third virial coeff. 4−47218
- rotating cascades, solid particle flow eqns. 4−78616
- second virial coefficient, empirical correl. 4−69546
- steam, second virial coeff., water-water pair interactions 4−78550
- super ideal gases, analytical model 4−71448
- thermodynamic singularities of dense gas at high temperatures 4−69547
- thermodynamic structure 4−75064

equations of state of gases continued
- thermodynamic structure 4−78548
- water vapour, intermol. pot. energy function derived, appl. to second virial coeff. determ. 4−78536
- Xe, SF_6, alkanes, second virial coeffs. meas. rel. to temp., pot. parameters calc. *(German)* 4−56340
- Ar, critical point region, scale hypothesis and eqn. of state *(Russian)* 4−79138
- Ar, test of 14-12-8-6 potential function 4−78381
- Ar, third depolarization virial coeff. calc. 4−60141
- Ar-NH_3 mixtures, PVT relations at h.p., compressibility factors 4−56344
- CO_2, intermol. pots. determ. from second virial coeffs. polarisabilities, quadrupole moments 4−66526
- CO_2, Migdal eqn. of state parameters *(Russian)* 4−78552
- CO_2, second virial coeff. calc. 4−56341
- Cs, plasma, adiabatic compression method for PVT dependence 4−69614
- D_2, intermol. pots. determ. from second virial coeffs., polarisabilities, quadrupole moments 4−66526
- F_2, intermol. pots. determ. from second virial coeffs., polarisabilities, quadrupole moments 4−66526
- H_2, dense high temp., isentropically compressed, in piston driven shock tunnel 4−72319
- H_2, diat., second dielec. virial coeff. determ. from polarisability 4−69480
- He, dense high temp., isentropically compressed, in piston driven shock tunnel 4−72319
- He, density depend. dielec. function, short range electronic distortion 4−72273
- N_2, dense high temp., isentropically compressed, in piston driven shock tunnel 4−72319
- N_2, intermol. pots. determ. from second virial coeffs., polarisabilities, quadrupole moments 4−66526
- n_2, thermophys. props. from fusion line to 1944K 4−78557
- N_2 adsorbed on mordenite, thermal entropy determ. eq. of state derived, motional state determ. 4−67104
- N_2-NH_3 mixtures, PVT relations at h.p., compressibility factors 4−56344
- NO_2, second virial coeff. calc. 4−56341
- O_2, intermol. pots. determ. from second virial coeffs., polarisabilities, quadrupole moments 4−66526
- SF_6, hexadecapole moment, dielectric and press. virial coeff. obs. 4−52338

equations of state of liquids
- t-butyl alcohol in water, u.s. determ. of acoustic non-linearity parameter 4−75577
- excess entropy of mixing of liquids, calc. using eq. of state 4−83037
- fluids of high density, intermol. energy at critical temp. investig. 4−78537
- hard sphere liquids, surface tension, derived props. 4−75684
- hard sphere radial distrib. function of eqn. of state by scaled particle theory 4−75434
- heavy water, specific volumes basis, thermodynamic properties 4−79137
- Hugoniots curves, transformations during compression by shock wave *(Russian)* 4−75571
- Lennard-Jones and Devonshire free volume theory, modification 4−56853
- liquid-vapour critical point, asymmetry of stratification curve *(Russian)* 4−67016
- methane, modified Benedict-Webb-Rubin eqn. of state, coexisting liq./vapour phases 4−63507
- molecular acoustic derivation *(German)* 4−52854
- nonelectrolyte solutions, excess entropy and enthalpy of mixing eval. from internal press. 4−45938
- optimal mode analysis of first coordination layer *(Russian)* 4−60588
- organic liquid-water binary mixtures, coexistence curve near critical pt. 4−44646
- polyoxyethylene solutions with lower crit. mixing temps., structural investig. *(Russian)* 4−44490
- relaxational compressional modulus derived from eq. of state 4−69702
- ridid sphere liquids, surface tension evaluation 4−48829
- system of hard spherocylinders, Monte Carlo method 4−69713
- water, second virial coefficient, calc. for Lennard-Jones spherically symmetric pot. 4−52858
- Ar, critical point region, scale hypothesis and eqn. of state *(Russian)* 4−79138
- Ar, metastable state, specific vol. meas. *(Russian)* 4−82267
- CO_2, and thermodynamic props., 2500 bars 4−44645
- ^{3}He, ^{4}He, second virial coeffs. of two-dimens. system using Beck pot. 4−67080
- Kr, nonlinear acoustical props. investig., B/A ratio calc. rel. to temp. 4−56813
- n_2, thermophys. props. from fusion line to 1944K 4−78557
- Na, volume measurements, isothermal compressibility temperature dependences 4−82257
- Ne, nonlinear acoustical props. investig., B/A ratio calc. rel. to temp. 4−56813
- U, thermodynamic equilib. to 9000K, eqn. of state, soft sphere theory 4−63888

equations of state of solids
- α-quartz, equation of state from method of potentials 4−68071
- alkali halides, Hugoniot curves, Gruneisen parameter, high press., lattice model calc. 4−72545
- coesite, equation of state from method of potentials 4−68071
- Gruneisen parameter and thermodynamics of solids under high press. 4−63932
- Heisenberg (4-ε) dimensional model, expansion 4−53197
- hexagonal crystal, third order eqn. of state *(French)* 4−63885
- metal, elastic energy state eqn. rel. to nonspherical deform. tensor *(Russian)* 4−61326
- methane, solid, eqn. of state data and rot. excitations 4−67017
- stishovite, equation of state from method of potentials 4−68071
- BeO, Hugoniot eqn. of state 4−63886
- Cu, volume depend. of total energy and eqn. of state 4−63785
- H_2 metallic, eqn of state anal. for pressures from 0 to 110 Mbar 4−75615

equations of state of solids continued
  ^{4}He, temp. depend. of longit. sound vel. 4−79222
  K, second order elastic consts., temp. and press. depend. 4−63887
  LiF(Cl)(Br), Hugoniot curves 4−52815
  LiH, press. and temp. derivs. of elastic moduli 4−82214
  N_2, solid eqn. of state data and rot. excitations 4−67017
  Na, second order elastic constants, temperature and pressure dependence 4−63887
  Na, volume measurements, isothermal compressibility temperature dependences 4−82257
  NaCl, equation of state at 0K and thermodynamic potential calc. 4−72552
  NaF, Hugoniot curves 4−52815
  TiO_x, Hugoniot data from shock wave compression up to 600 kbar 4−66985
  $Y_3Fe_5O_{12}$, scaling functions, critical mag. props. *(Russian)* 4−64219

equilibrium, chemical *see chemical equilibrium*

equilibrium, phase *see phase equilibrium*

equilibrium constants *see chemical equilibrium*

equilibrium diagrams *see phase diagrams*

equilibrium properties of superconductors
  alloy, dirty, type II, density of states near T_c 4−57207
  bibliography of material props. 4−79450
  clean type II superconductors, local struct., thermodynamic props. near lower critical field 4−57199
  energy gap, effect of dislocations 4−72901
  exciton mechanism, critical temperature increase 4−82515
  film, temp. domain form., I-V charact. *(Russian)* 4−67307
  hysteretic type II, neutron diffr., flux line lattices 4−82518
  intercalated layer compounds, crit. field, theory 4−79440
  magnetic behaviour, hysteresis, flux trapping, de Jong-Blaisse model 4−70092
  metals, influence of pressure and paramagnetic impurity 4−72903
  mixed state structure in a type-II plate of finite thickness *(Russian)* 4−57210
  nucleation of vortices in superconducting mixed state, nascent vortices 4−49112
  specific heat transition in a mag. field, Ginzburg-Landau theory 4−75999
  strong coupling, eqn. for zero temp. energy gap 4−57206
  strongly-coupled, energy gap parameter and electron-phonon interaction function determ. *(Russian)* 4−76004
  thermodynamic anomalies of supercond. under press., effect of scatt. processes *(Russian)* 4−79447
  type I materials, paramagnetic effect, importance of two dimensional mixed state layers 4−53173
  type II, pure, mag. field distrib. at arbitrary temp. 4−70093
  type II, temp. depend. of Ginzburg-Landau parameter κ_c 4−57205
  type II superconductor, isolated vortex lines, core struct., low energy spectrum 4−64158
  type II/1, intrinsic hysteresis, flux line mutual interaction 4−72893
  type II/1, lattice parameter temp. depend. 4−72896
  type II/1 and II/2, first order, lower critical field 4−75997
  Al, film, crit. field, electron paramagnetism effect 4−49116
  Al, film, temp. depend. of heat capacity near T_c 4−45036
  Al, flux quantisation above supercond. transition temp. *(Russian)* 4−72887
  Al, tunnelling investigation of energy gap anisotropy 4−45042
  Be, finely dispersed, crit. fields, 4.2 to 2K *(Russian)* 4−70095
  Bi, finely dispersed, crit. fields, 4.2 to 2K *(Russian)* 4−70095
  Bi film, polycryst., form. and supercond. phase stabilization *(Russian)* 4−67305
  $Cs_{0.3}MoS_2$ intercalated layer cpds., H_{c2} depend. on temp., positive curvature, Josephson interaction *(Russian)* 4−79449
  Eu_xLa_{1-x}, magnetic superconductor, phase diagram 4−70091
  Fe_2Te_3, magnetisation, Mossbauer and Meissner effects 4−82639
  Ga, film, crit. field, electron paramagnetism effect 4−49116
  Hg containing ferromagnetic particles, sp. ht. meas. *(French)* 4−57203
  In, thin film, transition from type I to type II, density of states 4−57198
  $In_{0.75}Sn_{0.25}$, quenching effect on sp.ht. and transition temp. 4−64149
  La-Th:Ce, supercond.-normal phase boundary, impurity conc. depend. 4−67304
  Nb, magnetisation curve, boson formalism 4−49102
  Nb, surface effect, crit. field, temp. depend. 4−49115
  Nb:Ta, Mo, upper critical field, impurity effect on anisotropy 4−57197
  Nb-Ta, surface effect, crit. field, temp. depend. 4−49115
  Nb-Ti alloy, meas. of H_c, high field supercond. method *(Russian)* 4−79438
  Nb_3Ge, thin film, upper critical fields meas. 4−49111
  $Nb_{3.3}Ge_{0.7}$, sp. ht., mag. susceptibility *(Russian)* 4−60900
  NbN film, transition temp. and upper crit. field meas. 4−57204
  Nb_3Sn and $NbSn_2$ crysts., crit. field, weak field penetration depth, coherence length *(Russian)* 4−70098
  $Nb_{0.27}Ta_{0.73}$, mag. struct., boson formalism 4−49102
  Pb films, strain-free, tunnelling parameters 4−45066
  Pb-In alloys, microphotographs of flux distrib. *(Russian)* 4−70097
  $Pb_{0.75}Bi_{0.25}$, upper crit. field, strong coupling calc. 4−45039
  $Pb_{0.9(1.0)}Mo_{5.1}S_6$, d.c. and pulsed fields, 600 kG upper critical field meas. 4−82520
  $Pb_xSn_{1-x}Te$, transition temp. and crit. mag. field exam. 4−76001
  Pd hydrides crit. mag. fields *(Russian)* 4−82523
  Pd-H alloys, low temp. sp. ht. meas. 4−67302
  Sn, destruction by elec. current, mag. induction meas. 4−64148
  Sn, film, crit. field, electron paramagnetism effect 4−49116
  $SnAl_{0.5}Mo_5S_6$, d.c. and pulsed fields, 600 kG upper critical field meas. 4−82520
  $Sn_{1.0}Mo_5S_6$, d.c. and pulsed fields, 600 kG upper critical field meas. 4−82520
  V, magnetisation curve, boson formalism 4−49102
  V, temp. depend. of H_{c3}/H_{c2} 4−49117
  V film, amorphous, T_c and crit. field *(Russian)* 4−76006
  $V_2Hf_xZr_{1-x}$, composite-processed Laves phase tapes, rel. to supercond. current capacities 4−72905
  Zr-Mo alloys, sp. ht. meas., transition temp., conc. depend. 4−49107

equivalent circuits
  see also network analysis
  electric machine, equivalent field analysis, for cct. parameters 4−55428
  m.i.m. structures, a.c., with interface polarisation 4−79414
  myocardial function and disturbance, electrical and cellular aspects 4−68492
  plasma sheath, pulse probe techniques 4−75299
  superconducting tunnel junction, IV characs. detn. 4−45058
  Cu-Ge boundary, two-terminal network, thermo-electric coupling influence on noise behaviour 4−49067

erbium
  alkali silicate glass:Er^{3+} multiple sites evidence 4−45332
  alkali silicate glass:Er^{3+} sixfold coordinated site evidence 4−45320
  chemisorption of O_2, CO, evaporated film, elec. resist. and surface area meas. 4−44780
  crystal field parameters determ. from mag. meas. on dilute alloys 4−76053
  elastic constants and magnetoelasticity in single crysts., 4.2-300K rel. to ordering transitions 4−45160
  elastic constants meas. by u.s. pulse-echo technique, 4.2-300K 4−48666
  exchange and one-ion anisotropies calcs. 4−57257
  exchange interaction, anisotropic, conical magnetic phase 4−64197
  film, elec. cond. meas., columnar model 4−75978
  fluoride:Er^{3+}, fluorescence decay, cathode-ray excitation 4−49471
  fusion reactor first wall materials, He and H isotope depth profiles and migration 4−69318
  glass:Er, Nd, Yb, laser theory, operating characts. 4−43320
  magnetic structure obs. by neutron diffraction in mag. field 0-20 kOe 4−53245
  X-ray $N_{4,5}$ emission spectra obs. 4−57647
  BaY_2F_8:Er^{3+}, i.r. quantum counter, GaAs laser pumped 4−74047
  CaF_2:Er^{3+}, cubic sites, ion-defect clustering 4−79058
  CaF_2:Er^{3+}, cubic sites, ion-defect clustering 4−79059
  CaF_2:Er^{3+}, far-i.r. absorpt. spectra, Stark level transitions, temp. depend. 4−73140
  CaF_2:Er^{3+}, low temp. luminesc., vibronic sideband 4−64418
  CaF_2:Er^{3+}, phosphorescence decay obs., probability of recomb. of V_k-hole centres with impurity electrons 4−57628
  CaF_2:Er^{3+}, thermoluminesc., fluoresc., symmetry 4−82763
  CaF_2:Er^{3+}:TR^{3+}, (TR=La-Lu), optical spectra, optical centre equilib. 4−53481
  CaF_2:La,Er, absorption spectrum laser induced changes 4−61184
  $Ca_xSr_{1-x}F_2$:Er^{3+}, anti-Stokes luminescence, matrix disorder effect 4−53515
  CdF_2:Er^{3+}, Yb^{3+}, Tm^{3+}, Ho^{3+}, Tb^{3+} absorption and fluorescence spectra, obs. 4−57610
  CeO_2:Er^{3+}, e.p.r. meas. of stress-induced g-shifts of Γ_7 levels 4−76156
  Er III, configuration interaction, energy levels *(French)* 4−51935
  Er^{3+}, in germanate and tellurite glass, absorption and fluoresc. spectra 4−45333
  Er^{3+}, in YCl_3, $InCl_3$, $ScCl_3$, $CdIn_2S_4$, cryst. field symm. 4−57582
  Er^{3+} in YVO_4, magnetic interactions, e.p.r. study *(German)* 4−79584
  Er^{3+} in zircon structure systems, cryst. field parameters, spin-lattice relax. 4−72712
  $LaCl_3$:Er^{3+}, spin-lattice relaxation rates 4−57371
  MgO:Er^{2+}, spin-lattice relax. with spherical lattice waves and cubic cryst. field 4−64259
  MnF_2:Er, fluorescent energy transfer $Mn^{2+} \rightarrow Er^{3+}$, temp. depend. 4−45354
  Pd:Er^{3+}, single cryst., e.p.r., cryst. field anal. 4−73022
  Sc:Er^{3+}, single crystal, magnetisation and e.s.r., crystalline electric field parameters, energy level calc. 4−82587
  ThO_2:Er^{3+} e.p.r. meas. of stress-induced g-shifts of Γ_7 levels 4−76156
  Y:Dy(Er), h.c.p. single crystals, cryst. field mag. anisotropy 4−57260
  $YAlO_3(Y_3Al_5O_{12})$:Er^{3+}, radiationless relax., coupling strength depend. 4−53499
  Y_2O_2S-Er-Ho-Yb, radiative and non-radiative transitions 4−53518
  YVO_4:Er^{3+}, e.p.r. investigation of pair interaction 4−70208
  Yb^{3+}-Er^{3+} activated up-conversion phosphors, excitation and emission efficiency obs. 4−57607

erbium alloys
  Ag-Er, dilute, cryst. field effects in e.p.r. 4−45177
  Al:Er, dil., exchange and cryst. field parameters from transmission e.s.r. 4−79603
  ErAg, neutron spectroscopy and mag. props. anal. in terms of crystal field levels 4−72713
  $ErAl_2$, cubic, mag. struct., neutron diffr. obs. 4−49181
  ErAs, low temp. sp. ht., λ-like peak, S'=3/2 ground state 4−69922
  ErCu, neutron spectroscopy and mag. props. anal. in terms of crystal field levels 4−72713
  Er_5In_3, cryst. struct. 4−63792
  Er_2Ni_7, point-charge crystal field model explanation of mag. struct. 4−76092
  Er_3Ni_2, cryst. struct. determ. 4−75478
  Er_5Pd_2, cryst. struct. and lattice const., X-ray obs. 4−75480
  ErZn, neutron spectroscopy and mag. props. anal. in terms of crystal field levels 4−72713
  $ErZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
  Ir-Er, dilute, cryst. field effects in e.p.r. 4−45177
  PdEr, e.s.r. obs. of Γ_6 excited state Er^{3+} reson. 4−53308
  Rh-Er, dilute, cryst. field effects in e.p.r. 4−45177
  Tb-Er(83.2%), semi-cone angle of Tb, nucl. polarization method 4−82577

erbium compounds
  see also erbium alloys
  $(Er,Lu)AlO_3$ crystals containing Ho^{3+} and Tm^{3+} ions, stimulated emission 4−53471
  ErB_{12}, enthalpy and entropy of fusion 4−63901
  ErB_{12}, mag. suscept. investigation between 100 and 300K 4−45089
  ErB_4, prod., thermal expansion meas. 4−82282
  $Er_{15}C_{19}$, cryst. struct., X-ray obs. *(French)* 4−63809
  ErF_3, enthalpy and other thermodynamic props., 100-1600°C 4−52905

erbium compounds continued
$Er_3(FeGa)_5O_{12}$ bubble-domain films and devices, neutron and γ irradiation tolerance, obs. 4−45154
$ErFe_2O_4$, synthesis of new compound, unit cell parameters determ. 4−82144
$Er_3Fe_5O_{12}$, epitaxial garnet film, organometallic chem. vapour deposition 4−73243
$Er_3Fe_5O_{12}$, room temp. Mossbauer parameters 4−61068
$Er_3Ga_5O_{12}$, cryst. struct., oxygen coords. 4−44519
ErH_x, obs. of oxide growth on electron beam evap. films 4−57002
$Er_2M_{10-2x}Na_x(PO_4)_6F_2$, (M=Ca, Sr, Ba), cryst. struct. obs. 4−72449
$ErMn_2O_5$, phase comparison method, appl. to complex magnetic structure, interaction matrix calc. 4−76089
Er_2O_3, critical sp. ht. and 3-D Ising model 4−79516
ErOOH, magnetoelec. new materials 4−82539
ErS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4−76082
ErS, mag. and structural transitions 4−64206
ErT_3, thin film, nondestructive determ. of tritium content, X-ray spectral anal. 4−71275
^{171}Er-CyDTA, beta-decay effects, bond ruptures 4−64717
(1-x)HoF_3.xErF_3 single crysts., solid solution behaviour 4−48764
KF-ErF_3, system, F type struct. phases *(French)* 4−66881

ergodic theorem *see statistical mechanics*

ergonomics
see also human factors
head-eye coordination to continuous and intermittent displaced targets 4−62300

error analysis
see also error correction; error detection
algorithms for least squares parameter estimation rel. to meas. errors 4−65330
boundary layer at wall, error bounds 4−48240
boundary layer eqns., asymptotic boundary conditions 4−78603
boundary value problems, finite element methods 4−59066
chemical reaction kinetics, methyl radical combination, rate const. determ., error anal. 4−50133
feedback stabilisation system for gamma spectrometer *(Russian)* 4−81046
finite element patterns 4−47071
finite-difference methods, modified eqn. approach to stability and accuracy analysis 4−47033
Fredholm type singular integral eqn., numerical soln. method 4−51309
lidar measurement of atmospheric gases by differential absorption, error anal. 4−61927
Lorentzian spectral lines, nonlinear computer fitting systematic errors 4−68874
low-power laser energy meas. calorimeters 4−65466
materials testing by u.s. echo method 4−50094
molecular weight determ. by students, improvements to Dumas bulb apparatus 4−58700
m.o.s. structure, h.f. capacitance calc. 4−45008
N-body problems, macroscopic properties, effect of integration errors 4−59093
nonlinear Foppl-Hencky eqn., error bounds for variational solns. 4−47080
nuclear reactor boiling channels, systematic errors in discrete time-interval transmission method for void statistics estimation 4−81563
ordinary differential equations; conf. Austin, Tex., USA, 19-20 Oct. 1972 4−59084
photogrammetry, sources and magnitudes, simplified analysis 4−51097
radiation therapy, patient set-up monitoring by computer 4−46427
rounding errors in summation procedures for finite sums *(German)* 4−43001
seismic autocorrelation function determ. *(Russian)* 4−54140
single measurement device, algorithm for basic error *(Bulgarian)* 4−62407
solar spectra McAllister's 1960 u.v. atlas, error corrections 4−80501
South Dakota randomized cloud seeding project, Type I statistical error 4−70735
spectrophotometry, errors in light absorpt. meas. caused by non-monochromatic light, calcs. 4−50946
spectrophotometry, errors in light absorpt. meas. using linear calibration curve, calcs. 4−50947
$Sr_5(PO_4)_3Cl$, cryst., struct. refinement, random error anal. 4−56657

error correction
Anger camera deadtime, true counting rate rel. to photopeak fraction 4−62318
biomedial section scanning, using orthogonal tangent correction 4−68527
gravimetric reference points, systematic errors *(Russian)* 4−58134
multi element radio interferometer phase error correction by data processing 4−62242
Cs atomic beam frequency standards, second-order Doppler shift and cavity phase error corrections 4−65350
K-Ar dating, orifice correction 4−64978

error detection
see also error analysis
radiation therapy localisation error detection and evaluation by film technique 4−54698

error statistics
geodetic statistical weight determ. rel. to systematic errors in geodetic adjustments 4−83041
optical communication system, bit error probability 4−51528
planetary boundary layer optimum averaging times for short term wind prediction 4−68191
precise levelling accuracy, statistical analysis 4−83040

errors
see also measurement errors
atmospheric quasi-nondivergent prediction models, bounds on error growth rate 4−80357
bubble chamber at CERN, systematic and random error investigation 4−55080
circular scale divisions, accurate relative measurement method *(Japanese)* 4−46545

errors continued
nuclear reactor theory, functional anal. method for error estimation 4−78166
resistance thermometer rel. to insulation conductivity *(Russian)* 4−80846

Esaki diodes *see tunnel diodes*

Esaki effect *see tunnelling*

ESCA *see electron spectra; electron spectroscopy; spectrochemical analysis*

estimation theory
see also information theory
nuclear engineering, physical parameters, expt. determ., when parameters cannot be uniquely estimated 4−71971
nuclear reactor boiling channels, systematic errors in discrete time-interval transmission method for void statistics estimation 4−81563
Toeplitz$_{(\alpha\ by\ \beta)}$ matrices and statistically periodic processes 4−65646

etalons *see interferometers*

etchants *see etching*

etching
see also crystal defects; integrated circuit production
apatite, fission track ages, effect of progressive etching 4−83136
apparent coalescence of grains, twin form., migration *(Russian)* 4−67772
cellulose nitrate plastic track detector, etching mechanism 4−60695
cellulose triacetate foam for α-particle track recording 4−81004
collodion film, etch pits formed on alpha particle irradiation 4−60693
deep structure generation, by ion beam etching with Ti or Mo masks 4−53625
diamond, natural, formation of trigons at {111} faces during etching 4−82326
Estrofol foil as fission track detector *(Polish)* 4−55079
eutectic structure obs. by selective sublimation 4−82851
glass, determ. of homogeneity from HF etching pattern 4−49971
glass, in aq. HF, for optomechanical appls. 4−80882
glass, microflaw origin and detection 4−64694
ice, etch pit growth and etch channel movement on basal plane *(Japanese)* 4−67116
insulator, microscopic channel prod., treeing under high voltage pulse 4−53373
ion beam etching method for TEM thin foil prep. *(German, English)* 4−73303
ion etching and sputtering, physical fundamentals of glass removal 4−53627
ion pump cleaning by submerging in chemical etchant 4−42766
metallographic samples, ion etching 4−64555
moire test grids, in steel 4−83003
m.o.s. structure, effective surface states density, effect of thickness of layer removed by etching *(Slovak)* 4−53148
organic molecular crystals, detection of lattice defects *(German)* 4−75521
orientation in cubic crystals, geometric evaluation of etch figures 4−67796
phenanthrene single cryst., dislocation etching and plastic deform. 4−57685
photographic reproduction using etch-tracks from fission fragments and alpha-rays 4−42824
polyamides, oxygen etching for supermol. struct. investig. 4−50004
polymer, ABS type, improved etch method for SEM and TEM 4−53894
polyolefins, high frequency oxygen discharge plasma etching technique, structure crystalline polymers *(Russian)* 4−72642
polythene fibre, anisotropic structure, related properties 4−63771
quartz, by HF, surface layer features 4−53004
quartz glass, changes in surface struct., ion bombard. 4−67090
spherical single crystal, effect on diffracted X-ray intensity 4−44786
steel, low-C martensite, structural hierarchy *(Russian)* 4−73292
steel, stainless, ion bombardment surface structs. development 4−49694
steel, temper brittleness and grain boundary etching 4−64552
substrate removal from p-GaAs layers, 2 stage selective process 4−49615
triglycine sulphate, ferroelec. domain delineation etching versus pyroelec. laser technique 4−49285
Al, electrolytic capacitor grade, Fe microsegregation, effect on etchability 4−45546
Al, recrystn., metallographic investig. using double-etching method *(German, English)* 4−64563
Al foil, microstruct. revealed by selective etching 4−67783
Al-Al_3Ni, composite material, fracture microrelief examination 4−49929
$Al_xGa_{1-x}As$/GaAs double heterostructure laser material, dark-line degradation sites, etching and microscopy obs. 4−51606
Al_2O_3, corundum, etching of surfaces with molten V_2O_5 4−64609
As_2S_3, evap. films, surface relief holograms 4−42817
B_4C, metallographic preparation 4−67117
$BaTiO_3$, dislocation distribution investigation by means of etch pits 4−56752
$BaWO_4$, by flux evaporation, morphology, cleavage, perfection, growth of crystals 4−76385
Bi, etch-pit shape using CrO_3 in glacial acetic acid 4−72641
Bi, etching of (111) cleavage plane, Cl, Br, HCl and fuming HNO_3 etchants 4−60692
CaF_2, single cryst., selective etching parameters 4−56997
CaO-Na_2O-SiO_2, etched glass, tensile strength meas., thickness depend. 4−57777
$CaWO_4$, dislocation etching on cleaved {001} and {100} planes 4−63993
Cu, (111) dislocation etch pits *(Japanese)* 4−79056
Cu-Al(3 wt.%) single crysts., friction stress on individual dislocations 4−49728
Fe-Si, improved etching technique for obs. of dislocation sites 4−75717
Fe_3O_4, magnetite, comparison of etch patterns with natural trigons in diamond 4−56999
GaAs, bulk, chemical etching of structural defects 4−82324
GaAs, crystal degradation by abrasion and subsequent heat treatment 4−49605
GaAs, dislocations in (111) As plane, new etching agent 4−67114

etching continued
GaAs, electrolytic, for f.e.t. prod. 4−82414
GaAs, lattice defects, annealing effects, etch pit obs. *(Japanese)* 4−75531
GaAs, selectively etched diffr. grating form. 4−79875
GaAs etching by HCl-AsH$_3$-H$_2$ gas mixtures, thermodynamics 4−53619
GaAs junction, anisotropic etching behaviour 4−60694
GaAs:Te, nature of small etch-pits 4−82325
GaAs-Te, obs. of heat treatment effects on struct. perfection 4−48759
GaAs$_{1-x}$P$_x$, epitaxial, chemical etching of structural defects 4−82324
p-GaP, anomalous defects, doping effect, dislocations 4−75528
Gd$_2$(MoO$_4$)$_2$, domain boundaries, antiphase boundaries, dislocations 4−82678
Ge, electrolytic amorphous film, growth etching behaviour,optical and electron microscope obs. 4−82337
Ge, etching and growth in flow system with cyclic diffusion mass exchange 4−61302
KCl:Ca, role of distributed impurities 4−48862
KMgF$_3$ crystals, dislocation structure 4−52776
LiCl, single crysts. and bicrysts., plastic deform. transmission through boundary *(Russian)* 4−52805
LiF, electron irrad., 250 MeV, dislocation initial stresses, etch pattern obs. *(Russian)* 4−72475
LiF monocrysts., dislocation mobility meas. during impact loading 4−66924
MgZn$_2$, dislocation velocity on prismatic planes by etching 4−79957
MoS$_2$, non-basal dislocation etching on (0001) faces 4−79240
Na borosilicate glasses, or lixiviation, used to make porous glasses, structure control 4−66831
NaCl crystals, kinetics of etching and polishing 4−53002
Ni crystals, selective etching at dislocations 4−53003
Ni superalloy, white streak obs. 4−45558
Ni:C, etch pitting of fresh dislocations 4−60500
PbS, etching soln. for revealing p-n junctions 4−45476
PbS$_{1-x}$Se$_x$, etching soln. for revealing p-n junctions 4−45476
PbTiO$_3$ crystals, domain structure obs. 4−53382
Pu alloys, α- and δ-phase, bright field grain boundary etching techniques 4−64553
α-S, dislocation etching, plastic deform. and X-ray transmission topography 4−48635
Sb single crystals, (III) layer dislocations 4−69810
Si, density of specific etch pits in single crystals after heat treatment 4−67729
Si, gas phase etching with HCl, temp. depend. 4−44788
Si, obs. of stacking fault growth anisotropy 4−44551
Si, orientation dependent, rel. to devices 4−45467
Si single cryst. film, dielectrically isolated and defined by electrochem. etching, mobility obs. 4−57097
Si single cryst. film, dielectrically isolated and defined by electrochem. etching, minority carrier lifetime 4−57098
Si single crystal, ion milling of microsparabolic surfaces 4−44787
Si:P, He$^+$ irradiated, jet etching experiments 4−82822
α-SiC, in H$_2$ and Ar flow 4−56998
Si$_3$N$_4$, synthesis, characteriz. and consolidation 4−53803
Sn-Bi alloys, etchant composition 4−82322
Sr$_x$Ba$_{1-x}$Nb$_2$O$_6$, dislocation etch pits, use of hydrofluoric acid etchant 4−52771
SrWO$_4$ by flux evaporaton, morphology, cleavage, perfection, growth of crystals 4−76385
TiO$_2$, coordination chemistry and kinetics of preferential etching 4−67115
V, yield stress, discontinuous temp. depend. induced by dissolved hydrogen from etching 4−45618
W, and edge screw dislocation distribution 4−79044
Zn, slip band structure and form. mechanism in single crysts. *(Russian)* 4−49681
ZnSe, cryst. orientation by chem. etching technique 4−73262

ether drift *see special relativity*

Ettingshausen effect *see magnetothermal effects*

europium
atom, K-L X-ray angular correlations 4−72046
atom, spectral line broadening in inert gas collisions 4−66293
o-benzoylbenzoate in ethanol-water soln., fluoresc. meas. of energy transfer to Eu(III) 4−57601
borosilicate glasses, Eu^{3+} fluorescence excitation, emission and absorption spectra obs. 4−49432
enstatite achondrites, composition and orign 4−62073
phosphor activation, phosphates, halophosphates and silicates *(Russian)* 4−82726
silicate glasses, quantum efficiencies and transition probabilities of Eu^{3+} 4−64432
zeolite:Eu^{2+}, e.p.r., crystalline field strength, g-factor 4−45179
β-Al$_2$O$_3$-BaO(La$_2$O$_3$, K$_2$O):Eu, Mn, phosphor depreciation under u.v. irrad. 4−61213
BaFX:Eu^{2+}(X=Cl,Br), luminescence 4−64429
BaO.6Al$_2$O$_3$:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
BaSO$_4$:Eu, thermoluminesc. mechanism 4−82761
CaF$_2$:Eu^{2+}, luminesc., short term X-ray excitation, exciton role *(Russian)* 4−73159
CaF$_2$:Eu^{2+}, optical absorption spectrum, crystal field theory calcs. 4−49378
CaF$_2$:Eu^{2+}, vibronic fluorescence calc. at 4130 Å, Jahn-Teller problem 4−57621
CaF$_2$:Eu^{3+}:TR^{3+}, (TR=La-Lu), optical spectra, optical centre equilib. 4−53481
Ca$_5$(PO$_4$)$_3$F:Eu^{3+}, fluorapatite crystal, linear Stark splitting in absorpt. spectrum 4−79763
CaSO$_4$:Eu, Mn, sensitised photoluminesc. obs. *(Russian)* 4−61205
CdS:Eu^{3+}, luminesc. and photocond. *(Russian)* 4−79797
Eu II, acid aq. soln., photoluminescence, phototransfer, thermoluminescence 4−53512
Eu^{2+}, analysis of the spin-lattice parameters in cubic crystals 4−67322
Eu^{2+} in alkali-alkaline earth phosphates, luminesc. 4−76295
Eu^{2+} in KMgF$_3$, KZnF$_3$, many centre structure, e.p.r. spectra obs. 4−57376

europium continued
Eu^{3+}, activation of luminescence and absorpt. spectra in LaPO$_4$ and YPO$_4$ 4−57590
Eu^{3+}, in dimethylsulphoxide, fluoresc. enhancement by Tb^{3+} 4−82741
Eu^{3+}, in silicate glasses, luminescence, effect of thermal history 4−53486
Eu^{3+} in oxysulphides, luminesc. kinetics, electron-hole processes *(Russian)* 4−82729
Eu^{3+} ions in soln., nonradiative deactivation, effect of H$_2$O intramol. vibr. anharmonicity 4−79785
Eu^{3+}/Ag mirror interface, excited mol. lifetime calc. 4−48073
Eu^{3+}(^{5}D$_0$), in dried and undried solvents, luminescence decay time, temp. depend. 4−53514
Fe:^{151}Gd, Mossbauer spectra of ^{151}Eu, lattice location and hyperfine fields 4−73056
KCl:Eu, photolum., struct. and disintegration of active centres *(Russian)* 4−82749
KCl:Eu^{2+}, local monoelectronic levels, two zone model *(Russian)* 4−72708
KCl:Eu^{2+}, localized levels, photoconductivity, light sum storage 4−53059
KCl:Eu^{2+}, many photon ionization process saturation 4−79796
KMGF$_3$, e.s.r., optical absorption and luminesc. spectra obs. 4−73146
KMgF$_3$:Eu^{2+}, f-f transition luminesc., Stark and vibr. struct. obs. 4−67650
KMgF$_3$:Eu^{2+}, Zeeman effect in Stark lines exam. 4−79303
K$_2$O.11Al$_2$O$_3$:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
LaAlO$_3$, LaCl$_3$, La$_2$O$_3$ and La$_2$O$_2$S, Eu^{3+} doped, electrostatic field parameters *(French)* 4−75791
La$_2$O$_3$.11Al$_2$O$_3$:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
LiBaF$_3$:Eu^{2+}, e.s.r., optical absorption and luminesc. spectra obs. 4−73146
NaCl:Eu^{2+}, e.p.r. spectra meas., orthorhombic spin Hamiltonian parameters determ. 4−76145
NaMgF$_3$:Eu^{2+}, f-f transition luminesc., Stark and vibr. struct. obs. 4−67650
X(Na$_2$O.P$_2$O$_5$)yWO$_3$ glass, Eu^{3+} fluorescence obs. 4−49433
NaYF$_4$:Eu^{3+}, photoluminescence, u.v. activated 4−57597
SmB$_6$:Eu^{2+}, e.s.r., negative g-shift, exchange interactions 4−53302
SrF$_2$:Eu^{2+}, luminesc., short term X-ray excitation, exciton role *(Russian)* 4−73159
SrFX:Eu^{2+}(X=Cl,Br), luminescence 4−64429
Sr$_2$SiO$_4$:Eu, luminesc. synthesis conditions effect, struct. depend. *(Russian)* 4−82725
YAlO$_3$(Y$_3$Al$_5$O$_{12}$):Eu^{3+}, radiationless relax., coupling strength depend. 4−53499
YV$_{1-x}$P$_x$O$_4$:Eu^{3+} luminescence energy transfer and concentration quenching obs. 4−49410

europium alloys
Mossbauer effect isomer shift meas., correl. between isomers in 4f series 4−82643
Eu-Pd system, phase diag., divalent and trivalent Eu 4−76417
EuIn$_3$(Tl$_3$)(Sn$_3$)(Pb$_3$), mag. props. 4−70143
Eu$_x$La$_{1-x}$, magnetic superconductor, phase diagram determ. 4−70091

europium compounds
see also europium alloys
alkaline earth mixed halides, M$_{1-x}$Eu$_x$FCl, M=Ca, Sr, Ba luminescence spectra *(French)* 4−64430
chalcogenides, meas. of photoelec. characts., comparison with optical meas. *(German)* 4−49526
Er$_2$SiO$_5$, cryst. flux growth with vapour transported Si 4−73250
(Eu,Y)$_3$(Fe,Ga)$_5$O$_{12}$ mag. bubble films, rot. effects on isothermal growth by liq. phase epitaxy 4−45431
(Eu,Y)$_3$Fe$_5$O$_{12}$, epitaxial garnet film, organometallic chem. vapour deposition 4−73243
Eu chalcogenides, mag. semiconds., optical props., band struct. investig. 4−64400
Eu chalcogenides, Verdet's const. calc. 4−73104
Eu complex, europium benzoylacetonate, luminesc. kinetics of dissoc. forms 4−76299
Eu complex, nitrato-bis-isonicotinate, cryst. struct. 4−82154
Eu complex, with dibenzoylmethane in cryst. state, isomeric, rel. to struct. *(Russian)* 4−48624
Eu-W-O system, prep., phase relns., cryst. chemistry and Mossbauer spectra investigation 4−60596
Eu^{3+}, in Eu(NO$_3$)$_3$ and EuCl$_3$, soln. visible absorpt. spectra cryst. field splitting theory 4−82707
Eu^{3+}, in Eu(NO$_3$)$_3$ and EuCl$_3$, soln. visible absorpt. spectra, ion solvation theory 4−82708
Eu^{3+} complexes, chelates in floresc., quenching. ligand-ion energy transfer investig. 4−81786
Eu^{3+} in solution, absorpt. band intensity, anion depend. 4−53462
EuB$_6$, exchange narrowing of dipolar fields from e.s.r. at 70 GHz 4−76144
Eu$_c$Ba$_{1-c}$O, optical absorption spectrum, crystal field theory calcs. 4−49378
Eu$_x$Ca$_{1-x}$(NH$_3$)$_6$, Mossbauer effect, conduction electron interactions at Eu^{2+} site 4−53351
Eu$_c$Ca$_{1-c}$O, optical absorption spectrum, crystal field theory calcs. 4−49378
EuF$_2$:YF$_3$(GdF$_3$) systems, new phases 4−72556
EuF$_3$, enthalpy and other thermodynamic props., 100-1600°C 4−52905
EuF$_3$, polymorphism and cryst. struct. 4−48589
EuFCl, new compound, synthesis and bulk mag. props. 4−57256
Eu$_3$Fe$_5$O$_{12}$, cryst. struct., oxygen coords. 4−44519
Eu$_3$Fe$_5$O$_{12}$, epitaxial garnet film, organometallic chem. vapour deposition 4−73243
Eu$_{1-x}$Gd$_x$O, conc. depend. of Curie temp. determ., mag. impurity states 4−79508
EuH$_2$, Mossbauer studies, mag. and solid state props. 4−73055
Eu(III) complex with 2-pyridineamidoxime, refl. spectra, nephelauxetic effect 4−72137
Eu(III) complexes with decafluorodibenzoylmethane, fluorescent props., quantum yields *(Russian)* 4−79799

europium compounds continued
$Eu_xLa_{1-x}Rh_2$, charge fluctuations and local-environment depend. of ^{151}Eu 4f virtual localised level energy 4−79655
$EuLiH_3$, high ferromag. transition temp. rel. to $EuTiO_3$, $EuZrO_3$, Eu^{2+} 5d splittings, cryst. field calc. 4−76068
$Eu_xM_{10-2x}Na_x(PO_4)_6F_2$, (M=Ca, Sr, Ba), cryst. struct. obs. 4−72449
$Eu_2(MoO_4)_3$-M_2MoO_4, (M=Na, K, Rb, Cs), phase diagram and cpd. formation 4−44650
EuN, heat of vaporisation and standard heat of form. 4−45943
$Eu(NH_3)_6$, Mossbauer spectra, 1.2-77 K, Debye model 4−53353
EuO, comparison of photoelec. and optical characts. *(German)* 4−49526
EuO, electronic energy band struct. investigation using APW method 4−67164
EuO, exchange narrowing of dipolar fields from e.s.r. at 70 GHz 4−76144
EuO, film, nonstoichiometry effects on props. 4−82592
EuO, mag. anisotropy energy origin 4−45128
EuO, matrix-isolated molecule, i.r. spectra and struct. 4−52154
EuO, nucl. spin-spin relax. meas., model comparison 4−45203
EuO, nuclear reactor control rods, neutron irradiation behaviour 4−51901
EuO, photoemission, vector effects *(German)* 4−79843
EuO, powder, ferromagnetic, nuclear spin-lattice relax. time determ. 4−73044
EuO, press. induced struct. and electronic transitions 4−60741
EuO, quasielastic electron scatt., spin polarised photoemission 4−45406
EuO, scaling and universality hypotheses, verification from specific heat data 4−57240
EuO, symmetry forbidden first and higher order Raman scatt. obs. 4−64385
EuO, temp. depend. of first and second-order anisotropy constants from ferromag. reson. 4−53315
EuO, thermal diffusivity and specific heat, simultaneous meas. nr. Curie point 4−48770
EuO, thin reeds, thermoelastic relax. near Curie point, acoustic props. meas. 4−57279
EuO alloys, nuclear reactor control rods, neutron irradiation behaviour 4−51901
EuO control rods for fast nuclear reactors, efficiency anal. 4−51903
EuO FBR control rod design and pre-reactor testing 4−51900
EuO:Gd, mag. semicond., optical props., band struct. investig. 4−64400
EuO:Gd exchange optics, absorpt. and Faraday rotation meas., 13 eV to 250 μ 4−57568
Eu_2O_3, polymorphic transform. by abrasion 4−53815
Eu_2O_3-La_2O_3-Ta_2O_5 system, cross section with 25 mole % Ta_2O_5 4−44649
Eu_2O_3-SrO-Fe_2O_3, phase relns., ternary Sr_2EuFeO_5 existence 4−67023
Eu_xO_y, X-ray spectra, valency state determ. *(Russian)* 4−49486
$Eu(OH)_3$:Gd^{3+}, e.p.r., exchange interactions 4−53309
EuP, paramag. spin fluctuations, pulsed n.m.r. obs. 4−49258
Eu_3P_2 spin polarisation of photoelectrons, below Curie temp., observation of magnetic unsaturated surface layers *(German)* 4−79503
EuP_5O_{14}, cryst., polarised emission, absorpt. spectra, Eu^{3+} symmetry investig. 4−82706
EuS, doped, ferromag. semicond. nonuniform state and hysteresis in resistivity 4−82466
EuS, EuSe, press. induced struct. and electronic transitions 4−60741
EuS, exchange narrowing of dipolar fields from e.s.r. at 70 GHz 4−76144
EuS, ferromagnetically ordered phase, anomalous LO phonon scattering, Raman scattering meas. 4−82698
EuS, mag. anisotropy energy origin 4−45128
EuS, preparation and props. 4−61289
EuS, symmetry forbidden first and higher order Raman scatt. obs. 4−64385
EuS spin polarisation of photoelectrons, below Curie temp., observation of magnetic unsaturated surface layers *(German)* 4−79503
Eu_3S_4, Mossbauer effect obs. at low temp. 4−70240
Eu_xS_y, X-ray spectra, valency state determ. *(Russian)* 4−49486
EuS(Se)(Te), sintered, thermal cond., 4-25K 4−44718
EuSe, comparison of photoelec. and optical characts. *(German)* 4−49526
EuSe, electroreflectance, 1.9-2.9 eV, multiplet struct., atomic model 4−61187
EuSe, exchange narrowing of dipolar fields from e.s.r. at 70 GHz 4−76144
EuSe, mag. anisotropy energy origin 4−45128
EuSe, mag. field depend. Raman scatt. obs. 4−64386
EuSe, sublimation thermodynamics 4−63910
EuSe, symmetry forbidden first and higher order Raman scatt. obs. 4−64385
$EuSe_x(Te_x)$, mag. and elec. props., comp. depend. 4−60949
$Eu_cSr_{1-c}O$, optical absorption spectrum, crystal field theory calcs. 4−49378
Eu_2TaCrO_6, Eu_2TaAlO_6, $Eu_3Ta_2MgO_9$ and $Eu_3Ta_2MnO_9$ perovskites, cryst. struct. and mag. characteriz. *(French)* 4−44512
EuTe, antiferromag. reson. line width, temp. and freq. depend. 4−61036
EuTe, exchange narrowing of dipolar fields from e.s.r. at 70 GHz 4−76144
EuTe, mag. anisotropy energy origin 4−45128
EuTe, sublimation thermodynamics, 1717-1887K 4−79151
EuTe, symmetry forbidden first and higher order Raman scatt. obs. 4−64385
EuTe evaporation study, 1200-2050°C, Knudsen effusion and Langmuir methods *(German)* 4−79148
$EuTiO_3$, Eu^{2+} 5d splittings, ferromag. transition temp., cryst. field calcs. 4−76068
$EuVO_3$, mag. susceptibility meas., paramag. to antiferromag. transition 4−57264
$Eu_{0.6}Y_{2.4}Fe_{3.7}Ga_{1.3}O_{12}$ film, dynamic response of domain walls to step change in bias field, −10 to 60°C 4−64248
$Eu_xY_{3-x}Fe_5O_{12}$ film, mag. anisotropy, effect of growth temp. and substrate orientation 4−57329

europium compounds continued
$Eu_{0.5}Y_{2.35}Yb_{0.15}Fe_{3.8}Ga_{1.2}O_{12}$ film, dynamic response of domain walls to step change in bias field, −10 to 60°C 4−64248
EuYbY garnet films, LEP, charact. 4−49202
$EuZrO_3$, Eu^{2+} 5d splittings, ferromag. transition temp., cryst. field calcs. 4−76068
$KEu(MoO_4)_2$, prep. and cryst. struct. of α- and β-phases, X-ray diffr. obs 4−75506
SrF_2-EuF_3 system, mag. susceptibility temp. depend. and X-ray analysis 4−82553
$Y_{2.4}Eu_{0.6}Fe_{3.8}Ga_{1.2}O_{12}$ 4−57681
$Y_{2.4}Eu_{0.6}Fe_{3.8}Ga_{1.2}O_{12}$ film, bubble dynamics, influence of in-plane field 4−61001
$Y_{3-x}Eu_xFe_{3.9}Ga_{1.1}O_{12}$ film, liq. phase epitaxial, on $Gd_3Ga_5O_{12}$ substrate, misfit strain 4−57004
$Y_{2.14}Eu_{0.56}Tm_{0.30}Ga_{1.1}Fe_{3.9}O_{12}$, multiple film growth by liq. phase epitaxy 4−57682
$(Yb,Eu)Fe_2O_4$, lattice parameters *(French)* 4−48567
evaluation
see also function evaluation
bone microradiographs, electronic evaluation method *(German)* 4−50815
evaporated layer production *see vapour deposition*
evaporation
see also drying
acetone drops, evaporation into N_2 stream, electric field effects on transfer rates 4−75180
binary mixture, near crit. evap. state, vertical distrib. of substance 4−48745
Boltzmann and Krook equations, nonlinear solutions 4−81250
circulatory evaporator, for laboratory 4−65390
cryogenic liquid container, heat influxes through neck determ. 4−50995
decontamination evaporators, development and current technical status *(German, English)* 4−59889
droplet, boundary layer obs., electrification *(German)* 4−80148
droplet, diffusion drag in slowly evaporating droplets 4−44130
droplet, in turbulent air stream in kinetic conditions *(Russian)* 4−56447
droplet, interfacial conditions, integral eqns. 4−64650
droplet, multicomponent, evap. model 4−48744
emulsion drops, in still air 4−53916
energy balance model for evapotranspiration from sloping watershed surfaces 4−68178
evapo-climatonomy 4−68177
evapotranspiration, lysimetric calibration of Bowen Ratio-Energy Balance method 4−64911
evapotranspiration estimates for hydrologic modelling 4−68118
flash type, fundamental expts. 4−52877
ground level evaporation, roughness and molecular diffusion effects 4−68179
n-hexane, evaporating drops at hot wall, saturated heat transfer 4−69564
Indian Ocean, evaporation and energy budget across sea-air interface 4−54176
interstellar grain mantle evaporation and CH and CH^+ production 4−73841
kinetic theory, reverse temp. gradient in vapour 4−77577
kinetic theory, variational calcs. 4−79142
laser beam effect, liquid phase metastability *(Russian)* 4−62853
liquid drops in high temp. medium, radiative heat transfer in evaporation 4−69606
liquid film, falling, heat exchange during evap. 4−66570
liquid films, surface effect on evap. kinetics 4−63904
mass transfer during evap. of liquids from surface of pipeline transition element into gas stream 4−63530
mean free path of molecules leaving a vapour source *(German)* 4−67031
metal, evap. kinetics and thermodynamics determ. by continuous weighing in vacuum 4−62553
metal tip, conical, profile changes on simultaneous evap. and surface diffusion *(French)* 4−44755
nonequimolar transfer of matter in film column, gas phase mass transfer 4−52382
n-pentane, evaporating drops at hot wall, saturated heat transfer 4−69564
platinum metals electrode crater and discharge zone processes in spectral determ. carrier effects *(Russian)* 4−68848
polywater, from surface of quartz capillaries 4−82313
refractory particle in thermal plasma, evaporation *(French)* 4−48372
saline droplets, theory of real soln., concept of activity 4−72564
self-evaporating liquid discharge, critical phenomena 4−69591
soil layer, dry, desorption and sorption processes effect on water evap. 4−68045
soil surface, evap. in presence and absence of stratum, water content, evap. vel. depend. *(French)* 4−73457
spray drying apparatus with heat supply from walls, evap. zone boundary temps. and dimens. determ. 4−43952
tritiated water, isotope evaporation studies 4−80307
vapour transfer through capillary porous body, theory 4−75188
vortex flow, mass transfer from channel surface 4−75110
water, adiabatic evaporation, heat and mass transfer analysis 4−67029
water, evaporation from free surface, solar radiation intensity correl. 4−80329
Cu, surface self-diffusion, influence of free evaporation *(French)* 4−63972
EuTe, 1200-2050°C, Knudsen effusion and Langmuir methods *(German)* 4−79148
^{57}Fe thin film deposition, evaporation source 4−46603
He^4, superfluid, evaporation theory based on interacting many-boson systems 4−79206
K, non-equilib. flow through convergent-divergent nozzle 4−44137
LiF, at scratch on curved surface, step motion 4−56950
N_2O_4, isothermal evap. kinetics *(Russian)* 4−52881
Na, entrainment in Ar flow, rel. to nucl. reactor operation 4−43628
NaCl, evaporation rate and mechanism in vac. 4−72565
NaCl cleavage faces, evap. of edge dislocations in vacuum, model, 350-500°C 4−48748
Pt-Fe, diffusion, evaporation, thermodynamic properties 4−70470

evaporation continued
SiO, monolayer coating on Ta, energy determ., FEM *(Bulgarian)* 4—82321
W, field evaporation end forms, effect of residual and He(Ne) imaging gases 4—64486
W, field evaporation processes, influence of surface coordination 4—64487
W evaporation limit of hot cathode ionization gauges 4—65411
W tips, annealed, simultaneous with surface diffusion *(French)* 4—75690
W-Dy_2O_3 pressed cathodes, thermionic electron emission and evaporation rate obs. 4—53568
Y_2O_3-W press-sintered cathodes, thermionic emission, O_2 poisoning and evaporation rate obs. 4—53569

Evershed effect *see sunspots*

EXAPT *see problem oriented languages*

exchange forces in nucleus *see nuclear forces*

exchange interactions (electron)
see also antiferromagnetism; ferromagnetism; superexchange interactions
amorphous magnetic materials, struct. fluctuations effect 4—79477
anisotropic Heisenberg system, transition temp. shift exponent 4—72970
antiferromagnet, uniaxial, phase transitions investigation 4—79513
antiferromagnetic crystal, intensity behaviour of exchange reflections in LEED 4—76069
biexciton states, electron-hole exchange contributions 4—60763
conduction e.s.r., g-tensors and tensor interactions 4—70217
copper acetate-pyrazine, linear chain cpd., interdimer exchange 4—53283
crystalline radical, e.s.r. line exchange and width 4—79579
dielectric, indirect exchange interaction, new mechanisms 4—79304
dilute ferromagnetic alloy, dynamic theory of coexistence of supercond. and ferromag. *(Russian)* 4—72880
diphenylpicnylhydrazyl in polystyrene, exchange narrowed spin system, e.p.r. absorption lineshape 4—82606
Dzialoshinski-Moriya interactions, responsibility for orientation of surface spins in thin films 4—53221
e.s.r. spectrum calc. for Ising model with nearest neighbour antiferromag. coupling 4—79578
exciton microscopic theory, nonanalytic and analytic exchange interactions *(German)* 4—72731
ferro-ferrite lamellar film, diffusion layer depend. *(Russian)* 4—61004
ferromagnet, comparison of long-range exchange interaction and short-range direct interaction models 4—70129
ferromagnet, Ising and X-Y models, solved in thermodynamic limit 4—64177
ferromagnet, microscopic mechanism for macroscopic asymmetry 4—57237
ferromagnetic magnons, spin configs. in periodic loop 4—49139
ferromagnetic metal, exchange splitting temp. depend., Stoner excitation, de Haas-van Alphen effect 4—48895
ferromagnetic semiconductor, conduction electron energy determ. near Curie point by short range magnetic ordering 4—67345
ferromagnetic thin film, effect of relaxation on spin wave resonance 4—64265
film, oxidised, particle interactions, thermal fluctuation aftereffect model of exchange anisotropy 4—79558
halide mixed crystals, excitons, coherent potential approximation 4—48947
Heisenberg ferromagnet, amorphous, coherent potential approx. at zero temp. 4—49146
Heisenberg ferromagnet, biquadratic exchange effects 4—53200
Heusler alloys, virtual double exchange mechanism 4—76071
iminoxyal biradical, hyperfine struct. of exchange interaction defects *(Russian)* 4—67434
indirect exchange interactions between weakly-coupled open-shell atoms 4—72130
indirect interaction via nonmagnetic ion 4—57268
insulator, excitation transfer between localised mag. impurities 4—64041
Ising ferrimagnetic model 4—45078
Kondo effect in band ferromagnet, study using vertex part integral-equation method 4—49165
Kondo spin 1/2 system, static and dynamic susceptibility for ferromag., antiferromag. exchange 4—72953
liquid solution, exchange interaction transfer of electronic excitation energy 4—79786
local surface susceptibility, calc. for ferromagnetic spherical model, enhanced surface exchange 4—82541
long-ranged exchange, theoret. investigation of spin correlations *(Russian)* 4—53223
magnetic material, Hamiltonian operator 4—76070
magnetic polaron, investigation using canonical transform. method 4—44879
magnetism of nucleus-electron complex system 4—64173
manganese (II) phthalocyanine, mag. props., cryst. field treatment 4—53184
metal, indirect exchange interaction, new mechanisms 4—79304
metal, simple, linearized effective exchange and correlation potentials, simpler local interaction discussed 4—79257
m.o.s. inversion layer, theory of oscillatory g-factor under strong mag. fields 4—79412
nitroxide stable polyradicals, magnetic interactions rel. to multicentre exchange reactions in organic cpds. 4—68031
Permalloy, thin films, spin wave spectra below saturation magnetisation, exchange coupling constants calc. 4—82618
polarization effects in electron-atom scattering, exchange interaction *(Russian)* 4—74903
rare earth Co_5, mag. domain wall pinning by regions of weak exchange or anisotropy 4—67400
rare earth $Fe_2(Fe_3)$, effective exchange fields, temp. depend. of spontaneous magnetisation 4—79505
rare earth metal films, optical props. and mag. ordering 4—79823
rare earth monophosphides, paramag. spin fluctuations meas., RE-RE exchange 4—49258
rare earth Zn_2 intermetallic compounds, Ruderman-Kittel-Kasuya-Yosida interaction 4—53211

exchange interactions (electron) continued
rare earth-Ni equiatomic alloys *(French)* 4—53239
solution, dilute, exchange and dipole-dipole e.s.r. line broadening, separation using viscosity changes 4—53291
solution, dilute, exchange broadening of e.s.r. lines w.r.t. two types of paramag. particles 4—53290
spin cluster resonance, temp. depend. and impurity effects, exchange interaction calc. 4—61037
spin-echo measurements, effect of r.f. field inhomogeneities 4—49245
surface effects on magnetic phase transitions 4—53193
surface magnetic order above bulk ordering temp., mag.-field theory 4—57277
surface magnetic order above bulk ordering temperature mag.-field theory 4—57276
symmetric trinuclear clusters, e.s.r. and hyperfine struct. 4—61021
tetramethyl ammonium manganese chloride: Cu^{2+}, e.s.r. line shape anal. 4—79587
tetramethyl ammonium manganese chloride, inter to intrachain ratio 4—64212
two-component induced-moment crystal in mean-field model, singlet-singlet system 4—45073
uniaxial $S=1$ antiferromagnet, statistical mech., exchange interactions, Green function technique 4—82556
verdazyl biradicals, π-bridged, mag. susceptibilities meas. rel. to temp. triplet ground state investig. 4—82548
virtual photons, dense channelling electron beam, exchange patterns, diamond like crystal 4—66954
Ag:Er, effect in e.p.r., temp. depend. 4—45177
Al, correlation and exchange effects on lattice dynamics calc., pseudopot. technique 4—63870
Al, form factors determ. from a.p.w. calc. 4—53039
Al quasi particle energy band calcs. 4—75794
Al:Er, dil., exchange and cryst. field parameters from transmission e.s.r. 4—79603
Al:Ti-Al_2O_3-Ag tunnel junction, exchange scattering, zero mag. field 4—45014
Al:Ti-Al_2O_3-Ag tunnel junction, exchange scattering, mag. field 4—45015
γ-Al_2O_3:Fe_2O_3, solid soln., e.p.r. spectra obs. 4—61028
Be, one-body potential calc. exchange and correlation contrib. 4—75763
CdTe, electron-hole spin exchange rel. to exciton luminesc. 4—73181
$CdYb_2Se_4$ spinel, cryst. field theory interpretation of paramag. susceptibility 4—76050
Co origin of ferromagnetism and hyperfine fields 4—57250
$CoCs_3Cl_5(Br_5)$, mag. struct., Luttinger-Tisza calc. 4—45122
CoO, rel. to mag. anisotropy, orbital momentum depend. 4—49188
$CrAs_{1-x}Sb_x$, helimagnetism investigation, neutron diffraction meas. 4—64221
$CsCoCl_3.2H_2O$, spin cluster resonance, temp. depend. and impurity effects, exchange interaction calc. 4—61037
$CsMnCl_3.2(H_2O)$, Heisenberg paramagnet, proton relaxation time and interchain couplings 4—82630
Cu, band structure calc. for nonlocal screened exchange potentials using MAPW method 4—75770
Cu, vol. depend. of total energy calc. 4—63785
Cu complex, copper proline dihydrate, e.s.r. spectra, electric field asymmetry study 4—49219
Cu complex, dichlorobis (pyridine) Cu(II) static susceptibility meas. combined with heat capacity and e.s.r. obs. 4—53219
Cu complex, linear chain copper acetate-pyrazine interdimer exchange 4—53283
Cu-Fe, Kondo alloy, exchange energy and spin scatt. anisotropy, de Haas-van Alphen meas. 4—49159
$CuCr_2S_4(Se_4Te_4)$, temp. depend., Curie temp. 4—45110
Cu(II) complex, $[Cu_3(C_6H_5\text{-}N_2O)_3(OH)]SO_4.10.5H_2O$, Dzialoshinski interaction *(Russian)* 4—76072
Cu(II) complex, e.p.r. temp. shift, exchange coupled *(Russian)* 4—82608
Cu(II) complex, μ_4-oxo-hexa-μ-chlorotetrakis[(pyridine)copper(II)], rel to mag. susceptibility, 1.7-294K 4—67357
Dy, exchange and one-ion anisotropies calcs. 4—57257
DySb, Mossbauer spectra, DySb, effective field at ^{161}Dy nuclei, anomalous temp. depend. *(Russian)* 4—67501
Er, anisotropic exchange interaction, conical magnetic phase 4—64197
Er, exchange and one-ion anisotropies calcs. 4—57257
$EuLiH_3$, high ferromag. transition temp. rel. to $EuTiO_3$, $EuZrO_3$, Eu^{2+} 5d splittings, cryst. field calc. 4—76068
EuO:Gd exchange optics, absorpt. and Faraday rotation meas., 13 eV to 250 μ 4—57568
$Eu(OH)_3$:Gd^{3+}, e.p.r. spectrum analysis 4—53309
Eu_3P_2, observation of magnetic unsaturated surface layers below Curie temp. *(German)* 4—79503
EuS, observation of magnetic unsaturated surface layers below Curie temp. *(German)* 4—79503
EuTe, antiferromag. reson. line width, temp. and freq. depend. 4—61036
$EuTiO_3$, Eu^{2+} 5d splittings, ferromag. transition temp., cryst. field calcs. 4—76068
EuX, X=O, S, Se, Te, B_6, exchange narrowing of dipolar fields from e.s.r. at 70 GHz 4—76144
$EuZrO_3$, Eu^{2+} 5d splittings, ferromag. transition temp., cryst. field calcs. 4—76068
Fe, energy band splitting, de Haas-van Alphen frequency measurements, 1 to 4.2K 4—44831
Fe, exchange splitting temp. depend., de Haas-van Alphen freq. variation, 1-4.2K 4—48894
Fe, origin of ferromagnetism and hyperfine fields 4—57250
Fe complex, iron(III)bisdithiocarbamates, mag. interactions 4—53222
Fe diluted with 3d transition elements, ferromag., antiferromag. exchange interactions 4—76067
Fe-Co(Ni)(Rh)(Pd), dilute alloys, moment distribs. and hyperfine fields at solute atoms 4—53224
$FeBO_3$, Raman scatt. by two-magnon excitations 4—64373
$FeCl_2$-graphite compounds, Mossbauer spectra and mag. susceptibility obs. 4—61071

- **exchange interactions (electron)** continued
  - Gd-La, lattice parameters and Curie temp. meas. 4−57266
  - Gd-Y (6-64 at.% Gd), magnetisation and microwave reson., mag. struct., exchange parameters 4−45099
  - $GdCu_2$, antiferromagnetic-ferromagnetic transition, mag. props and indirect exchange 4−79520
  - $GdVO_4$, mag. phase diagram, Neel temp., crit., exchange interaction fields *(German)* 4−82558
  - $(GeTe)_{99}(MnTe)_1$, exchange scatt. obs. 4−45105
  - $(GeTe)_{1-x}$(pseudobinary alloy, MnTe)$_x$, Mn to free carrier exchange consts., RKKY theory 4−57316
  - Ho, exchange and one-ion anisotropies calcs. 4−57257
  - $HoAsO_4$, magnetic interaction, Ising interaction, two sublattice structure proposed, exchange interaction estimated 4−82564
  - Ir:Er, effect in e.p.r. temp. depend. 4−45177
  - K, band structure calc. for nonlocal screened exchange potentials using MAPW method 4−75770
  - $KMgF_3$:V^{2+}, excitation transfer between localised mag. impurities 4−64041
  - K_2MnF_4, e.s.r., exchange narrowing 4−49217
  - $LaVO_3$, rel. to mag. sp. ht. data 4−79523
  - $Mn_xMg_{1-x}(HCOO)_2.2H_2O$, two-dimens. mag. lattice, e.p.r. rel. to anisotropic exchange 4−53298
  - Mo-Mn(Fe)(Co) alloy, dil., anomalous resist. obs. 4−45093
  - α-$NaFeO_2$, magnitude estimate, rel. to struct. and props. 4−60963
  - Ni, origin of ferromagnetism and hyperfine fields 4−57250
  - Ni-Cu, giant spin clusters contrib. to resistivity, sp. ht. and neutron scatt. cross section 4−53236
  - $NiCl_2.6H_2O$, exchange constants determ., paramag. susceptibility anal. 4−79504
  - NiO, antiferromag. intensity behaviour of exchange reflections in LEED 4−76069
  - $NpPd_3$, mag. props. obs. from 1.5 to 300K 4−67359
  - α-O_2, solid, crystal structure and antiferromagnetism anal. using spin-dependent intermolecular potential 4−67325
  - Pd-Fe, dilute alloy, effect on elec. resist. and magnetisation 4−45143
  - Pd-Fe alloy, dil., rel. to effect of strong spin correl. on sp.ht. and magnetization 4−64201
  - Pd-H-Mn alloys, from e.p.r. study 4−53306
  - Pd-Mn alloys, from e.p.r. study 4−53306
  - $(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, alloys, Mossbauer effect obs. of ferromag. phase transitions 4−64216
  - Pd_2MnSn, Heusler alloy, neutron spin wave scatt., exchange parameters 4−72980
  - $PuPd_3$, mag. props. obs. from 1.5 to 300K 4−67359
  - $RbMnF_3$, antiferromag. susceptibility meas., evidence for temp. depend. of exchange constant 4−76063
  - Rh:Er, effect in e.p.r. temp. depend. 4−45177
  - n-Si:P, interacting donor clusters, e.s.r. obs., 0.5-4.2K 4−57050
  - SmB_6:Eu^{2+}, Gd^{3+}, e.s.r., negative g-shift 4−53302
  - SnTe:Mn, e.p.r. linewidth, dependence on Mn conc. 4−73017
  - Tb, exchange and one-ion anisotropies calcs. 4−57257
  - $Tb_{0.5}Y_{0.5}Ni$, narrow domain wall propag. and metamag. props. 4−45149
  - Tm, exchange and one-ion anisotropies calcs. 4−57257
  - $TmCrO_3$, meas. of weak ferromag. moments, antiferromag. exchange and cryst. field splittings 4−76105
  - $TmVO_4$, with cooperative Jahn Teller effect mag. props. 4−79500
  - UAs, electron delocalisation model explanation of mag. props. 4−53205
  - $UAs_{1-x}S_x$, $UAs_{1-x}P_x$, electron delocalisation model explanation of mag. props. 4−53205
  - $UP_{1-x}S_x$, electron delocalisation model explanation of mag. props. 4−53205
  - VF_2, helical magnet, mag. props. investigation by Green's function method 4−76061
  - $(Y,La)_3(Ga,Fe)_5O_{12}$ film, exchange const. and bubble domain wall energies 4−60973
  - Y-Ce, dilute alloy Kondo system, mag. susceptibility and exchange resist. 4−49160
  - $Y(OH)_3$:Gd^{3+}, e.p.r. spectrum analysis 4−53309
  - Zn-Mn single crystals, explanation of magnetic anisotropy, 77 to 1.2K, high fields 4−45130
  - Zn-Mn(Cr) crystal field splitting parameters, exchange const. 4−79474
  - $ZnAl_2O_4$-$ZnCr_2O_4$, solid soln., e.p.r., paramagnetic ions mag. interactions 4−53292
- **exchange models** *see peripheral models*
- **exchanges (chemical)** *see chemical exchanges*
- **exchanges (telephone)** *see telephone exchanges*
- **excimers** *see molecular excitation*
- **excitation**
  - *see also atomic excitation; molecular excitation; nuclear excitation; optical pumping; vibration excitation*
  - ferromagnetic probe magnetometer with square-wave excitation 4−46767
  - fibrillation threshold, induced by a.c. current and a.c. voltage 4−50752
  - laser, GaAs luminescence obs. *(Russian)* 4−76290
  - nonlinear e.m. fields in cylindrical cavity excited by ionising radiation 4−47268
  - Si position-sensitive detectors, pulsed optical and electron beam excitation 4−46822
- **exciters (lasers)** *see optical pumping*
- **excitons**
  - absorption band region, difference harmonic generation *(Russian)* 4−51656
  - alkali halide, excited-state absorption spectra of self-trapped excitons 4−49386
  - alkali halide crystals, self-trapped exciton luminesc. 4−45357
  - alkali halide mixed crystals, Urbach-Martienssen rule for excition spectrum, coherent pot. approx. 4−53068
  - alkali halides, pseudopotential formalism, 1s states 4−64051
  - alkali metal halide, cationic sublattice defects, exciton dissociation *(Russian)* 4−72726
  - alkali metal halides, rel. to interpretation of soft X-ray absorption spectra 4−67675
- **excitons** continued
  - alkli metal halide, catholuminesc., elec. cond. relax. *(Russian)* 4−73202
  - ammonium halide: In, Tl, Sn, photoluminesc., activator exciton bands *(Russian)* 4−73157
  - anisotropic crystal, exciton polariton behaviour, comparison with experiments on PbI_2 4−64044
  - anthracene:1-(2-)aminoanthracene, spectra, effects of guest orientation, traps, 4K 4−45334
  - anthracene:tetracene, triplet exciton interactions, magnetic field effects *(German)* 4−79778
  - anthracene, charge transfer excitons transformation to molecular excitons 4−48935
  - anthracene, cryst., exciton dynamics investig. using permittivity freq. depend. lineshape anal. 4−48940
  - anthracene, cryst., photocond. investig., using tunable dye lasers 4−67248
  - anthracene, cryst., surface 4−69996
  - anthracene, cryst., two-photon transitions to highly excited states investig. 4−70321
  - anthracene, cryst. bimol. annihilation, single-exciton migration 4−69995
  - anthracene, crystals, singlet exciton-charge carrier interaction, fluorescence meas. 4−82745
  - anthracene, enhanced photocurrent obs. at 77K 4−67251
  - anthracene, generalised-master equation theory of excitation transfer 4−75831
  - anthracene, interaction of triplet excitons with trapped and free holes 4−64043
  - anthracene, optically induced fission spectrum 4−80201
  - anthracene, rel. to spectral depend. of photocond. 4−53119
  - anthracene, triplet involvement in surface carrier generation 4−79315
  - anthracene crystals, dye sensitized, delayed fluoresc. of triplet excitons, mag. hyperfine modulation 4−61217
  - anthracene single crystals, determ. of singlet exciton surface annihilation rate 4−57630
  - anthracene-perdeuteroanthracene, mixed cryst. system, fluoresc., mixed exciton band investig. 4−70341
  - anthracene-tetracyanobenzene charge transfer complex, e.s.r., triplet states in single cryst. 4−70212
  - anthracene-tetracyanobenzene single crystal, triplet exciton mobility, e.s.r. spectrum 4−67189
  - antiferromagnetic dielectric, two-dimensional, theory of two exciton states 4−72736
  - benzene crystal, absorpt. spectrum analysis 4−64402
  - benzophenone, weak exciton-phonon interaction, rel. to i.r. absorpt. spectra interpretation *(Russian)* 4−67595
  - biexciton ground and excited states using generalised Morse pot. 4−75833
  - biexciton states, electron-hole exchange contributions 4−60763
  - biexcitons, existence in CdS queried 4−48941
  - binding energy in superstrong mag. field, Peierls instability 4−64049
  - biphenyl-tetracyanobenzene charge transfer complex, e.s.r., triplet states in single crysts. 4−70212
  - bound states, calc. of Frenkel-like excitons 4−48946
  - bound states in electron-exciton collisions 4−57059
  - bound-state problems, improved perturbation treatment 4−57060
  - crystal, absorption of e.m. waves, appl. to light prop. 4−49383
  - cubic crystal, optical orientation of bound excitons in longit. and transverse mag. fields *(Russian)* 4−76291
  - 1,4-dibromonaphthalene, linear chain excitons, optical and magnetic resonance spectra 4−48939
  - dichloroanthracene, mol. cryst., electro-optical props., charge transfer excitons 4−53062
  - p-dichlorobenzene, mol. cryst., absorpt. spectra exciton-phonon interaction effect 4−49379
  - dimer coupled to cryst. lattice, absorpt. spectrum, model *(French)* 4−48936
  - dimer coupled to crystal lattice, excitonic density, temporal evolution of energy packet *(French)* 4−48937
  - dimers, electronically excited, coherence obs. rel. to coherent excitons, ODMR 4−78495
  - disordered semiconductor, interzone light absorption process *(Russian)* 4−61174
  - disordered solid, optical absorption, Franz-Keldysh effect 4−70317
  - electron-hole drop drift, in exciton density gradient 4−79320
  - electron-hole liquid, quasi particle props. 4−75824
  - energy migration, rel. to population of localized trap states 4−53052
  - exciton polaritons, anisotropic crystals, Hopfield and Thomas theory *(German)* 4−79312
  - exciton-phonon pulse propagation in 1-dimens. mol. chain, Heisenberg eqns. of motion 4−52839
  - excitonic insulators, properties in crossed electric and magnetic fields 4−53055
  - excitonic ion, existence, binding energy 4−64047
  - ferroelectric, Frenkel exciton generation by electron beam *(Russian)* 4−67191
  - ferromagnet, magnon sideband shapes, impurity effects, one-dimens. calcs. 4−72979
  - ferromagnet, rel. to band theory *(Russian)* 4−67348
  - ferromagnetic ions, finite linear chain, single ground state, longitudinal magnetic excitons 4−64048
  - ferromagnetic thin film, surface and bulk mag. exciton resonance 4−75825
  - fuchsine dye, aggregation, exciton emission and phosphorescence enhancement 4−49428
  - GaP:N, luminesc. decay time anal. excitation depend. 4−73139
  - Ge, electron-hole drops, drift due to negative charge *(Russian)* 4−64052
  - generalised-master equation theory of excitation transfer 4−75831
  - halide mixed crystals, coherent potential approximation 4−48947
  - Heisenberg ferromagnet, singlet ground state system, surface excitations 4−45085
  - hexamethylbenzene single cryst., phonon sidebands of localized excitons rel. to methyl torsions 4−56827
  - insulator, Raman scatt., electron and exciton-phonon couplings investig. 4−70303

excitons continued
ionic crystal, temp. genesis of light absorption and dispersion curves in exciton region 4−57566
lead phthalocyanine single crystal, triplet excitons 4−75832
Lyddane-Sachs-Teller relns. and exciton exchange 4−57061
magnetic semiconductor, interaction between conduction electrons and Frenkel excitons 4−69998
merocyanine dye, EDR, lowest triplet state spectral obs. 4−75007
metal-semiconductor eutectic alloy, rel. to superconductivity 4−72894
methyl iodide crystal, exciton absorpt. features with Fermi reson. 4−49350
microscopic theory, nonanalytic and analytic exchange interactions *(German)* 4−72731
mixed crystal, optical density functions calc. with generalised CPA treatment 4−76266
molecular, impurity quenching, partially coherent excitons in linear chains 4−57054
molecular crystal, bound exciton state creation, biexciton emission 4−72735
molecular crystal, energy spectrum of localised excitons in presence of flat defects 4−60762
molecular crystal, exciton absorpt. features with Fermi reson., theory 4−49350
molecular crystal, Herzberg-Teller interaction, vibronic coupling, phonon-assisted exciton transfer 4−82238
molecular crystal, local and quasilocal exciton states, effect of linear defects 4−64042
molecular crystal, phosphoresistence, heat pulse modulation obs. 4−76294
molecular crystal, singlet-triplet annihilations of excitons and biexcitons *(Russian)* 4−53072
molecular crystal, substitutionally impure, transport eqns. 4−53063
molecular crystal, surface exciton state, Hamiltonian partition 4−79392
molecular crystal excited states, book contrib. 4−63452
molecular crystals, effect of molecule location symmetry on i.r. spectral manifestation of exciton states *(Russian)* 4−53454
molecular crystals, two-exciton absorption of light, exciton-phonon coupling 4−76259
molecular organic crystal, charge transfer excitons transformation to molecular excitons 4−48935
molecular solid, opt. spectra and relax. mechanisms, review 4−64364
naphthalene, charge transfer excitons transformation to molecular excitons 4−48935
naphthalene, singlet excitons lifetime and diffusion 4−49436
naphthalene, singlet-triplet annihilations of excitons and biexcitons *(Russian)* 4−53072
nonlinear exciton-magnon absorption coeff. for below threshold incident light wave amplitude *(Russian)* 4−53071
nonlocal electron-exciton interaction, carrier energy spectrum 4−53070
nuclear exciton model, intermediate-state transition rates 4−63119
nuclear reaction model for ^{3}He, ^{4}He and ^{12}C induced reactions in heavy targets 4−55813
nuclear reactions, nucleon-induced, 10-50 MeV, exciton model, nucleon mean free path in nucleon 4−59746
nuclear spin relaxation via triplet excitons, theory 4−70230
organic semiconductor, interaction between conduction electrons and Frenkel excitons 4−69998
pentacene, photoelec. props., energy level spectra and exciton photogeneration mech. 4−82453
phonon-impurity centre bound states theory *(Russian)* 4−69875
phosphors, photoluminesc. mechanism 4−70350
photoexcited, obs. of recomb. radiation at 2K 4−53519
p.m.r. exciton motion in molecular crystals, coherency effects and optical nuclear spin polarisation 4−67461
polycrystals, light dispersion and absorpt. *(Russian)* 4−79314
polystyrol, luminesc. and transfer of triplet excited state *(Russian)* 4−57595
pyrene, cryst., absorpt., fluoresc. props., harmonic approx. model 4−67632
pyrene, triplet-triplet exciton annihilation rate const. 4−45358
pyronine-B dye, aggregation, exciton emission and phosphorescence enhancement 4−49428
quartz, glassy and crystalline states, electronic processes *(Russian)* 4−73105
relaxation in substitutionally disordered alloys, quasiparticle description 4−69994
RPA method applied to molecular crystals 4−57068
semiconductor, anisotropic, energy levels of two dimensional excitons in electric field 4−67183
semiconductor, biexcitons influence on edge absorption and luminesc. 4−57627
semiconductor, conduction electron effective mass in field of excitons 4−57037
semiconductor, degenerate valence bands, two photon absorption, exciton effect 4−64387
semiconductor, exciton condensation in highly excited state, theory 4−75821
semiconductor, exciton effect influence on electroabsorpt. *(Russian)* 4−76238
semiconductor, exciton levels in mag. field 4−72721
semiconductor, exciton refl. spectra, surface charge effects, 2K 4−70059
semiconductor, exciton states in high mag. field, interpretation of magnetoabsorpt. meas. 4−44883
semiconductor, interserial phototransitions of excitons 4−82710
semiconductor, layer-type, theory of two dimensional electron-hole liquids 4−75822
semiconductor, low temp., positronium atom props. *(Russian)* 4−60752
semiconductor, with Td symm., radiative recomb. of bound excitons in mag. field 4−75836
semiconductor with zincblende structure, electronic contrib. to dynamical screening 4−75830
semiconductor-metal structure, exciton photoelec. effect, theory 4−49070

excitons continued
spectrum fine structure, light scatt., dielec. function determ. 4−61135
sphalerite type crystals, ground state splitting 4−57067
states with negative effective mass, light transmission study of spatial dispersion *(Russian)* 4−53073
styrol, luminesc. and transfer of triplet excited state *(Russian)* 4−57595
superconductivity, exciton mechanism model 4−57193
superconductivity, exciton mechanism model 4−57194
tetracene:pentacene crystals, fluorescence, heterofusion of triplet excitons 4−48938
tetracene, optically induced exciton fission, energy depend. 4−49430
tetracene film, anthracene doped, X-centres, absorp. and luminesc. obs. 4−53508
tetracene polycrystalline film, secondary electron emission, exciton scatt. mechanism 4−79833
trapping of molecular excitons by impurities and singlet-triplet exciton annihilation 4−57064
two-photon excitonic absorption intensity in two- and three-band models 4−45327
visual pigments, excitonic coupling, supercond. pair form. 4−58512
Wannier Mott type, calc. of Stark effect due to disorder 4−48945
AgBr, Bose-Einstein condensation of free excitons, photoluminesc. obs. 4−60766
AgBr, recomb. luminesc. of free indirect exciton phonon participation 4−57622
AlAs, free exciton impurity interaction, optical absorpt. obs., wavelength modulation technique 4−79764
$Al_xGa_{1-x}As$-GaAs-$Al_xGa_{1-x}As$, thin heterostruct., quantum states of trapped carriers 4−79407
$Al_xGa_{1-x}P$, epitaxially grown, donor-acceptor pair and bound exciton recomb. 4−73179
Al_2O_3, cryst. and amorphous, obs. of core transitions using soft X-rays from electron synchrotron radiation 4−49492
Ar, solid, doped, exciton-enhanced photoemission 4−70394
Ar-Ne, crystal, cathodoluminesc., at. and mol. centres 4−67667
Ar-Xe solid solutions, radiative annihilations of excitons 4−79781
Au-Ge, Schottky barrier, photovoltaic and excitonic effects in quantizing mag. field 4−67277
BaO, excition and low energy interband structure, freshly cleaved single crystal 4−64046
CH_3I-CD_3I, solid soln., exciton splitting in Fermi reson. region 4−70297
CaF_2:Eu^{2+}, luminesc., short term X-ray excitation, exciton role *(Russian)* 4−73159
$CdCl_2$:I^-, optical absorption, luminesc., localized exciton effect 4−57581
Cd_3P_2, optical props. and energy band struct. investigation 4−70318
CdS, 28μ-visible conversion using bound excitons 4−65933
CdS, biexciton energy levels 4−75833
CdS, biexciton energy level spectra and related optical transitions 4−82381
CdS, biexciton states, electron-hole exchange contributions 4−60763
CdS, CdSe, fine struct. of exciton spectrum of luminesc. *(Russian)* 4−73165
CdS, dispersion abnormalities in exciton absorpt. region *(Russian)* 4−76282
CdS, effect on photocurrent spectrum of bound excitons 4−44963
CdS, exciton line profiles, wavelength modulated refl. spectra obs. 4−57573
CdS, exciton orientation by circularly polarized light 4−48948
CdS, long wavelength bound exciton emission 4−49421
CdS, luminesc., free to bound recomb., temp. and excitation depend., 4.2-80K 4−49420
CdS, luminesc. transmission, exciton reson., spatial dispersion 4−57629
CdS, luminescence at 1.3 K not due to biexcitons, but to radiative decay of exciton-impurity complexes 4−48941
CdS, piezoelectric coupling of exciton to acoustical phonons 4−67531
CdS, temp. depend. of exciton luminesc. intensity 4−57626
CdS spectra, absorpt. and luminesc., exciton-exciton interaction effects 4−75829
CdS:Cl, 5040 Å photolum. band rel. to bound excitons 4−76307
CdS(Se), luminesc. of high density excitons, 4.2-90 K 4−67641
CdSe, Bose condensation, spectral evidence 4−76312
CdSe, Bose condensation of excitonic mols. 4−60765
CdSe, dynamical processes of high density single excitons and excitonic molecules, luminesc. and absorpt. obs. 4−44877
CdSe, electroabsorpt. and electrodispersion, obs. in exciton region at 90K 4−49384
CdSe, single cryst., exciton-exciton and exciton-electron interaction *(Russian)* 4−76298
$(CdSe)_x(ZnTe)_{1-x}$ photoreflection spectra obs. 4−67613
CdTe, exciton-neutral donor complex luminesc. in mag. field 4−73181
n-CdTe, obs. of exciton-exciton interaction by laser emission characts. 4−49392
CdTe degenerate bands, in mag. field magneto-optical studies 4−75835
Cds, transmission spectra, spatial dispersion effect, exciton absorption lines 4−70319
Cr_2O_3, antiferromag., $^4A_2 \rightarrow {}^2E$ optical exciton absorpt. spectrum, spin-rotation effect 4−49385
CuBr degenerate bands, in mag. field magneto-optical studies 4−75835
CuBr(Cl), biexciton energy levels 4−75833
CuCl, biexciton states, electron-hole exchange contributions 4−60763
CuCl, energy level spectra of biexcitons and related optical transitions 4−82381
CuCl, exciton contrib. to nonlinear optical susceptibility 4−69083
CuCl, fine structure of excitonic lines calc. using variational methods 4−69999
CuCl, interference of third-order light mixing and second-harmonic exciton generation 4−47380
CuCl, two-photon excitonic absorption intensity in two- and three-band models 4−45327

excitons continued
- CuCl:S, induced traps as exciton luminesc. killers 4−57620
- CuI, layered film, exciton spectrum obs., quantum size effect 4−57572
- CuI, optical consts. determ. in exciton absorpt. region, 1.2 to 3.54 eV 4−67546
- Cu$_2$O, 1s yellow exciton effective mass, reson. Raman scatt. 4−45300
- Cu$_2$O, exciton origin of structure of magnetoabsorption 4−79753
- Cu$_2$O, n=1 exciton line of green series 4−79744
- Cu$_2$O, yellow series, binding energies 4−57056
- Cu$_2$O crystal, polarised light electroabsorpt. in yellow exciton series region, theory 4−67607
- Fe^{3+} oxides, wavelength modulated reflectivity spectra 4−61175
- GaAs, bound exciton line origin, absorpt. and emission spectra obs. 4−44878
- GaAs, electron-hole pair creation average energy, bandgap dependence 4−79316
- GaAs, mechanical stress influence on exciton and magnetooptic absorption spectra 4−67611
- GaAs degenerate bands, in mag. field magneto-optical studies 4−75835
- GaAs film, in GaAs-Al$_x$Ga$_{1-x}$As double heterostruct., absorpt. and photolum. obs. 4−53549
- GaAs:C, epitaxial layer, photoluminescence obs. 4−64423
- GaAs$_{1-x}$P$_x$, electroluminesc. obs. at 77 and 295K with x corresponding to indirect band struct. 4−67665
- n-GaAs$_{1-x}$P$_x$:N,Zn, photoluminesc., radiative recombination investig. 4−64434
- Ga$_x$In$_{1-x}$P, epitaxial, $0.45<x<0.5$, rel. to photolum. 4−82746
- GaN, rel. to energy gap determ. from photolum. excitation spectra 4−79291
- GaP, GaP:Al and GaP:In free excitons in luminescence spectra 4−73183
- GaP, radiative exciton recomb. on isoelectronic impurities *(Russian)* 4−79803
- GaP:N, 1.6K photoluminesc. at high N concs. 4−49451
- GaS$_x$Se$_{1-x}$ solid solutions, absorption spectra 4−76273
- GaSb, luminesc. quasiexciton nature, phase transition possibility in eectron-hole plasma 4−76310
- GaSe, higher interband electroreflectance struct. around 3.37 eV 4−61177
- GaSe, hyperbolic, absorpt. spectra 4−76274
- GaSe, optical absorpt. edge press. depend. 4−45321
- GaSe, single cryst., edge luminesc. band assignments 4−76311
- GaSe single crystals, edge emission at high excitation levels, temp. depend. 4−67645
- GaTe, derivative reflectivity lineshape meas. near fundamental edge, exciton binding energy 4−49376
- Ge, conduction electron effective mass in field of excitons 4−57037
- Ge, cryst., electron-hole drops, optical props., absolute concs. determ. 4−76251
- Ge, decay kinetics of electron-hole-drop and free-exciton luminescence 4−49445
- Ge, density-depend. luminesc. props. of electron-hole liquid 4−57623
- Ge, doped, exciton condensation, threshold phenomena and hysteresis, electron-hole drops 4−67654
- Ge, electron-hole drops, microwave dimensional resonances 4−57058
- Ge, electron-hole liquid, ground state energy calc. 4−75823
- Ge, excitation spectra in 2 to 0.25 mm range 4−53127
- Ge, exciton condensate density, absorpt. edge obs. 4−72734
- Ge, exciton condensation, variation of electron-hole drop size with temp. 4−75834
- Ge, free carrier-free exciton-electron-hole drop interaction, photocond. 4−72822
- Ge, in mag. field, energy levels of indirect exciton, calc. 4−57063
- Ge, indirect exciton absorption spectrum 4−79742
- Ge, luminescence decay of electron-hole drops, vol. and surface effects 4−76304
- Ge, mag. field effect on i.r. absorption and luminesc. of electron-hole droplets 4−73188
- Ge, new cyclotron resonance absorption peaks obs. under high excitation 4−60736
- Ge, optical pumping electron-hole drops or exciton mols. 4−53061
- Ge, photoluminesc., theory of exciton, biexciton recomb. 4−49456
- Ge, polarisation of low temp. photoluminesc. due to deformations *(Russian)* 4−73190
- p-Ge electron-hole drops due to laser irrad. 4−70352
- Ge:Sb, absorption edge in direct transition region 4−73145
- HgI$_2$, photoluminesc., high density laser excitation, exciton behaviour *(Russian)* 4−82734
- HgI$_2$ radiation detectors, charge carrier transport anal. 4−51148
- InP, bound exciton line origin, absorpt. and emission spectra obs. 4−44878
- InP, exciton reflectance, surface characts. and field depend. 4−45325
- InP degenerate bands, in mag. field magneto-optical studies 4−75835
- InSb, degenerate band excitons, high mag. field effects 4−67188
- InSb, Landau levels obs. by electroreflectance at E$_1$ and E$_1$+delta$_1$ edges 4−76270
- Ir complex, chelatodicarbonyliridium (I), opt. and elec. props. rel. to excitonic superconductivity *(German)* 4−79757
- KBr, low temp. exciton migration, luminesc. centres *(Russian)* 4−82378
- KCl, KCl-KBr, Frenkel exciton states obs. γ-ray ang. correlation of positron annihilation 4−57065
- K$_2$CuF$_4$, ferromagnetic, absorption spectrum exciton lines meas., optical props. and spin dynamics 4−79514
- KMn$_{1-x}$CoF$_3$, exciton-magnon transitions in absorption spectra 4−70322
- Kr, solid film, photolum. due to intrinsic excitons and impurities 4−61216
- LiF, optical props. investig., Hartree-Fock band struct. calcs. 4−70320
- LiF, valence band position rel. to Li$^+$ 1s level, photoemission, core exciton 4−57034
- Mg-Sb(Bi) alloys, amorphous, absorpt. obs., 40-200 eV 4−79810

excitons continued
- MgO, optical absorpt. and soft X-ray spectra, exciton model explanation 4−44847
- Na halides, X-ray absorption spectra 4−76326
- NaCl, electronic struct. of self-trapped exciton 4−67184
- NdAl$_2$, mag. excitons, dispersion relations 4−70172
- NiWO$_4$, antiferromag., magnon and exciton spectra, features resulting from low cryst. symm. 4−79530
- PbBr$_2$, PbCl$_2$, luminesc., cation exciton localization, no V$_k$-centres *(Russian)* 4−73163
- PbBr$_2$, rel. to photodecomp. mechanism, 270-360 nm *(Russian)* 4−73137
- PbCl$_2$:Sn^{2+}, energy transfer mechanism *(Russian)* 4−79801
- PbI$_2$, band edge photoluminesc., anisotropic polariton model 4−73180
- Pr compounds, dispersion relations, temp. dependence 4−44885
- Si, condensation of injected electrons and holes, recomb. radiation spectra 4−67655
- Si, electron-hole liquid, ground state energy calc. 4−75823
- Si, electron-hole pair creation average energy, bandgap dependence 4−79316
- Si, non-ideal exciton gas and condensation into electron-hole plasma drops, luminesc. spectra 4−76302
- Si, optical pumping, electron-hole drops or excitonic mols. 4−53061
- Si spectra, absorpt. and luminesc., exciton-exciton interaction effects 4−75829
- Si:B, compression and low temp. laser irradiation, obs. of exciton recombination spectra 4−49438
- Si:Li(B)(P), obs. of photoluminesc. line due to multiexciton decay at impurity centre 4−49448
- Si:P, semiconducting and metallic, photoluminescence, electron-hole droplets 4−70337
- SrCl$_2$, luminesc., self-trapped exciton obs. from e.p.r. *(French)* 4−70339
- SrF$_2$:Eu^{2+}, luminesc., short term X-ray excitation, exciton role *(Russian)* 4−73159
- SrO, exciton and low energy interband structures, freshly cleaved single crystal 4−64046
- TlCl, thin layers, exciton band, absorpt. obs. 340 to 390 nm 4−67679
- VdSe, Bose-Einstein condensation, optical spectrum *(Russian)* 4−82379
- Xe, solid, doped, exciton-enhanced photoemission 4−70394
- Xe, solid, electron excited, excitonic luminesc. spectrum 4−49472
- ZnO, exciton contrib. to nonlinear optical susceptibility 4−69083
- ZnO, exciton interaction in photoluminesc., obs. at 1.9K 4−57617
- ZnO, luminesc., high u.v. excitation, 4.2K, bound exciton recomb. 4−73182
- ZnO, temperature dependence of the band gap from reflection data 4−67609
- ZnP$_2$, line absorption spectrum due to exciton-impurity complexes 4−73135
- Zn$_3$P$_2$, optical props. and energy band struct. investigation 4−70318
- ZnS, exciton line profiles, wavelength modulated refl. spectra obs. 4−57573
- ZnSe, luminesc. of high density excitons, 4.2-90 K 4−67641
- ZnTe, exciton line profiles, wavelength modulated refl. spectra obs. 4−57573
- ZrS$_3$ and ZrSe$_3$, X-ray photoelectron spectra, electronic structure 4−67700

exhibitions
- No entries

exoelectron emission *see electron emission*

exosphere
- downwards conductive heat flux at mid-latitude station, diurnal and seasonal var. 4−64938

exotic atoms
- *see also mesic and muonic atoms*
- energy level recoil corrections for strong nuclear field 4−51958
- hyperonic bound states, negative strangeness, review 4−59700
- production, detection and props. *(Hungarian)* 4−43758
- quantum electrodynamics high Z-elements 4−78385
- superheavy atoms, Hamiltonian for description of electronic structure 4−66354

expanding universe *see cosmology*

expansion, thermal *see thermal expansion*

expansion chambers *see cloud chambers*

experimental tests of quantum electrodynamics
- Delbruck scattering and photon splitting observations for 1-7 GeV photons on Cu, Ag, Au, U targets 4−63133
- exotic atomic phenomena, high Z-elements 4−78385
- muonic atoms study, comparison with other methods *(Russian)* 4−81451
- review, rel. to high-energy weak and e.m. interactions 4−51705
- trident production by 1-4 GeV positrons in nuclear emulsion 4−55622
- $e^+e^- \rightarrow e^+e^-\gamma$ Frascati data, high energies, large momentum transfers 4−62957
- $e^+e^- \rightarrow \gamma\gamma$, 5 GeV centre-of-mass energy, cross-section meas. 4−71675
- e^+e^- colliding beams experiments, review of results 4−77846
- $(^4\mathrm{He}\mu)^+$, polarisability contribution to energy levels 4−59980

exploding wires
- in discharge duct, energy conversion process *(Russian)* 4−44423
- emission sources, energy characts. *(Russian)* 4−78857
- holographic interferometry, 2 wavelength, electron density meas. 4−78843
- metal-dielectric cathode, explosive emission of electrons *(Russian)* 4−63724
- plasma production, Z-pinch, high energy-density, neutron prod. 4−44284
- radial electric field influence on explosions in vacuum 4−60347
- spectra, absorpt. linewidth rel. to surrounding gas press. *(French)* 4−52634
- stainless steel, shock speed performance in conical discharge chamber 4−71301
- stratification during elec. explosion *(Russian)* 4−56562
- unduloid appearance, high voltage electric discharge 4−56555
- Al, products condensation and movement *(Russian)* 4−69686

exploding wires continued
Al, shock speed performance in conical discharge chamber 4−71301
Au, oscillographic obs. *(Russian)* 4−78856
Cu, design relations between diameter and length, and discharge circuit parameters *(Russian)* 4−44422
Cu, oscillographic obs. *(Russian)* 4−78856
Cu, products condensation and movement *(Russian)* 4−69686
Cu, rupturing in elec. explosions *(Russian)* 4−69685
Cu, shock speed performance in conical discharge chamber 4−71301
Li, plasma creation, numerical one-dimens. MHD calc. 4−60279
Ni, pulsed heating, electron emission characts. 4−63719
W, pulsed heating, electron emission characts. 4−63719
W, shock speed performance in conical discharge chamber 4−71301

explosion bubbles *see bubbles*

explosions
see also accidents; detonation; exploding wires; nuclear explosions; safety; shock waves
acoustic spectra of near-surface fired charge 4−46523
acoustic transmission loss, ocean meas., choice of explosive source, processing filter 4−77034
brittle body, explosion induced fracture, theory 4−48678
containment in closed cylindrical vessels 4−77450
cryogenic, due to heating to thermodynamic metastability limit, shock wave overpress. prediction 4−52895
Flixborough, Lincolnshire explosion, ionospheric effects 4−76740
foil, exploding, improving circuit damping technique 4−54992
gas motion during explosion at surface, numerical calc. *(Russian)* 4−52441
heterogeneous, one-dimens. diffusion model *(Russian)* 4−76600
initiation and preclusion under particular physical and chemical conditions 4−73435
laser compression of D-T plasma, precompression by explosion 4−78792
metal surface, thermal explosion assoc. with electron beam focusing *(Russian)* 4−53736
P and S velocity stability from Central California quarry blasts 4−68051
pentaerythrityl tetranitrate, PETN, condensed explosive, initiation by rapidly compressed gas pockets 4−68005
planar shock waves generated by explosively-driven spherical implosions 4−78625
powder, explosive compacting for flat compact fabrication *(Russian)* 4−53789
powder particles dynamic interaction with detonation wave during explosive spraying *(Russian)* 4−53787
radioaction contaminated concrete structures, demolition by explosives during nuclear power plant removal 4−78305
Scotland, German seismic obs. of 10 ton explosion, upper mantle structure 4−73484
SOFAR accuracy, underwater explosions North Pacific 4−46517
solar flares, shock wave propagation from noncentral point explosion 4−54458
spherical charge layer in plastic medium, shock wave motion *(Russian)* 4−75146
stellar interior, explosion wave propag. 4−80556
thermal explosion rel. to Earth mantle thermal runaways from viscous heating 4−57925
tube surface deformation in explosive expansion 4−68888
Tungus event evidence against black hole theories 4−70956
underground, effect on dense rock, numerical calc. 4−50247
underground, magnitude and seismic energy relation 4−83052
underwater, near surface, plume growth 4−48296
underwater, shock wave propag. over submerged structure 4−66616
underwater explosion, hydrodynamic models of ‘sultan’ 4−81914
underwater explosions, European seismic profile recordings *(French)* 4−83049
water drop, irrad. by series of optical radiation pulses *(Russian)* 4−75181
AgN_3 condensed explosive, initiation by rapidly compressed gas pockets 4−68005
Fe plasma bunches interaction with Al surfaces, alloy form. *(Russian)* 4−53635
PbN_3 condensed explosive, initiation by rapidly compressed gas pockets 4−68005

exposure meters *see photometers*

extensive air showers *see cosmic ray showers and bursts*

extensometers
diametral, for small strain meas. 4−65378
dilatometer, obs. of cation redistrib. rate in $MgMn_2O_4$ spinel 4−56909
dilatometer using Cu wire in Hg column 4−42704
for optical measurements of solids under uniaxial stress 4−74033
photoelectronic, for strain meas. at high temps. 4−68618
universal vacuum dilatometer, automating temp. recording 4−46564

external flows
flame stabilisation behind bottom of axisymmetric body, external supersonic flow struct. effect *(Russian)* 4−48291
laminar boundary layer, three-dimens., in incompressible liq., approx. soln. *(Russian)* 4−69579
separation response to impulsive changes of outer flow 4−81881

extraordinary ray *see birefringence*

extrapolation
Tokamak fusion reactors, extrapolated operating regimes and transport effects 4−55951
unit cell dimensions derived by extrapolation technique and curve fitting procedure 4−69696

extraterrestrial atmospheres
see also comets; planetary atmospheres; stellar atmospheres
No entries

extraterrestrial radiofrequency radiation *see radiofrequency cosmic radiation*

extremum control *see optimal control*

eye
see also vision
adaptation, directionally selective 4−62298
alpha activity, local suppression by pattern in half the visual field 4−76947
binocular fixation ability of newborn babies 4−80730

eye continued
chromatic aberration, macular pigment effect 4−46391
cone mechanisms, initiating response in on-off goldfish optic fibres 4−54666
cones, blocking signals from rods 4−50797
corneal stroma, predominant orientation of collagen, rel. to Haidinger's brushes 4−62308
cosmic ray visual observation 4−65256
crystalline lens, n.m.r. and water ordering 4−80693
electroretinogram amplitude rel. to peripheral retinal spectral response for pulsed lighting 4−58521
electroretinogram recording, technique for infants and young children 4−50810
extraocular motoneurons, current-to-frequency conversion 4−62306
fibre optics, nonparallel circular or parallel conical, power transfer 4−46392
fixation control, by spoken language meaning 4−50767
foveal retinal exposures, awake, task-orientated rhesus monkey, technique 4−65555
frog and turtle retinal receptors, microspectrophotometer for linear dichroism meas. 4−77260
human, optical modulation transfer function calcs. for white light 4−46393
human, peripheral astigmatism, expt. data and theoretical predictions 4−50805
human lens system, transfer function, anticipation effect 4−80729
lens characteristics, appl of dynamic optometer 4−42938
movement, laboratory recording unit 4−81062
myopia, psychological approach, review 4−80720
nystagmus, evoked vestibular, in healthy subjects, non-sequential computer analysis of caloric stimulation 4−50803
ophthalmic diagnosis, scanned ultrasonic holography 4−68531
pecten oculi of bird as possible coded aperture mask 4−54661
pigeon cones, selective damage by coloured light 4−58519
pressure, Tonomat meas., corneal curvature *(German)* 4−76965
prism adaptation, vertical, in anisometropes 4−80726
pupillometer, clinical and experimental psychology use 4−65556
reflex movements 4−71101
refractive state at distance, meas. using photorefraction instrument 4−42939
retina, human, computer analysis of photochemical changes 4−65252
retina, instantaneous threshold, π-mechanisms 4−54665
retina, interactions between neighbouring regions, during fusional response 4−54660
retina model for applic. of digital data processing network theory 4−58522
retinal colour discrimination processes 4−58516
retinal ganglion cells, early visual adaptation in the goldfish 4−65255
retinal image stabilisation, use of contact lens without attachments 4−50801
retinal neurons, photosensitivity control mechanism *(Japanese)* 4−62305
retinal nonlinear response rel. to telescope core-halo stellar images 4−76969
retinal Schiff-base counter charge, adiabatic potentials for cis-trans isomerisation 4−76967
retinal vitamin A compounds, dynamics and function, after small bleach of rhodopsin, in the rat 4−62307
retinitis pigmentosa, effect on brightness and saturation under photic intermittance 4−80731
retinoblastomas, conservative treatment using 4 to 6 MeV electrons 4−71106
rhodopsin, laser resonance Raman spectroscopy of visual process 4−52315
rhodopsin phosphorylation, light-dependent, in living frog 4−71102
rod disc membrane, of frog retina, linear arrangement of rhodopsin oligosaccharide chain, indicated by optical polarisation 4−50808
rod outer segments, membrane structure changes associated with rhodopsin bleaching 4−76968
saccade control, in reading 4−50796
safety, damage due to intense diffuse illumination 4−77101
Stiles-Crawford retinal directional sensitivity in dichromatic subjects, obs. 4−50809
strabismus, effect on dichoptic summation of form information 4−50799
two synapse feedback loop dynamic model in vertebrate retina 4−50806
temporal discrimination at scotopic luminance, wavelength depend. 4−80725
transient retinal adaptation obs. of colour vision trichromacy 4−58526
visual pigment, optical property, effect of electrostatic interaction between retinal and opsin 4−65254
visual pigment, quantitative kinetic model, derivation from early receptor potential obs. 4−73905
visual pigments, excitonic coupling, supercond. pair form. 4−58512

F-centres
absorption spectra of F-centres in dislocation field 4−76288
alkali halide crystals, positron annihilation from F-centres, theory 4−48653
alkali halides, effect on epitaxial growth of metals 4−44800
alkali halides, F_a- and F_h-centre lifetimes investig. 4−69807
alkali halides, study of electron-nucleus-nuclear triple resonances 4−53342
alkali metal halides, ionic polarisation effects, strong binding cases 4−44873
alkaline earth fluorides, radiolysis prod. coloration, perturbed F and compensating V_k, H-centres 4−66911
ionic crystal, corrected F-centre energies from approximate pseudopotential 4−69806
ionic crystals, electronic wave func. calcs. 4−48951
multivalley cubic crystal, F-centre theory 4−75827
rotator model, comparison with ENDOR obs. of relaxed excited state 4−49447
$[Co(NH_3)_6H_2O]Cl_3$ hydrated electron formation upon crystal dissolution *(Italian)* 4−50217
$[Co(NH_3)_6]Cl$, hydrated electron formation upon crystal dissolution *(Italian)* 4−50217

F-centres continued
Ag halides, ionic polarisation effects, weak binding case 4−44873
Al_2O_3, calc. of energy level values 4−48950
BeO, F^+ centre hyperfine interactions calc. 4−79313
CaO, F-centre, Jahn Teller effect, Lie groups 4−60745
CaO, phosphoresc. microwave double reson., coherent Jahn-Teller states 4−73049
CsCl, effective escape depth of photoemission from colour centres 4−49529
KBr, ang. correlation of positron annihilation, F-centre effects 4−60521
KBr, γ-irradiated, correlated changes of flow stress and optical absorpt. 4−45340
KBr, KBr:Cu, X-irradiated at 80K, thermolum. rel. to F'-centres 4−53540
KBr, low temp. Hall cond., polaron theory interpretation 4−64103
KBr:Na cryst., enhancement, irradiation yield 4−75524
KBr_xCl_{1-x}, ionizing radiation effects on hardening 4−66961
KCl, coloured, positron annihilation 4−69804
KCl, ENDOR of F_a(Li) centres, isotropic hyperfine interaction 4−61065
KCl, extended polarisable ion lattice model 4−75828
KCl, heavily γ-irrad., thermoluminescence, F-centre thermal annealing 4−67668
KCl, i.r. absorpt. of H^-H^-, D^-D^-, H^-D^- coupled local mode oscills. 4−45338
KCl, KCl:Cu, X-irradiated at 80K, thermolum. rel. to F'-centres 4−53540
KCl, luminesc. and optically detected e.p.r. of close F-centre pairs 4−57619
KCl, obs. of Raman scatt. at 10K and 80K 4−49405
KCl, polarised absorption of F_2-centre triplet state 4−69992
KCl, position of d-like state of F-centre from Stark effect meas. 4−44867
KCl, quantum yield for F-centre photoionization, room temp. 4−67619
KCl, single crystal, temp. decolouration kinetics, exoelectron emission rel. to vacancy diffusion 4−79837
KCl, stimulated emission from F-centres, new type i.r. laser 4−51598
KCl, thermal annealing kinetics, luminesc., decay of F' centre, 80 to 300K 4−82739
KCl:Ag(Tl)(Eu)(Pb)(Ca), mutual distrib. of impurity ions and radiation defects 4−79039
KCl:Li, optically pumped broadly tuneable c.w. laser using colour centres 4−55475
KCl:Na, dichroism, bidirectional holographic information storage 4−80923
KCl:NaCl, F_a-centred cryst., in-line holography by three dimens. recording 4−71211
KCl:OH^-(OD^-) obs. of F-like paramag. and paraelec. defect, H_2O^-(D_2O^-) 4−48943
KCl-$PbCl_2$ crystals, accumulation, X-ray exposure, lead contents effects *(Russian)* 4−72465
LiF, γ-irrad., 450 nm absorption, fluoresc. obs. 4−64417
LiF, nucl. relax. by means of electron spin cross-relax. *(Russian)* 4−79645
LiF, thermal mixing of nuclear Zeeman and electronic spin-spin impurity interactions, theory 4−72709
LiF film, evap., thermally stimulated exoelectron emission after X-irrad. 4−49538
LiF:Mg positron annihilation, obs. of lifetime spectra in γ-irradiated samples 4−56772
Lif single crystals, luminesc. meas. rel. to F-centre conc., X-ray excitation 4−67652
MgO, fast neutron dosimetry using F-centres and exoelectron emission 4−54732
MgO, Ne^+ bombard., e.s.r. determ. of F^+-centre oscillator strength 4−76286
NaCl, cryst., colour centres, conversion, annealing *(Russian)* 4−75523
NaCl, F' to F conversion by electron tunnelling 4−56740
NaCl, γ-irradiated, kinetics and mechanisms of room temp. F-light bleaching 4−53475
NaCl, heavily γ-irrad., F-centre thermal annealing, thermoluminesc. 4−67668
NaCl, laser induced F-centre form., rel. to exoelectron images in LiF 4−49536
NaCl, NaCl:Cu, X-irradiated at 80 K, thermolum. rel. to F'-centres 4−53540
NaCl, powder, doped and undoped, prep. and thermoluminesc. *(German)* 4−79805
NaCl, proton and α-particle irrad., F-centre form. rate and distrib., channelling effect *(Russian)* 4−82171
NaF, additive and electrolytic colouring, absorp. bands obs. 4−56737
RbCl:Sr, light absorpt. spectra of X-rayed sample, comparison with pure RbCl crystals 4−45335
$Sr_{1-x}Ca_xCl_2$, e.p.r. spectrum, perturbation, annealing effect 4−57378
ZrO_2, Y_2O_3-stabilised, microwave and optical spectroscopy 4−61197

F-layer *see F-region*

F-region
f_oF_2 enhancement during 1965 June 25 substorm 4−70775
data reduction and analysis 4−70790
daytime F_2-region, vertical-latitudinal development of seasonal anomaly 4−54272
E- and F-region electrical coupling, effect on F-region drifts and winds 4−58101
electron density and temp. at Malvern, relationship from incoherent scatter meas. 4−68246
e.m. pulse reflection and deep amplitude modulation *(Russian)* 4−70797
equatorial F_2-region, simplified calc. method for transequatorial electron flux effects 4−68281
equatorial ionosphere spread F, theory 4−61844
f_0F_2 and geomagnetic activity index correl. 4−83122
F_2 echoes and S/N ratio in 5-7 MHz range 4−76745

F-region continued
F_2 peak number density rel. to stable auroral red arc properties 4−46123
F_2-layer, increased electron density due to upward plasma drift during a solar eclipse 4−83125
F_2-layer, N(h) parameter annual variations at noon 4−68241
F_2-layer critical freq. correlation with tropospheric temp. 4−68234
F_2-region over Delhi, gravity wave assoc. neutral particle vel. perturbations 4−64960
high-latitude F_2-layer and magnetospheric convection electric field 4−46086
ion composition and drift obs. in nighttime equatorial regions 4−64957
ion density, spectral characteristics of ionospheric irregularities 4−50343
irregularities from backscatter studies at 19 MHz 4−46081
Joule heating, atmospheric expansion 4−64961
low latitude F_2-region behaviour 4−80387
MHD wave interpretation of gravity waves 4−64952
nighttime radiation fields, $L\alpha$ and $L\beta$ 4−83120
plasma heating by intense HF fields 4−58102
polar cusp ionosphere, field aligned current system 4−83109
polar F-region excitation and ionization, diurnal var. 4−68244
radio scintillation rel. to ionosphere and interplanetary irregularities, wavelength depend. 4−50337
radiowave reflection properties altered during high power pump wave irradiation 4−50348
satellite radio scintillations, use of multisatellite radio transmission system for detection 4−73566
spread F returns, angular distrib. from artificially modified ionosphere 4−83119
spread-F events, energetics and energy source 4−50347
structure, solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68247
subauroral sporadic F_2-layers rel. to ionization and plasmapause 4−54273
total electron content during 1971, December 17 storm 4−64959
trans-equatorial propagation at 32 MHz, reflection characts. 4−46082
travelling ionospheric disturbance, solar-terrestrial disturbances, August 1972 *(Japanese)* 4−70795
vertically travelling disturbance, changes in electron number density 4−68243
wave scattering, incoherent, fine regular struct., random irregularities *(Russian)* 4−80385
wavelike ionospheric disturbances, polarization fading of reflected radiowaves 4−54276
Ba cloud coupled to E-region, conductivity ratio effects on drift and deformation 4−70792
F_2-region storms, electron density and temp. changes 4−50346
O(^{1}D) 6300 A intensities, comparison with dissociative recombination calc. 4−58100

faces (crystal) *see crystal faces*

facsimile
see also video signals
laser beam deflection system application *(German)* 4−46679
multispectral laser beam image recording on monochrome film 4−46732
radiation therapy planning, for remote institutions 4−50864

facsimile communication *see facsimile*

facsimile document reproduction *see photocopying*

facsimile equipment
laser wirephoto transceiver, design and development 4−55540

facsimile signals *see video signals*

facsimile transmission *see facsimile*

faculae *see sun*

fading
see also radiowave propagation
4 GHz cross-polarisation discrimination deterioration during rain and multipath fading, obs. 4−70753
atmospheric attenuation at 15.3 GHz and rain rate statistical distributions 4−70756
ionospheric radiowave statistics, influence of travelling ionospheric disturbances 4−58075
l.f. radionavigation signal, long-period fading rel. to geomagnetic activity indices 4−50256
millimetre wave propagation in turbulent atmosphere 4−46127
radio wave, effect of magnetic activity on fading 4−70770
radiowave in ionosphere, measurement of angle of rotation of plane of polarisation 4−70784
rain depolarisation at 4 and 6 GHz 4−61761
satellite/aircraft multipath at 1600 MHz 4−76682
spectrophotometer design for fading meas. of paintings 4−54923
v.h.f. quasiperiodic scintillations in satellite radio transmissions 4−83123

failure analysis
see also wear
alloys, for aircraft and microfractographic features *(German)* 4−80167
ceramic, failure prediction using acoustic emission 4−45882
controlled thermonuclear reaction systems, failures prediction 4−55965
IC, use of ion microprobe 4−42954
pressure vessels, defect survey and rel. to nuclear primary circuits 4−78227

fallout
see also air pollution
airborne and deposited, over South Africa, and the resultant biological uptake of ^{90}Sr, ^{137}Cs and ^{131}I 4−58639
Atlantic marine samples, fallout and ^{240}Pu/^{239}Pu ratio 4−50262
beta activity measurements 1970-4 for rain and dust fallout *(German)* 4−64867
global, useful effects on science 4−58059
initial gamma radiation doses in building structures, adjoint Monte Carlo calcs. 4−81694
internal dosimetry in small vertebrates resident in area 4−83350
internal dosimetry of radionuclides, ^{90}Sr, ^{3}H, ^{239}Pu examples 4−83346

fallout continued
- protection from initial gamma radiation, approx. procedures for calcs. 4−81695
- radiation monitoring, in the Mediterranean region 4−58638
- shielding effectiveness of buried concrete structures 4−81697
- student experiment studying fallout in the leaves of trees 4−58709
- ^{137}Cs, accumulation in lake due to nuclear power station 4−59884
- NaI (Tl) γ-spectroscopy of radioactivity in the atmosphere and soil of India 4−42901

Faraday effect
- cyclononatetraenide anion, mag. circular dichroism, Faraday A term for 250 nm and 320 nm bands 4−47975
- electrolyte solutions, magneto-optical rotary dispersion, 350-650 nm 4−67606
- electron gas, metallic particle size quantization effect 4−53402
- ellipsometer, fast, self-compensating 4−68691
- ellipticity and low-field Faraday rotation, convenient meas. technique 4−58777
- e.p.r. detection, sensitivity parameters *(French)* 4−57352
- glass, ED4, as laser system Faraday rotator 4−65461
- halogenobezenes, mag. circular dichroism, Faraday A term of $^1A_{1g} \to {}^1E_{1u}$ transition, mag. moment 4−47976
- h.f. two-coil Faraday modulator 4−62463
- ionosphere, periodic electron content disturbances, simultaneous Faraday rotation and angle of arrival obs. 4−50340
- ionosphere, solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68239
- laser beam shaping devices, using Faraday and Pockels polarisation effects 4−65462
- magnetic film, stripe domains, Lorentz microscopy with photons 4−57333
- magnetic susceptibility meas. *(Czech)* 4−80961
- molecular eigenfunction, perturbation by electric field 4−69443
- orthoferrite, meas. of intrinsic Faraday rotation and birefringence 4−80865
- paramagnetic relaxation times meas. *(Japanese)* 4−71220
- photoelectric detecting system 4−42792
- rotation of radio waves from Syncom 3 and ATS-1 during 1972, August event 4−80382
- semiconductor, calcs. on recomb. of hot electrons 4−48998
- tracking polarimeter meas., solar and ionospheric from deep space probe 4−50729
- uniaxial transparent ferromagnetics, hysteresis loop recording 4−54996
- CoCr$_2$S$_4$, hot pressed microcryst. powder, near i.r. 4−57504
- Eu chalcogenides, Verdet's const. calc. 4−73104
- EuO:Gd exchange optics, absorpt. and Faraday rotation meas., 13 eV to 250 μ 4−57568
- FeBO$_3$, Faraday effect anomalous increase with onset of magnetization inhomogeneity 4−49329
- FeBO$_3$, mag. domain props., Faraday effect obs. 4−64238
- FeCl$_2$, metamagnetic phase transition, hysteresis effect 4−64360
- GaAs, band struct., influence of impurity ions under moderate doping conditions, expt. 4−48914
- n-GaAs, carrier conc. nonuniformity meas. by Faraday effect, apparatus design 4−68730
- n-GaAs, conc. profile determ. by Faraday effect *(Russian)* 4−53631
- -n-GaAs, i.r. Faraday effect const. component investigation *(Russian)* 4−53401
- GaAs, intense laser flux effects 4−74514
- GaAs, intense mag. fields, electron effective mass obs. *(French)* 4−45275
- n-GaN, epitaxial layer, i.r. Faraday rotation obs. at room temp. 4−70284
- GaSb, Γ(000) conduction band parameters, Faraday effect meas. 4−44852
- HCN, laser plasma, Faraday mode splitting meas. of electron density 4−48447
- He-Ne, laser transitions, collision broadening meas. method 4−77659
- Ho-Co(Fe), amorphous films, mag. props. of amorphous, cryst. states, Faraday rot. meas. 4−76128
- InSb, intense mag. fields, electron effective mass obs. *(French)* 4−45275
- Li$_6$CoO$_4$, prep. and characteriz. *(French)* 4−48569
- MnBi film, magnetooptic properties, component ratio depend. 4−70285
- Nb, Nb-Zr, type II supercond., flux kinetics during flux jumps obs. 4−45043
- SmTbFeO$_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
- p-Te, 33 GHz, carrier props., temp. depend. 4−44952
- TmFeO$_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
- TmFeO$_3$, various directions of weak ferromagnetic moment *(Russian)* 4−82690
- $Y_{3-x}Bi_xFe_{5-y}Al_yO_{12}$ garnet film, in excess of 50000 deg/cm. 4−49507
- $Y_3Fe_{5-x}Ga_xO_{12}$, specific Faraday effect, losses during alternating magnetisation *(Russian)* 4−72991
- YFeO$_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
- YIG:Bi, rel. to optical absorption bands 4−79750
- ZnSb, at microwave freqs., properties at cryogenic temperature 4−64110

farming
- cattle, dosimetric model of gastrointestinal tract, expt. validation 4−62335

fast amplifiers *see pulse amplifiers*

fast Fourier transforms
- algorithm, numerical surface prod. in theory and construction of random rough surface 4−74008
- astronomical applications of FFT computers 4−62253
- circular dichroism spectrometry, Fourier method for digital data smoothing 4−77073
- crystallography, algorithm, treatment of negative indices, computer program 4−56568

fast Fourier transforms continued
- electric potential, due to arbitrary charge density, numerical calculation 4−55427
- e.m. wave backscattered short pulse response of surface wave from sphere 4−74461
- gamma-ray image reconstruction by computer 4−54683
- ocean internal wave, moored temperature sensor, fine-struct. contamination 4−65004
- phonocardiograms digital analysis 4−58970
- radioisotope scanning, digital image processing 4−68516
- Rayleigh spectrometer, spectral anal. by Fourier transforms 4−46659
- short pulse response for surface waves from dielectric spheres 4−71481
- speech analysis and synthesis, personality rating 4−50762

fastening *see joining processes*

fatigue
- accelerated fatigue testing, determ. of critical stresses and number of cycles *(Russian)* 4−80153
- acetal copolymer, uniaxial and rot. bending fatigue tests 4−80158
- aeronautic materials testing, acoustic emission applic. *(French)* 4−73397
- alloy, b.c.c., microyielding strain bursts correl. with acoustic emission pulses 4−67871
- alloy, cyclic mechanical and thermal stresses 4−67969
- alloy, directionally solidified eutectic, axial extension during cyclic torsion 4−45594
- alloy, dissolution of small precipitates 4−53693
- alloy, notched, light, fatigue striation spacing rel. to cracks *(French)* 4−67868
- bimetallic specimens with pressed nozzles, tensile deform. influence on fatigue strength *(Russian)* 4−53723
- α-brass, cyclic stress/strain relation and fatigue strength, grain size depend. *(Japanese)* 4−82889
- brittle materials, Griffith criterion for reversible and irreversible fracture 4−73360
- brittle rock under uniaxial compression, static fatigue and failure 4−50234
- caprolone, fatigue strength during cyclic stretching and bending 4−50017
- cast superalloys, effect of material characteristics, test variables 4−73322
- ceramic, fatigue failure probability rel. to engineering design 4−73366
- composite, fatigue strength eval. criterion 4−61510
- composite, metal matrix type, fibre spacing effect on fatigue behaviour 4−49923
- composite, metal-matrix type, failure of reinforced sheets under thermal cycling 4−49949
- composite laminates, delamination prevention 4−49954
- corrosion fatigue, low-cycle testing apparatus *(Russian)* 4−53936
- crack growth, loading variables effect on acoustic emissions 4−70592
- crack growth, penny shaped crack, work hardening materials 4−67839
- crack growth in rate-sensitive viscoelastic solid 4−66968
- crack growth of surface flaws from holes in thick plates, stress intensity factor 4−50111
- crack growth retardation under aircraft spectrum loads 4−45877
- crack length monitoring, liquid environments 4−83002
- crack propagation, cyclic deform. at crack tip, necking 4−67838
- crack propagation, u.s. surface wave detection techniques 4−45878
- crack propagation in a strain ageing, comparison with stabilized mild steel 4−79992
- crack propagation life of notched plates, expt. and theoretical 4−65702
- crack propagation model based on inverse hyperbolic tangent function 4−50106
- crack propagation under cyclic loading, elastic-plastic analysis 4−50105
- crack signallers 4−50063
- failure, crack propagation 4−53747
- failure model, probabilistic 4−45723
- fatigue crack growth, stress ratio influence, test procedure 4−57798
- fibre optics applic. to fatigue crack development 4−61574
- fibreglass-plastics, high-modulus fibre reinforced, mech. props. 4−80084
- fine wire, corrosion-fatigue testing 4−50062
- flexing members of Harwell thermomechanical generator, fatigue characteristics 4−64690
- fracture mechanics, conference, Cadarache, France, November (1973) 4−67861
- fretting corrosion, metal fatigue testing, transverse bending 4−83008
- glass, quenched, delayed fracture induced by water vapour, gas adsorption effect *(German)* 4−53795
- glass reinforced plastic, damage accumulation under cyclic tension/compression 4−45781
- glass reinforced plastic, failure caused by stress concentrations 4−61530
- glass reinforced plastic, SVAM-type, anisotropy effect on cyclic deform. and heating 4−45782
- glass reinforced plastics, fracture characts. in cyclic tension-compression 4−45773
- graphite, isotropic, notch sensitivity and work of fracture obs. 4−78268
- graphite/epoxy prepreg., prestressing effects on laminate strength props. 4−49955
- high frequency fatigue tests, low temp. 4−83005
- impact fatigue testing machine, axial load 4−50053
- Incolloy 901, fatigue crack propagation, secondary microcracks 4−45593
- Incoloy 800, irrad. influence on creep/fatigue behaviour at 700°C 4−43678
- life tests, tables for early decision making in precedence tests 4−57799
- Manson-Coffin formula extension *(German)* 4−64671
- materials testing, research *(French)* 4−53951
- materials testing in vacuum down to 77K, apparatus 4−61573
- metal, AMMRC status report on fracture behaviour 4−45762
- metal, exoelectron microscope applic. 4−46907

fatigue continued
metal, fatigue crack growth mechanisms 4−67823
metal, fatigue fracture under harmonic and complex loads at low temps., apparatus construction 4−53953
metal, fatigue life in high cycle region 4−67855
metal, fatigue life under complex cyclic straining into plastic range 4−82883
metal, fatigue resistance, scale factor effect under nonsteady-state loading conditions 4−61456
metal, fatigue strength, criterional evaluation 4−67878
metal, f.c.c., secondary slip system effect on early fatigue damage 4−70490
metal, f.c.c., stage I fatigue, freq. depend. and dynamic recovery 4−61433
metal, f.c.c. and h.c.p., Neumann strain burst phenomenon rel. to acoustic emission during deform. 4−67870
metal, meas. by obs. on hysteresis loop of elastic oscills. 4−53949
metal, plastic stress/strain response in high cycle region 4−67854
metal strips, symmetrically notched, yield pt. loads 4−45881
notch factor dependence on plasticity and duration of crack growth 4−45884
nuclear reactor components and systems, interaction with creep effects 4−81556
Nylon 6, glass fibre reinforced, notched specimen, crack propag. by bending fatigue *(Japanese)* 4−49922
plastic, fatigue crack growth and local overheating effects *(Russian)* 4−73373
plastic, glass fibre reinforced, flexural fatigue strength *(Japanese)* 4−57767
plastic, relation to crack propag. in cyclic loading *(Russian)* 4−81178
plastic, repeated shock bending 4−76561
plastic, strength on exposure to harmonic loads and impacts, relax. phenomena effect 4−80134
plastics, glass fibre reinforced, under pulsating tension test and repeated bending test 4−82965
plastics, glass fibre reinforced, under tensile sinusoidal and impact stresses 4−82964
plastics, structural appl., rel. to selection and design 4−67954
Plexiglass, defect accumulation during nonstationary loading 4−80135
PMMA, fatigue crack growth and local overheating effects *(Russian)* 4−73373
PMMA, fatigue life in cyclic bending with rot. 4−45829
PMMA, plane bending fatigue *(Japanese)* 4−70574
polycaproamide, heat treatment effect on static and fatigue strength 4−80126
polycarbonate, fatigue crack growth law 4−70569
polycarbonate, plane bending fatigue *(Japanese)* 4−70574
polycarbonate plate, fracture mode transition during fatigue crack propag. *(Japanese)* 4−80112
polymer, amorphous, lifetime under intermittent loading 4−45831
polymer, fatigue crack growth mechanisms 4−67823
polymer, fatigue life in cyclic bending with rot. 4−45829
polymer, mol. mobility and strength relationship at low temp. *(Russian)* 4−53899
polymer, rigid, acoustocreep and acoustic fatigue, electron-acoustic apparatus 4−53948
polymer shell, thin-walled, fatigue props. and susceptibility to damage 4−50000
polyolefins, crystalline, deform. and fatigue props. relationship 4−45830
PVC film, edge yielding phenomena 4−67951
random, general statistical model 4−50099
reinforced thin structures, prediction of fatigue crack growth *(French)* 4−67928
reliability, sequential cumulative 4−45724
rock, jointed, models, fatigue failure characts. 4−68074
silicate glass, static fatigue rel. to surface treatment 4−49970
steel, 316 stainless, fatigue and microstructure effects of He implantation and thermal ageing at 650°C, obs. 4−55940
steel, austenitic, service life under combined action of creep and thermal cycling 4−67880
steel, austenitic metastable, fatigue strength *(Japanese)* 4−45625
steel, austenitic stainless, irrad. influence on creep/fatigue behaviour at 700°C 4−43678
steel, ball bearing type, retained austenite effects on rolling fatigue life 4−80048
steel, carbide morphology role in low-cycle fatigue behaviour 4−70475
steel, carburized, fatigue fracture, high cycle, fractographic obs. 4−64581
steel, cavitation damage tests correl. with residual stress meas. 4−45876
steel, corrosion fatigue in acid media, halogen anions effect on inhibitory protection effectiveness *(Russian)* 4−53730
steel, crack tip, crack closure behaviour *(Japanese)* 4−79997
steel, durability in borax soln., influence of fittings *(Russian)* 4−53940
steel, electrospark alloying with refractories, strength characts. of layers produced 4−49835
steel, fatigue and brittle failure at low temp. 4−61451
steel, fatigue crack kinetics, thermal treatment influence *(Russian)* 4−53729
steel, fatigue crack propagation, effects of crack length, stress range and minimum stress 4−53931
steel, fatigue crack tip, microscopic plastic zone and slip band zone obs. 4−53685
steel, fatigue fracture, low and high loading frequencies 4−82939
steel, fatigue limit and nonpropagating microcrack correl. 4−49747
steel, fatigue notch factors calc., two-parameter formula *(German)* 4−67964
steel, fatigue strength, ultimate number of stress cycles *(German)* 4−64670
steel, fatigue- and corrosion-resistance in contact interaction regions *(Russian)* 4−45598
steel, ferritic-pearlitic, rupture resist. and low-cycle fatigue correl., real structs. 4−49824
steel, hardened, fatigue failure duration, struct. and contamination influence *(Russian)* 4−45605

fatigue continued
steel, impact fatigue strength, effect of retained austenite 4−80032
steel, induction hardened, tension and compression fatigue strength *(Japanese)* 4−79995
steel, low-C, crack propag. by stress amplitude below fatigue limit 4−70589
steel, low-C, random loading near-term correl. effect on fatigue behaviour 4−67820
steel, maraging, produced by powder metallurgy, tensile props. and grain size refinement 4−67891
steel, martensite aged, optimum conditions for performance in active media *(Russian)* 4−53734
steel, medium-C, scatter in fatigue strength *(Japanese)* 4−79994
steel, medium-C, torsional prestrain effect on tensile and low-cycle fatigue props. 4−57742
steel, mild, impact fatigue testing 4−50053
steel, mild, random lead fatigue damage accumulation, eddy current inspection 4−76571
steel, mild and high-strength, fatigue fracture of clad plate *(Japanese)* 4−79996
steel, Ni-Cr-Mo-V type, temp. influence on corrosion fatigue crack propag. 4−76475
steel, powder-forged and wrought, comparison of mech. props. 4−70515
steel, precip. hardened, doping influence on struct. and plastic props. *(Russian)* 4−45712
steel, precracked, residual stress near crack tip, influence on applied stress under tensile loading *(German)* 4−67888
steel, rail type, mean stress effects on fatigue crack growth and failure 4−67822
steel, rolled anisotropic plates, biaxial low-cycle fatigue 4−50055
steel, rotatory bending fatigue test, circumferential temp. change effect on strain energy change *(Japanese)* 4−80160
steel, slitted tubes with patches, burst tests and fatigue crack growth rate 4−67984
steel, spring Mn-Cr-B type, ausforming effect on fatigue strength *(Japanese)* 4−82892
steel, stainless, acoustic emission-damping fatigue 4−76567
steel, stainless, austenitic, durability on low-cycle torsion in hot chloride and alkali solns. 4−61462
steel, stainless, austenitic, low C, 304L and 316L types, fatigue crack propag. obs. *(French)* 4−67869
steel, stainless, austenitic, low-cycle fatigue strength temp. depend. and fatigue cracks *(Japanese)* 4−70506
steel, stainless, austenitic 18Cr-8Ni, coaxing effect *(Japanese)* 4−79998
steel, stainless, Cr-Ni-Nb stabilized, freq. and strain range effect on environmental fatigue cracking 4−53758
steel, stainless, kinetic deform. criteria of fatigue fracture, 650°C 4−53952
steel, stainless, thin sheet, strain and failure under static and alternating-reversing load 4−67883
steel, stainless, Type 348, thin-section type, irrad., fatigue life at 288°C 4−43676
steel, stainless, Types 304 and 316, neutron irrad. effect on fatigue crack propag. at high temp. 4−43679
steel, strain ageing problem in cyclic loading process 4−61453
steel, surface plastic deform. effect on fatigue failure kinetics 4−80031
steel, tufftrided, fatigue limit prediction for smoothed specimens *(Japanese)* 4−82893
steel, type 316 stainless, effect of carbide precip. on crack propagation 4−69301
steel, vacuum-diffusion Cr plating influence *(Russian)* 4−53720
steel, with protective coating, kinetics of crack development during corrosion-fatigue 4−67970
steel 4140, fatigue crack growth, continuous monitoring by acoustic emission 4−45879
steel plate, crack form. facilitation using laser radiation *(Russian)* 4−53726
steel wires and cables, u.s. fatigue testing 4−64674
tensile strips, singly-notched pin-loaded, yield pt. loads 4−45880
testing, cyclic loading, rupture energy determ. method 4−64666
testing, h.f., temp. stresses 4−53954
testing, Manson-Coffin formula extension *(German)* 4−50078
testing, push-pull, nonpropagating fatigue crack hypothesis applic. to plate with hole notch 4−50054
testing, statistical spread *(German)* 4−67987
testing, total curve construction 4−50093
testing, Turbo-4 vibr. testing machine, device for asymmetric load applic. 4−61566
testing apparatus for thermal cycling under load 4−67989
testing machine for combined bending and torsion 4−70591
thermal, low-cycle fatigue testing, programmable machine 4−62416
thermal fatigue, hysteresis curves, temp.-load coordinates 4−83004
thermal fatigue tests, strain meas. by photographic method 4−61555
thermonuclear reactor first wall, irradiation swelling, creep, thermal shock and thermal cycling fatigue anal. 4−74798
thermoplastics, dynamic fatigue tests eval. method *(German)* 4−50080
triacetate fibre, thermal degradation, multiple extension effect 4−53885
turbine blades, coded, including restraining effects from centrifugal forces 4−45612
X-ray diffraction applic. in fatigue damage assessment 4−79953
Al, effect on internal friction, strain hardening 4−64574
Al, fatigue strength, prestraining influence, stacking fault interpret. *(Russian)* 4−45607
Al, plastic strain distrib. at fatigue crack tip *(Japanese)* 4−79933
Al, pure, low cycle impact fatigue *(Japanese)* 4−70508
Al, surface damage characteriz. by photoemission, ellipsometry and Auger spectra 4−53781
Al alloy, fatigue crack length meas. by NDT 4−50077
Al alloy, fatigue crack propagation, cyclic deform. at crack tip, necking 4−67838
Al alloy 7050-T73, fatigue crack growth, compressive overload effects 4−50104
Al alloy 7075-T6, crack tip plasticity, specimen geom. effect 4−45590

fatigue continued
- Al alloy 7075-T6, fatigue crack growth rates, effect of specimen polarisation 4−45677
- Al alloy 7075-T6, fatigue growth, continuous monitoring by acoustic emission 4−45879
- Al alloy 7075-T6, fretting fatigue, normal load effects 4−49842
- Al alloy 7075-T6, fretting fatigue damage, metallographic analysis 4−49843
- Al alloy AU2GN, crack propagation related to fracture mode *(French)* 4−53762
- Al alloy AU2GN, Paris law, high temperature tests *(French)* 4−49809
- Al alloy sheet, fatigue strength improvement by edge treatment 4−76456
- Al alloys, low-cycle, crack distrib. in small specimens 4−61454
- Al alloys 2024 and 2618, fatigue crack propagation, secondary microcracks 4−45593
- Al/steel strip composite, metallographic investigs. of deform. behaviour *(German, English)* 4−82967
- Al-Cu alloy with duplex dendritic struct., casting effect on mech. behaviour 4−49790
- Al-Cu alloys, fatigue cracks of precipitates *(German)* 4−61471
- Al-Cu(4%), W wire reinforced, metal-matrix/metal fibre composites, crack propag. 4−73369
- Al-Mg(5.83 wt.%) alloy, discrete creep during repeated static loading 4−49830
- Al-Zn-Mg alloys, stretched zone size correl. with fracture toughness 4−67821
- Al_2O_3, alumina, delayed failure and ageing in water and physiological media 4−61482
- Al_2O_3, fatigue fracture under static and cyclic loading, 25-359°C 4−73357
- B/epoxy composites, fabrication defects effect on struct. integrity 4−49951
- C fibre reinforced epoxy resin, fatigue strength and failure mechanisms 4−45760
- C fibre reinforced epoxy resin, axial fatigue behaviour 4−45761
- Cu, cyclic stress/strain relation and fatigue strength, grain size depend. *(Japanese)* 4−82889
- Cu, fatigue limit and nonpropagating microcrack correl. 4−49747
- Cu, fatigue strength, prestraining influence, stacking fault interpret. *(Russian)* 4−45607
- Cu, high cycle fatigue crack propag. rates 4−76565
- Cu, intermediate surface layer removal 4−45639
- Cu, yield and ultimate tensile strength, fatigue deform. influence, 20-380°C *(German)* 4−61469
- Cu single crysts. containing alumina particles, fatigue deform. and dislocation distrib. 4−53671
- Cu/W composite, fibre spacing effect on fatigue behaviour 4−49923
- Cu-Ni-Mn bondable fatigue gauge, elec. resist. changes during fatigue 4−80050
- Cu-Sn alloys, yield and ultimate tensile strength, fatigue deform. influence, 20-380°C *(German)* 4−61469
- Fe, Armco, fatigue failure characts. in vacuum 4−61455
- Fe, cast, spheroidal graphite, fatigue fracture *(Japanese)* 4−82891
- Fe, cast, thermal fatigue failure 4−82919
- Fe, dislocation structure after cyclic loading at 77K *(Russian)* 4−49683
- α-Fe, substructural development during strain cycling rel. to fatigue life 4−82861
- Fe alloys, wear and fatigue resist. improvement by liq. nitriding 4−49850
- Li_2O-ZnO-SiO_2 glass-ceramic, dynamic fatigue 4−61497
- $LiTaO_3$, for holographic recording, sensitivity and fatigue 4−68703
- Mg-Mn(Zr) alloys, fatigue crack growth characts. 4−45591
- MgO, stress corrosion cracking, four-point bend and static fatigue tests 4−73358
- Mo based alloy TZM, he implantation effects on fatigue props. 4−56790
- Mo fusion reactor structural material, tensile fatigue behaviour at 1153K 4−69335
- Ni, study of positron lifetime and X-ray line broadening 4−45701
- Ni alloys, EI437B and EI826, fatigue fracture, low and high loading frequencies 4−82939
- Ni superalloy, high temp. fatigue fracture *(Japanese)* 4−70507
- Ni-Co alloys, shot peened, fatigue stability and residual stress 4−45658
- Ni-Co(66.5%), study of positron lifetime and X-ray line broadening 4−45701
- Ni-Cr lamellar eutectic composite, low-cycle fatigue behaviour, 300-760°C 4−82966
- steel, fatigue strength, prestraining influence, stacking fault interpret. *(Russian)* 4−45607
- Ti alloys, fatigue strength, notch burnishing and thread rolling effect 4−49832
- Ti and alloys, subcritical cracking, river markings form. 4−45584
- Ti/Mo fibre reinforced, creep and long-term strength 4−49948
- Ti-Al-V alloy, crack closure in fatigue 4−67816
- Ti-Al-V alloy, fatigue crack propagation, secondary microcracks 4−45593
- Ti-Al-V alloy, fatigue crack growth, compressive overload effects 4−50104
- Ti-Al-V alloy, fatigue crack growth delay 4−67835
- Ti-Al-V alloy, fatigue crack growth rates in air and vacuum environments 4−82909
- Ti-Al-V alloy, fatigue strength improvement by microstruct. control 4−61424
- Ti-Al-V alloy, fretting fatigue, normal load effects 4−49842
- Ti-Al-V alloy, fretting fatigue damage, metallographic analysis 4−49843
- Ti-Al-V-Sn alloy TA6V6E2, microstruct. influence on mech. props. *(French)* 4−49796
- Ti-Cu(2.5 wt.%) sheet, fatigue crack propag., environment and freq. effects, room temp. 4−49756
- Ti-Zr-Al alloys with high oxygen content, mech. props. and thermal stability 4−76486
- Zn, fatigue strength, prestraining influence, stacking fault interpret. *(Russian)* 4−45607

fatigue failure *see fatigue*

fatigue life *see fatigue*

fault currents
- *see also flashover; leakage currents*
- watthour meters, residential, revised standards for increased fault currents 4−46553

fault location
- defect determ. by radiometric method, improvement using two-beam betatron 4−46918

feature extraction *see pattern recognition*

feedback
- *see also control systems; control theory*
- auditory, delayed, studies on the vocalisation of children aged six to 19 months 4−50788
- measurement and feedback as single obligatory course for students 4−65324
- neural population, positive feedback stability considerations 4−68484
- neuron masses, forming feedback loops, steady-state and limit cycle activity, distributed parameter model 4−83304
- nuclear reactor, zero power system, statistical behaviour at criticality 4−81539
- optical pumping inhomogeneity effects in lasers and stimulated scatt. *(Russian)* 4−62824
- point reactor with temperature-Xe feedback, asymptotic stability criterion 4−81540
- pulse amplifier, linear, gain stability for fast pulse input *(Korean)* 4−62534
- thermal reactor prompt Doppler feedback, sensitivity to power shifts 4−78213

Fermi-Dirac statistics *see quantum statistical mechanics*

Fermi gas *see fermion systems*

Fermi level
- alloy, charge transfer, effect of electronegativity, component Fermi energies and atomic vol. 4−78943
- copper phthalocyanine, elec. transport phenomena in δ-model 4−48970
- ferroelectric semiconductor, thermoelectric phenomena 4−64106
- Hall coefficient rate of change, estimation using Fermi energy 4−60784
- II-VI semiconductors, X-ray photoemission obs. of band struct. 4−53044
- III-V semiconductors, X-ray photoemission obs. of band struct. 4−53044
- impure semiconductor, carrier conc. and Fermi level, formulae 4−82359
- metal, virtual localised states near Fermi level, Friedel sum rule 4−53024
- nonmetallic solid, energy level measurement, rel. to photosensitisation 4−54072
- photoelectron spectroscopy, reference levels, binding energy meas. 4−73236
- TCNQ compounds density of occupied states determ. by u.v. photoemission 4−61275
- transition metal monoborides, iron-group, energy bands, K-spectra 4−53546
- Bi-Sb alloys, nonlinear band parameters investig. using Shubnikov-de Haas oscill. meas. 4−64015
- CdTe, compressed, rel. to dislocation effects on dark cond. and photocond. 4−60826
- GaAs:Si, effect on Si site distrib. 4−60753
- Ge, temperature effects with various donor and acceptor concentrations 4−44918
- $GeSb_4Te_7$, calc. from electrical props. 4−44922
- NbC, band struct. and charge densities, nonlocal pseudopotential calc. 4−79289
- NbN, band struct. and charge densities, nonlocal pseudopotential calc. 4−79289
- $Sb_{1-x}Te_x$, amorphous film, rel. to optical and transport props. 4−44824
- Si, amorphous film, rel. to field induced cond. changes 4−64143
- Si, polycryst. field plate in m.o.s. struct., work function difference obs. 4−60870
- Si m.o.s. device, rel. to peaked struct. in field effect mobility below 4K 4−82485
- SmS(Se), semiconds., and $Sm_{0.5}Y_{0.5}S$ metal, photoemission spectra localised states, valence mixing investig. 4−61273
- V-Cu(Al)(Si)(Sn) alloys, electronic states and supercond. props., comp. effects 4−64152
- W, spin-orbit induced surface resonance 4−60845
- $W_{1-x}Nb_xSe_2$ quasi-binary alloys, elec. cond. mechanism and band model 4−60791

Fermi liquid *see fermion systems*

Fermi resonance
- methanol, deuterated, i.r. spectra in Ar matrix, Fermi resonance shift, force field 4−48039
- methyl cyanide and deuterated analogue, Fermi reson. shifts, predicted vibr. spectra 4−48042
- CH_3I-CD_3I, solid soln., exciton splitting in Fermi reson. region 4−70297
- $CaCO_3$, bound and dissociating two phonon states under Fermi reson. conditions 4−79732

Fermi surface
- alkali metal, electrical resistivity at low temps., general theory 4−64064
- alkali metal, volume depend. of electron-ion coupling determ. from resistivity 4−60749
- α-brass, Fermi surface investigation by positron annihilation 4−82350
- critical temperature, superconductor rel. metal props., effect of Brillouin zones 4−69980
- cubic crystal, quasi-localised representation of electronic band struct. 4−67151
- disordered alloy, Landau levels, de Haas-van Alphen effect 4−64008
- ferromagnet, oscillations of a degenerate electron liquid, conductivity tensor calc. 4−79471
- ferromagnetic metal, exchange splitting temp. depend., Stoner excitation, de Haas-van Alphen effect 4−48895
- free electron-like conductors, approx. sum rule for de Haas-van Alphen freq., extended zone scheme 4−48896

Fermi surface continued
- graphite, diamag. susceptibility calc., trigonal warping 4−60944
- linear chain crystal, rel. to phonon dispersion and instability 4−44623
- metal, anisotropic, effect on cyclotron waves 4−53034
- metal, diameter, rel. to electron focusing 4−82356
- metal, f.c.c., b.c.c., h.c.p., geometrical plane wave parametrization, fermi surfaces 4−72682
- metal, f.c.c., radius rel. to elec. cond. 4−44890
- metal, noncompensated, doppleron spectrum model using arbitrary dispersion law 4−49028
- metal, one dimensional, with half filled band, finite charge renormalization 4−75772
- metal, simple, one-particle property calc., linearized effective exchange and correlation potentials 4−79257
- metal, thin plate, rel. to galvanomagnetic props. 4−79335
- metal, thin plates, cyclotron reson. in strong mag. fields *(Russian)* 4−67155
- metal with closed Fermi surface, transverse elec. cond. in strong mag. field, low temp. *(Russian)* 4−72756
- metal with electron transition, rel. to press. effects on spin-lattice relax. *(Russian)* 4−67486
- metal with nonellipsoidal Fermi surface, Azbel-Kaner cyclotron reson. line shape, tipping effects 4−64011
- metals in magnetic field, resonance oscillations of sound wave amplitudes for selected points *(Russian)* 4−79283
- nuclear proton shell structure of mass 28-32 nuclei 4−71926
- nuclear surface structure and gamma vibrations 4−55761
- semiconductor, graphical construction method 4−44919
- superconductor with strong bonding, Fermi surface topology influence on thermodynamic props. *(Russian)* 4−70094
- Umklapp surface reflection, refl. coeff. for cond. electrons 4−53137
- Ag, temp. modulation of optical transitions involving Fermi surface, theory 4−79745
- Ag, temp. modulation of optical transitions involving Fermi surface, expt. 4−79746
- Ag hydrostatic press. effects 4−79271
- Ag-based dilute alloy, rel. to calc. of anisotropic de Haas-van Alphen lifetimes 4−53031
- Ag-Zn, de Haas-van Alphen effect, frequency meas. using modulation technique 4−44834
- Al, Doppler shifted cyclotron resonance study, multiple dopplerons *(Russian)* 4−82357
- Al, electron-phonon interaction model, mass enhancement, transport scattering and resistivity calc. 4−82387
- Al, electron-phonon scattering times 4−53075
- Al, magnetoconductivity, pseudopot. Fermi surface model 4−48964
- Al, quantum oscillations in thermoelectric power 4−67203
- Al, stress depend., oscillatory magnetostriction 4−82355
- Al-Mn(Co)(Ni)(Cu) alloys, rel. to soft X-ray emission spectra 4−64445
- As-Sb alloy, model using magnetoresistivity data 4−49003
- Au hydrostatic press. effects 4−79271
- Au-based dilute alloys, rel. to calc. of anisotropic de Haas-van Alphen lifetimes 4−53031
- $AuPb_2$, high field magnetoresistance in oriented crystallites, open orbits obs. 4−48966
- AuSn, augmented plane wave calc., partially relativistic 4−72687
- Bi, from magnetoresistance ang. depend., tensor components 4−60812
- Bi, mag. focusing of electrons and holes 4−82361
- Co, de Haas-van Alphen effect 4−57028
- Co, ferromag., spin-orbit coupling effects, review 4−72681
- Cr, imperfect Fermi surface nesting, antiferromagnetic-paramagnetic transition first order, role of harmonics 4−72968
- Cu, Doppler shifted cyclotron reson. and e.m. waves *(Russian)* 4−79282
- Cu, hydrostatic press. effects 4−79271
- Cu, hyperfine properties anal. 4−57410
- Cu, new e.m. mode, dispersion and attentuation calc. 4−82443
- Cu, pure, Fermi surface investigation by positron annihilation 4−82350
- Cu, quasi-localised representation of electronic band struct. 4−67151
- Cu:Ni(Ge)(Au), conduction electron scattering, de Haas-van Alphen 4−64058
- Cu-Ni, positron annihilaton obs., ang. correlation of photons meas. 4−60726
- Cu-Ni alloys, uncertainties in obs. of Fermi surface by positron annihilation 4−48902
- α-CuZn, electronic struct., average-t-matrix approx. 4−53036
- Fe, exchange splitting temp. depend., de Haas-van Alphen freq. variation, 1-4.2K 4−48894
- Fe, ferromag. spin-orbit coupling effects, review 4−72681
- Ga, strong transverse mag. field, transverse sound velocity dispersion rel. to Fermi surface *(Russian)* 4−82358
- Gd, cyclotron masses and mass enhancements determ. 4−44828
- Hg, solid, from APW interpolation 4−53032
- In, Doppler-shifted cyclotron reson., rot. symm. Fermi surface model 4−72692
- In, galvanomagnetic props., anisotropy 4−48964
- In, stress depend., oscillatory magnetostriction 4−82355
- In-Cd, dilute alloy, band-struct. effects on supercond. 4−64156
- K, low field Hall coeff., temp. depend. 4−64060
- Li, electronic structure, Hartree-Fock results 4−72683
- MG, stress depend., oscillatory magnetostriction 4−82355
- Mo, density of states calc. using Slater-Koster interpolation 4−60727
- Nb, cyclotron resonance investigation 4−64012
- Nb, density of states calc. using Slater-Koster interpolation 4−60727
- Nb, magnetoacoustic interaction, polarization selectivity 4−60730
- Nb, non-muffin-tin effects, topology, energy shift 4−60729
- $NbSe_2$, speculations on Fermi surface 4−44841
- Ni, band struct. calc. of momentum density distrib. for positron annihilation and Compton scatt. 4−53038
- Ni, ferromag., spin-orbit coupling effects, review 4−72681
- Ni, spin-orbit coupling effect in energy band calcs. 4−72686
- Os, high mag. field induced torque method 4−69977
- Pb, two-band character of weakening effect during supercond. transition *(Russian)* 4−60899

Fermi surface continued
- Pb-In system, many-band Fermi surface rel. to mech. props. at supercond. transition 4−57209
- Pd, non-muffin-tin effects, topology, energy shift 4−60729
- Pu, and alloys, rel. to evidence for antiphase type struct. 4−48754
- Rb, non-muffin-tin effects, topology, energy shift 4−60729
- Re, l.p. changes, rel. to elastic consts. 4−44584
- Sb, magnetic surface states, microwave resonances 4−57153
- Sn, hydrostatic press. depend. *(Russian)* 4−72694
- Sn, magnetostriction, quantum oscills. under mag. interaction conditions at 0.37K *(Russian)* 4−73009
- Sn, metallic, calc. from RAPW, comparison with expt. 4−79272
- Sn, white, effect of size effects from r.f. meas. 4−48900
- Sn, white, relativistic APW method used as interpolation scheme 4−57030
- TaC-WC, decrease in thermal cond. due to changing electron density conditions 4−73339
- Te, trigonal warping of valence band Fermi surfaces 4−82363
- Ti, augmented-plane-wave calc. 4−48901
- Tl, single crystal, superconducting gap, Fermi surface variation of electron mass renormalisation parameter 4−82513
- Tl superconductor, impurity effect on topology and hence T_c *(Russian)* 4−79448
- V, investig. using magnetothermal oscill. techniques and de Haas-van Alphen effect 4−64018
- VS, calc. by k.k.r. method 4−48912
- VS, hexagonal phase electronic struct. 4−60735
- Y, de Haas-van Alphen effect, Fermi surface model including spin-orbit coupling 4−44827
- YZn, energy bands, Fermi surface, calc. 4−64019
- YZn, model for Hall effect field depend. 4−44900
- Zn, effective masses calc. for cyclotron orbits, temp. depend. electron-phonon interaction 4−75771
- Zn, stress depend., oscillatory magnetostriction 4−82355
- Zn dilute alloys, mag. breakdown effect, rel. to Dingle temp. 4−67152
- Zn-Cd, dilute supersaturated alloy, electronic struct. changes with room temp. ageing 4−53030
- Zr-Mo alloys, supercond. transition temp. mechanism 4−49107

fermion systems
- *see also electron gas; liquid helium-3*
- Bogoliubov transformations, strong, unitary operator properties 4−47410
- bound state system, semiclassical treatment, trajectory calcs. using exact quantum no. 4−55368
- charged Fermi liquid, recoil problem rel. to X-ray edge singularity 4−49491
- closed, excitation energies, direct perturbation calc., Green's function approach 4−51947
- composite fermion particles, appl. of many body theory 4−74417
- correlation function, modified Euler eqn., asymptotic behaviour 4−71420
- current algebra, local, non-relativistic, representations determ. in N/V limit, generating functionals 4−71641
- d-dimensional fermion model and Ising transfer matrix 4−45083
- electron liquid, correlation props. of positron 4−75807
- electron liquid, degenerate, Ichimaru theory 4−43168
- electron liquid, scattering form factors determ. using density functional formalism 4−74415
- electron liquid, spin and density fluctuation coupling through anisotropy 4−60716
- electron liquid, susceptibility sum rule 4−74414
- Euclidean Fermi fields with Hermitean Feynman-Kac-Nelson formula 4−77736
- Fermi fields obeying CAR, strengthened no-go theorem 4−47422
- Fermi gas, ideal two, three-dimens., thermodynamic functions 4−71418
- Fermi liquid, spatial correlations and sum rules 4−74416
- fermi solid, review 4−47222
- fermion/boson mixture thermodynamics, one dimension, repulsive δ-function potential 4−65854
- gas, superconductor, quantum condensation, excitations, Coulomb interaction effects 4−53171
- Hartree-Fock time-dependent problem, bounded two-body interaction, existence proof 4−65821
- hypernetted-chain approximation, dense fluid ground state 4−55372
- isotropic mixture of fermion and bosons, lattice space props. *(Russian)* 4−65822
- liquid, 2-dimens., transport coeffs. 4−75659
- liquid, l.f. polarisation waves, zero sound oscills. 4−75660
- many-particle operator for normal Fermi systems, algebraic study 4−51462
- metal, cyclotron-phase-resonance transmission, Fermi-liq. effects 4−64014
- momentum coarse graining, Fermi systems, finite vol., C*-algebraic formalism 4−74412
- momentum coarse graining, Fermi systems, infinite free space, C*-algebraic formalism 4−74413
- multitail ring diagrams, general integration method *(Russian)* 4−68954
- neutrino sea, power spectrum determ. 4−77560
- noninteracting Fermi gas, liquid-impurity correlation function 4−71422
- one-dimensional model exhibiting anomalous phase transition 4−47216
- relativistic fermion gas interacting through scalar field, Hartree approx., astrophysical importance 4−69115
- spherical nuclei, quasi-particle-phonon coupling using Green's function and diagrammatic approach 4−43479
- spherical nuclei beta-decay, isotopic spin conservation *(Russian)* 4−51798
- spin-1/2, e.m. field soln., anomalous mag. moment 4−47446
- superdense degenerate gas, sound vel. equilib. config., eqn. of state *(Russian)* 4−83171
- superfluid, thermodynamics of flow in degenerate statistical equilibrium *(Russian)* 4−69938
- superfluids, anisotropic, of generalised BCS type, spin dynamics, appl. to ^{3}He 4−56926
- thermodynamic properties, virial expsn. 4−60665

fermion systems continued
Tomonaga model for one-dimensional system of electrons, momentum distrib. at finite temp. 4−55371
two-body correlation function calculation, classical fluid analogy 4−65823
two-component changed particle system in magnetic fields, quantum conservation laws 4−55370
two-component Fermi fluid, Landau theory *(Russian)* 4−79261
two-liquids mixture, microscopic theory with dissipative effects, linearized eqns. and Green functions 4−52951
two-liquids mixtures microscopic theory with dissipative effects, hydrodynamic eqns. 4−52950
variational equations for multiparticle state *(German)* 4−77558
Ge, optical pumping electron-hole drops or exciton mols. 4−53061
^{3}He, fermi solid, review 4−47222
^{4}He, dynamic structure function, exact and certain approximate forms 4−60659
Si, optical pumping electron-hole drops or exciton mols. 4−53061

fermions
see also baryons; fermion systems; leptons
coupled boson-fermion model theories, semi-Euclidean approach 4−59475
critical density for phase transition in gauge theories 4−69111
dual fermion amplitudes, function derivation 4−47542
four-fermion model without antiparticles, renormalization 4−71597
Goldstone, in spontaneous violation of supergauge symmetries 4−51681
massive fermion field of arbitrary spin, Lagrangian formulation of Rarita-Schwinger scheme 4−59491
motion in field of quantized plane wave, anomalous moment *(Russian)* 4−65988
non-Abelian gauge theories, high-energy behaviour for fermion-fermion scatt. 4−47429
pair creation, example of method of imaginary times for periodic fields *(Russian)* 4−47448
pair creation from vacuum by homogeneous electric field in canonical formalism 4−51695
polarized pair annihilation, creation of two pairs *(Russian)* 4−66017
quantized fermion-gravitation interactions, nonrenormalizability 4−74555
spectral properties of mass operator for particles in six dimens. space *(Russian)* 4−74569
spinor character of fermions 4−68924

fermium
No entries

fermium compounds
No entries

ferrimagnetic properties of substances
see also ferrimagnetism; ferrites; garnets
acoustic echo 4−57341
bubble domain film, low velocity wall mass calc. 4−60994
bubble garnet film, dynamic response of domain walls to step change in bias field, −10 to 60°C 4−64248
bubble garnet film, straight and wavelike domain wall motion, high speed photography obs. 4−64249
ferrites, square-loop, radiation stability 4−69824
garnet, compensation wall width and energy, field depend. 4−79535
garnet film, controlled compensation walls and compromise compensation walls, Si annealing technique 4−60995
garnet film, epitaxial, dynamic conversion effects 4−60999
garnet film, liq. phase epitaxial, absence of hard bubbles 4−60991
garnet film, liq. phase epitaxial, hard bubble diameter, bias field and temp. depend. 4−60993
garnet film, low-loss, domain wall dynamics 4−60997
garnet film, transparent, domain wall reson., optical diffr. obs. 4−64250
intrinsic radiation, coupling effect *(Russian)* 4−45151
rare earth $Fe_2(Co_2)$, paramag. moments, Neel model anal. 4−60947
$YFeO_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
YIG, photomag. effects in spinels 4−49038
$Cd_{1-x}Fe_xCr_2S_4$, preparation, electrical and mag. props. 4−44976
$CoCl_2.2H_2O$, metamagnetic behaviour determ. by neutron diffraction 4−53244
$CoCr_2S_4$, magneto-optical props., near i.r. 4−57504
CoO-Fe_2O_3-B_2O_3 system glass-ceramics, mag. characteriz. 4−79545
$CuFe_{2-2x}Ga_{2x}O_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
$CuFe_2O_4$, tetragonally distorted mag. ordering behaviour 4−57342
$CuFe_{2-2x}Zn_xGe_xO_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
$(Eu,Y)_3(Fe,Ga)_5O_{12}$ mag. bubble films, rot. effects on epitaxial growth and mag. characts. 4−45431
$Eu_3Ta_2MgO_9$ and $Eu_3Ta_2MnO_9$, ordering at low temp. *(French)* 4−44512
$Eu_xY_{3-x}Fe_5O_{12}$ film, mag. anisotropy, effect of growth temp. and substrate orientation 4−57329
$Fe(Pd_xPt_{1-x})$ alloy, ferromag. transition, characterisation 4−57273
$FeS_{1+\delta}$, ferrimag. Curie temp., press. effects 4−67367
Fe_7Se_8, Mossbauer obs., 78-460K 4−45216
Gd-Co alloy film, amorphous, for bubble domain and magneto-optical applic. 4−57338
$GdCo_2$, Co hyperfine field, rel. to magnetic structure, temp. depend. 4−70164
$Gd_3Fe_5O_{12}$ film, magnetization processes involving planar compensation walls 4−60996
Li ferrites, $Li_{0.5-x}Me_xFe_{2.5}O_{4+y}$, long-range ordering, octahedral ion contrib. 4−72985
$LiFe_5O_8$, domain struct., transmission electron microscope obs. *(French)* 4−67401
$Li_{0.4}Ni_{0.2}Fe_{2.4}O_4$, long-range ordering, octahedral ion contrib. 4−72985
$LiNiO_2:Ni^{III}$, susceptibility, hyperbolic behaviour *(French)* 4−82552
$MgFe_{2-x}Al_xO_4$ spinel ferrites for magnetic bubble domain memory 4−57308
$MnFe_{2-x}Cr_xO_4$ spinel-ferrites, mag. compensation pts. detection *(Russian)* 4−82566

ferrimagnetic properties of substances continued
$MnFe_2O_4$, inelastic neutron scatt. study of acoustical magnons at room temp. 4−67385
$Mn_xFe_{3-x}O_4$, induced anisotropy by annealing in const. mag. field 4−64231
$Mn_xFe_{3-x}O_4$ spinels, anisotropy above 300K 4−53248
Mn_3O_4-Mn_2SnO_4, susceptibility, magnetisation, Jahn-Teller effect *(French)* 4−70148
NiCoCuM ferrite, piezomagnetic, static magnetic props. 4−64252
$NiCr_xFe_{2-x}O_4$, effect of chem. uniformity on mag. props. 4−49168
$NiFe_2Se_4$, thermal expansion, two anomalies *(Russian)* 4−67054
$PbFe_{12}O_{19}$, strip and bubble domains, Lorentz microscopy obs. 4−60971
$SmTbFeO_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
$TmCo_2$ single spherical crystal, magnetic properties, rel. to crystal axes 4−64194
$TmFeO_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
$(Y,Gd,Tm)_3(Fe,Ga)_5O_{12}$ film, mag. bubble translation, effect of const. in-plane mag. field 4−61002
$(Y,La)_3(Ga,Fe)_5O_{12}$ film, exchange const. and bubble domain wall energies 4−60973
$Y_{3-x}Eu_xFe_{5-y}Ga_yO_{12}$ single crystal, for bubble domain devices, mag. anisotropy and domain wall mobility 4−57314
$Y_{2.4}Eu_{0.6}Fe_{3.8}Ga_{1.2}O_{12}$ film, bubble dynamics, influence of in-plane field 4−61001
YGdAlFe garnet, saturation magnetis., mag. and dielectric loss, Fe content depend. 4−67407
YIG film, exchange stiffness temp. depend. 4−57325
YIG:U, prep., some mag. props. 4−72986
$Y_{3-x}Lu_xFe_5O_{12}$, growth-induced anisotropy, temp. and comp. depend. 4−57303

ferrimagnetic resonance
$Ca_{2.7}Bi_{0.3}Fe_{3.65-x}Cr_xV_{1.35}O_{12}$, mag. props. rel. to crystal field symmetry 4−64267
Li ferrite, characterisation for microwave applications 4−45133
$Y_3Fe_{5-x}Dr_xO_{12}:Cr^{3+}$, mag. props. rel. to crystal field symmetry 4−64267

ferrimagnetism
see also ferrimagnetic properties of substances
antiferrimagnet, low temp. field induced transitions in uniaxial subst. calcs. 4−60954
compensation wall, reln. between orientation and preferred mag. direction 4−53257
disorder in cation distribution, mol. field theory 4−57232
Heisenberg model, antiferromag. impurity levels and effects *(Russian)* 4−67340
Ising model 4−45078
Kagome lattice, spontaneous magnetis. and correl. functions *(Russian)* 4−67320
localised spin wave states in linear spin wave theory 4−60929
magnetocrystalline anisotropy, review 4−76100
magnetostriction, forced, in cubic ferro-, ferri- and antiferromagnets, field depend. 4−67413
powder, ratio of rotational to hysteresis loss 4−79553

ferrite applications
see also ferrite devices
wire spark chamber with memory based on ferrite rings 4−77194
wire spark chambers, filmless takeoff of information 4−74132

ferrite devices
see also ferrite applications
coil core, for generation and detection of mag. field transients, in ferromagnets 4−54995
eddy current inductive probes, effect of ferrite cores 4−64684
memory rings, use with wire spark chambers 4−42903
transducers, magneto-elastic props. of Ni-Zn 400 NN for core *(Russian)* 4−82593

ferrites
see also ferrimagnetic properties of substances; ferrimagnetism; ferrite applications; ferrite devices
alkaline earth-rare earth mixed ferrites, mag. props. *(French)* 4−60951
Bloch domain boundary interaction with e.m. wave 4−79547
complex permeability and permittivity meas. at high temp., 0.1 to 10 GHz time-domain system 4−65498
ferrogarnets, thermophysical props., transition pt. behaviour 4−45107
film, with ferromag. layer, prep., mag. props. *(Russian)* 4−61004
flux growth, review 4−64491
garnet, randomly magnetised, laser radiation propagation 4−70283
glass ceramics containing ferrite phase, suitability as memory material 4−49194
high density, production techniques, properties *(German)* 4−49879
internal evolution of heat, thermoelastic props., thermophys. props. 4−66956
intrinsic radiation, coupling effect *(Russian)* 4−45151
lithium ferrite, from oxides, kinetics of formation 4−67996
magnetic after effect rel. to Ti or Sn substitution 4−64240
magnetic permeability meas., at 5.5 to 12 GHz 4−45131
magnetic permeability tensor, anisotropy in mag. field, invariant theory 4−64229
magnetocrystalline anisotropy, review 4−76100
magnetostatic wave propagation, perpendicular to interface 4−49204
magnetostrictive, stabilization of props., thermomagnetic treatment *(Russian)* 4−61006
orthoferrite, Berg-Barett X-ray topography, reln. between struct. and defects 4−57321
orthoferrite, meas. of intrinsic Faraday rotation and birefringence 4−80865
orthoferrite, n.m.r. hyperfine field anisotropy, orientational phase transition *(Russian)* 4−67471
orthoferrites, weak ferromagnets, nonlinearity of magnetisation 4−57315
partially magnetised, low power loss parameters and high power thresholds meas. at 3 to 16.8 GHz 4−45132
partially magnetised, microwave characterisation 4−64244
permittivity measurements by change of reflection coefficient of resonance cavity *(Chinese)* 4−62488

ferrites continued

- preparation, by coprecipitation method, precip. temp. effect on permeability 4−64623
- rare earth, $LnFe_2O_4$ and $LnFe_3O_7$ type, lattice parameters *(French)* 4−48567
- rare earth orthoferrite mag. symm., second order transition at T_{n2} 4−45121
- rare earth orthoferrites, dipolar interactions 4−82568
- ring core, rectangular hysteresis loop, static model *(Russian)* 4−57310
- spinel structure, propag. of heat energy 4−67072
- square loop, radiation stability 4−69824
- surface e.m. modes, of a ferrite slab 4−61008
- thermal conductivity, ionizing radiation effects, defect model 4−44715
- thin film, X-ray spectral anal. 4−46939
- wavelength modulated relfectivity spectra, exciton and charge transfer effects 4−61175
- Y-containing, formation from metal hydroxides, kinetics 4−53972
- $Ba_3Co_2Fe_{24}O_{41}$, microstruct. changes during sintering 4−76522
- $BaFe_{12-x}Al_xO_{19}$, sublattice magnetisation, temp. depend. 4−57441
- $BaFeO_3$, mag. props. and Mossbauer effect 4−49174
- $BaFe_{12}O_{19}$, elastic moduli from 80-303K, rel. to hysteresis effect 4−82595
- $BaFe_{12}O_{19}$, prep. by wet method *(Japanese)* 4−45414
- $BaFe_{12}O_{19}$ powder, milling effect on intrinsic coercivity 4−64245
- $BaFe_{12-x}Ti_xO_{19}$, $BaFe_{12-y}Sb_yO_{19}$, mag. anisotropy and saturation 4−82579
- $BaNi_2Sc_2Fe_{14}O_{27}$, noncollinear spin ordering, 80 and 293K *(Russian)* 4−67381
- $Ba_{1-y}Sr_yFe_{12-x}Al_xO_{19}$, sublattice magnetisation, temp. depend. 4−57441
- $(Ba_xSr_{1-x})FeO_{3-\delta}$ solid solns., high oxygen press. effects 4−48590
- $Ba_{0.4}Sr_{1.6}Zn_2Y$ ferrite, antiferromag. order, mag. struct. 4−76095
- $Bi_{1-x}La_xFeO_3$, solid soln., elec. and mag. props. 4−57457
- $Ca_2Fe_2O_5$, Fe replacement by group III B elements *(French)* 4−69762
- $CdFe_2O_4$, spinel struct., nucl. quadrupole couplings calc., dipole polarizability of O ion 4−82634
- $Co_2BaFe_{16}O_{27}$, W-type hexaferrite, influence of Co^{2+} ions on magnetostriction 4−73007
- $CoFe_{2-x}Cs_xO_4$ ($x=0.5$; 1; 2) magnetic properties in the range 77K to room temperature, fields up to 12 kOe *(Russian)* 4−82589
- $Co_{1-x}Fe_x{}^{2+}Fe_2{}^{3+}O_4$, image furnace growth, electrical resistivity, low temps. 4−82808
- $CoFe_2O_4$, in high temp. aqueous systems, formation, reduction and oxidation, thermodynamic data 4−45947
- $CoFe_2O_4$, Sb^5-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion specific props. 4−70235
- CoO-Fe_2O_3-B_2O_3 system glass-ceramics, mag. characteriz. 4−79545
- Cu, dielec. props., comp., freq. and temp. depends. 4−57458
- $CuFeO_2$, in high temp. aqueous systems, formation, reduction and oxidation, thermodynamic data 4−45947
- $CuFe_2O_4$, in high temp. aqueous systems, formation, reduction and oxidation, thermodynamic data 4−45947
- $CuFe_2O_4$, tetragonally distorted mag. ordering behaviour 4−57342
- $DyFe_{0.998}Fe_{0.002}O_3$, spin reorientation transitions, mag. props. and n.m.r. *(Russian)* 4−70157
- $DyFeO_3$, domain wall movement asymmetry, deformed surface layer 4−64242
- $DyFeO_3$, melt grown crysts., crystn. vel. effect on uniformity 4−61284
- α-Fe_2O_3, electrical conductivity and thermo-e.m.f. in gas mixtures, O_2, CO_2, SO_2 4−70016
- Fe_3O_4, mag. after-effects 4−70180
- Fe_3O_4, magnetite, momentum and spin density by positron annihilation meas. 4−75773
- Fe_3O_{4+x}, magnetite, thermal spectrum of disaccommodation after low temp. neutron irrad. *(French)* 4−79537
- $HoFeO_3$, dipolar interactions 4−82568
- $LaFe_{12}O_{19}$, anisotropy and saturation 4−82579
- $LaFe_{12}O_{19}$, Mossbauer effect obs. 4−82644
- Li, for microwave applications 4−45133
- Li, ion ordering influence on pulse props. 4−67395
- Li ferrite with rect. hysteresis loop, Co addition, dynamic unidirectional anisotropy 4−57304
- Li ferrites, $Li_{0.5-x}Me_xFe_{2.5}O_{4+y}$, ($Me=Fe,Co,Na$), long-range ordering, octahedral ion contrib. 4−72985
- $Li_{0.5(1-x)}Co_xFe_{1.9+0.1x}Al_{0.6(1-x)}O_4$, ferromag. reson., elastic stress depend. *(Russian)* 4−57381
- $LiFe_5O_8$, cation stacking faults, h.v. electron microscope obs. 4−66927
- $LiFe_5O_8$, domain struct., transmission electron microscope obs. *(French)* 4−67401
- $LiFe_5O_8$, processing and properties, effects of sintering, temp., and stoichiometry 4−70549
- $LiFe_5O_8$, Sb^{5+}-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion-specific props. 4−70235
- $LiFe_5O_8$ and $LiFe_{4.7}Mn_{0.3}O_8$, prep. technique and calcination temp. effect on densification 4−61480
- $Li_{0.5}Fe_{2.5}O_4$, impurity effects on phase transition 4−52889
- $Li_{0.5}Fe_{2.5}O_4$:Ru, photomagnetic effects obs. 4−60985
- LiNa, sintering kinetics 4−67898
- $Li_{0.4}Ni_{0.2}Fe_{2.4}O_4$, long-range ordering, octahedral ion contrib. 4−72985
- LiTiZn, mol. field coeffs. of Ti^{4+}, Zn^{2+} 4−82557
- LiZn, resist. and Curie pt., comp. depend. 4−53232
- $Lu_2Fe_3O_7$, lattice parameters *(French)* 4−48567
- Mg, effect of non-magnetic ions on Curie temp. 4−53229
- Mg ferrite, $MgFe_{2-x}Sc_xO_4$, X-ray and Mossbauer spectra, change in electronic struct. of Mg and Sc ions *(Russian)* 4−45379
- $MgFe_{2-x}Al_xO_4$ spinel ferrites for magnetic bubble domain memory 4−57308
- $MgFe_{2-x}In_xO_4$, effect of In^{3+} ions on K-line shifts *(Russian)* 4−49482
- $MgFe_2O_4$, polycryst., elastic behaviour, mag. field effect 4−61009
- MgMn, film domain substructure obs. 4−79548
- MgNi, high-temp. X-ray structure anal. 4−79165
- MgO-Al_2O_3-Fe_2O_3 system, nonstoichiometric ferrites, phase comp. 4−67896

ferrites continued

- MgZn high-temp. X-ray structure anal. 4−79165
- Mn, spin-spin relaxation and formation of multiple echoes 4−49259
- Mn ferrite, $MnFe_{2-x}Sc_xO_4$, X-ray and Mossbauer spectra, change in electronic struct. of Mn and Sc ions *(Russian)* 4−45379
- Mn-Zn alloys, hot-pressed, e.m. props. *(Russian)* 4−45259
- $MnFe_{2-x}Cr_xO_4$ spinel-ferrites, mag. compensation pts. detection *(Russian)* 4−82566
- $MnFe_2O_4$, cation distrib., temp. depend. 4−48562
- $Mn_{1-x}Fe_{2+x}O_{4+\delta}$, lattice const. and nonstoichiometry obs. 4−69769
- $Mn_xFe_{3-x}O_4$, induced anisotropy by annealing in const. mag. field 4−64231
- $Mn_xFe_{3-x}O_4$ spinels, mag. anisotropy above 300K 4−53248
- MnO-Fe_2O_3(-PbO)-B_2O_3(-SiO_2) system, glass form. boundaries and crystn. tendency 4−53817
- MnZn, prep. and In_2O_3 additions effect on phys. props. 4−49912
- $MnZnFe_2O_4$, elastic moduli from 80-303K, composite piezoelectric oscillator meas. 4−82595
- $Na_{0.036}Li_{0.464}.Fe_{2.5}O_{4-y}$ effects on rate of redox reaction during reheat treatment of magnetic ceramics 4−70544
- Ni, spin wave props., effects of Co admixtures and Zn substitutions 4−67387
- Ni-Fe, disaccommodation, obs. of decrease of relax. with addition of Ti 4−53225
- Ni-Sc, conc. depend. of lattice const., rel. to mag. props. *(Russian)* 4−61007
- Ni-Zn 400 NN, magneto-elastic effect investigation and appl. *(Russian)* 4−82593
- NiCoCuMn, piezomagnetic, static magnetic props. 4−64252
- $NiCr_xFe_{2-x}O_4$, effect of chem. uniformity on mag. props. 4−49168
- NiFe, diffusion coefficients for ^{63}Ni as a function of temp. *(French)* 4−44709
- $NiFe_{2-x}Cr_xO_4$ system, electron config. of Fe ions *(Russian)* 4−67502
- $NiFe_{2-x}In_xO_4$, effect of In^{3+} ions on K-line shifts *(Russian)* 4−49482
- $NiFe_2O_4$, in high temp. aqueous systems, formation, reduction and oxidation, thermodynamic data 4−45947
- $NiFe_2O_4$, polycryst., elastic behaviour, mag. field effect 4−61009
- NiZn ferrite, Co substituted, temp. depend. of mag. props. 4−73001
- NiZn ferrites:Co^{3+}, mag. relax. process investigation 4−67360
- NiZn ferrites:Co^{3+}, prep. for mag. relax. meas. 4−67906
- NiZnCo ferrite film, rotatable mag. anisotropy const. determ. 4−70176
- $NiZnFe_{12}O_4$, elastic moduli, 80-303K, composite piezoelectric oscillator meas. 4−82595
- $Ni_{0.35}Zn_{0.65}Fe_2O_4$ films, arc plasma sprayed on alumina substrates, prod. and microstruct. characteriz. 4−61494
- $SmFe_{1-x}Al_xO_3$, mag. anomaly, compensation pt., induced moments 4−79502
- $SmFeO_3$, $Sm_{0.55}Tb_{0.45}FeO_3$, thermodynamic props. 4−70413
- $SmTbFeO_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
- Sr ferrite powder, depend. of coercive force on packing density 4−45153
- $SrFe_{12-x}Ga_xO_{19}$, sublattice magnetisation, temp. depend. 4−57441
- $SrO(6-x)Fe_2O_3xAl_2O_3$, Mossbauer effect, mag. sublattices 4−45223
- $7SrO.5Fe_2O_3$, X-ray characteriz. 4−48577
- $SrO.(6-x)Fe_2O_3.xAl_2O_3$ solid soln. cryst., cryst. growth and characteriz. *(Japanese)* 4−49575
- $TbFeO_3$, $Sm_{0.55}Tb_{0.45}FeO_3$, thermodynamic props. 4−70413
- $TmFeO_3$, Faraday effect, various directions of weak ferromagnetic moment *(Russian)* 4−82690
- $TmFeO_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
- $YFeO_3$, dipolar interactions 4−82568
- $YFeO_3$, domain wall movement asymmetry, deformed surface layer 4−64242
- $YFeO_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
- $YFeO_3$, weak ferromagnet, nonlinearity of magnetisation 4−57315
- $YFeO_3$ particles, domain struct. and mag. props. below single-domain crit. size *(Russian)* 4−73003
- $Y_3Fe_5O_{12}$, critical mag. parameters, scaling functions *(Russian)* 4−64219
- YIG, Sb^{5+}-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion-specific props. 4−70235
- $(Yb,Eu)Fe_2O_4$, lattice parameters *(French)* 4−48567
- Zn ferrite, preference of Fe and Zn ions for octahedral or tetrahedral sites, theoretical calc. 4−69767
- $Zn_2BaFe_{16}O_{27}$, W-type hexaferrite, field depend. of magnetostriction 4−73007
- $ZnFe_2O_4$, spinel struct., nucl. quadrupole couplings calc., dipole polarizability of O ion 4−82634
- $Zn_{0.68}Ni_{0.32}Fe_2O_4$, mag. transform. and p-n transition, neutron field induced 4−57280

ferroacoustic resonance

- bulk ferromagnet, acoustic reson. and dispersion, magnetoelastic interactions, theory 4−64266
- metal, u.s. absorpt. meas., magnetisation directional softness versus acoustic ferromag. reson. model 4−61013

ferroelasticity

see also plastic deformation; solid-state phase transformations

- β-brass, shape memory effect, model 4−82838
- concept explanation, materials and phase change characteristic study, applics. *(French)* 4−75561
- domain wall model 4−75562
- faintness index, group theory interpretation 4−44641
- ferroics, secondary, symmetry, ferroelastoelectricity, and ferrobielasticity 4−73085
- hard and soft vibrational mode condensation, faintness index for ferroelectricity and ferroelasticity 4−79134
- magnetoelectric research, importance of ferroelasticity 4−82540
- secondary ferroics, symm. 4−73084
- $Ba_2NaNb_5O_{15}$, ferroelec. and ferroelastic transitions, DTA obs. 4−61114
- Cu-Si-Mn alloy, shape memory effect possibility 4−49810
- Gd_2O_3-MoO_3 system, phase diag. and props. 4−48739
- In-Tl alloys, lattice softening and martensitic transform. 4−79921

ferroelasticity continued
  $Pb_3(PO_4)_2$, α and β phases, Raman spectrum, ferroelastic transition 4−67592
ferroelectric devices
  $(Pb,La)(Zr,Ti)O_3$ ceramic, elec. controlled secondary phase applic. 4−67540
ferroelectric domains *see electric domains*
ferroelectric materials
  see also antiferroelectric materials; ferroelectric phenomena
  bibliography, April to June 1973 4−64348
  bibliography, July to Oct. 1973 4−70269
  c $Cd_2(NH_4)_2(SO_4)_3$, improper ferroelec., birefringent and electrooptical props. 4−70280
  ceramic, permittivity estimation from single cryst. data 4−70266
  ceramic discs, thin, piezoelec., pyroelec. and dielec. props. 4−64355
  dicalcium lead propionate, II-III transitions, critical points, dielectric constant meas. 4−82674
  dicalcium strontium propionate, II-III transitions, critical points 4−82674
  dicalcium strontium propionate, paraelec. electrostriction 4−73077
  dielectric constants near field induced critical point 4−76225
  displacive, below T_c, Raman measurement 4−67541
  ferroics, secondary, symmetry, ferroelastoelectricity, and ferrobielasticity 4−73085
  ferromagneto-electric crystal, magneto-electric susceptibility and polarisation to magnetisation ratio 4−82555
  Frenkel exciton generation by electron beam *(Russian)* 4−67191
  guanidinium aluminium sulphate hexahydrate, optical second harmonic generation 4−51634
  hydrogen-bonded, de Gennes' model, SCF approx. *(Russian)* 4−73092
  hydrosodalite, phase transition, dielectric anomaly, domain struct. 4−82677
  lithium ammonium tartrate, potential field acting on H, calc. 4−66853
  magnetoelectric, possible appl., review 4−76028
  Mossbauer spectra, elec. field effect, domain structure *(Russian)* 4−79660
  orthophosphate type, proton ordering, theory *(Russian)* 4−73091
  photoelasticity, meas. by light diffr. on ultrasound 4−61132
  photoferroelectric, photoinduced birefringence variations *(French)* 4−49326
  2,2,6,6-piperidine N-oxide nitroxide radical, cryst. struct. of tetragonal disordered phase investig., transitions *(French)* 4−75514
  2,2,6,6-piperidine N-oxide nitroxide radical, polymorphism and phase transitions investig. *(French)* 4−75513
  quartz, three crystal X-ray spectrometer anal. 4−53383
  rare earth oxyfluorides, new compounds, ferroelec.-paraelec. transition *(French)* 4−57483
  Rochelle salt, Be-doped, internal bias 4−82672
  Rochelle salt, low temp. phase transition 212K *(Russian)* 4−76232
  Rochelle salt, nucleation model for domain wall motion 4−61118
  Rochelle salt, permittivity dispersion, 1 Hz to 300 GHz 4−79687
  semiconductor, temp. depend. of band struct. 4−64020
  semiconductor, thermodynamic description of phase transition 4−64336
  semiconductor, thermoelectric phenomena 4−64106
  spontaneous polarisation, contact charging 4−79400
  structural phase transitions, soft-mode spectroscopy, review 4−56851
  triglycine fluoroberyllate, Curie point, polarisation, high press. 4−70263
  triglycine selenate, freq. depend. of fluctuation type sound absorption 4−79689
  triglycine selenate, press.-temp. phase diagram 4−79682
  triglycine selenate, thermodynamics of ferroelectric transition near triple point 4−73087
  triglycine selenate crystals, piezoelec. and elastic expts. in region of phase transforms. *(German)* 4−57478
  triglycine sulphate, calc. of Curie point shift during diffuse scatt. of X-rays 4−49310
  triglycine sulphate, compressed powders, dielectric const. meas. 0-90°C, ferroelectricity obs. 4−79683
  triglycine sulphate, cryst. growth from soln., effect of mag. field on cryst. quality *(German)* 4−57678
  triglycine sulphate, Curie point, polarisation meas. at high press. 4−70263
  triglycine sulphate, dispersion of permittivity in vicinity of phase transition 4−49311
  triglycine sulphate, effect of local electric fields on AgCl crystal orientation *(Russian)* 4−69966
  triglycine sulphate, ferroelec. domain delineation etching versus pyroelec. laser technique 4−49285
  triglycine sulphate, fragment loss in vacuum, permittivity, loss and resist. changes 4−70247
  triglycine sulphate, freq. depend. of fluctuation type sound absorption 4−79689
  triglycine sulphate, incident electron energy effect on ferroelectric props. 4−64338
  triglycine sulphate, localized irreversible thermal switching by laser 4−70264
  triglycine sulphate, selenate, refl. spectra meas., temp. induced changes through Curie point 4−79752
  triglycine sulphate, switching, forward velocity of domain walls 4−70262
  triglycine sulphate, vibr. plate as i.r. detector 4−71165
  triglycine sulphate, v.p. below 130°C, struct. disintegration 4−69903
  triglycine sulphate film, depolarisation field induced instability 4−45237
  tris-sarcosine calcium chloride, Raman and i.r. spectra at transition 4−53434
  $AgNa(NO_2)_2$, elec. field gradients at ^{23}Na sites, point charge model calc. 4−67534
  AsSI, crystn. in As-S-HI-H_2O system 4−49627
  $(Ba,Sr)TiO_3$, solid soln., dielectric dispersion investigation in ferroelectric phase 4−64341
  $Ba_2AgNb_5O_{15}$, cryst. growth, lattice consts., ferroelectric props. and microtwin struct. 4−70409

ferroelectric materials continued
  $Ba_xLi_{5-2x}Nb_{5(1-y)}Ta_{5y}O_{15}$, crystallographic, dielectric and nonlinear opt. props. *(French)* 4−64353
  $Ba_2NaNb_5O_{15}$, ferroelec. and ferroelastic transitions, DTA obs. 4−61114
  $Ba_2NaNb_5O_{15}$, fluorine substitution effect on ferroelec. Curie pt. and dielec. const. *(French)* 4−76230
  $Ba_2NaNb_5O_{15}$, phenomenological theory of phase transition 4−67537
  $Ba_2NaNb_5O_{15}$, sintered, SEM obs. of morphological changes 4−61495
  $Ba_{0.25}Sr_{0.75}Nb_2O_6$, photoconductivity and photo-e.m.f. investigation 4−57141
  $Ba_{0.5}Sr_{0.5}Nb_2O_6$, temp. depend. of forbidden-band width in phase transition region 4−79754
  $Ba_{0.97}Sr_{0.03}TiO_3$, growth and dielec. props. 4−49573
  $BaTiO_3$, $(Ba,Pb)TiO_3$, 90° domain wall thickness meas. 4−61115
  $BaTiO_3$, cryst. struct., low temp. rhombohedral phase 4−69763
  $BaTiO_3$, dielectric dispersion investigation in ferroelectric phase 4−64341
  $BaTiO_3$, electrical conductivity mechanisms 4−64076
  $BaTiO_3$, electron microscope obs. of shear surface decoration patterns *(Russian)* 4−73082
  $BaTiO_3$, ferroelectric-semiconductor, photocond. review 4−64112
  $BaTiO_3$, grain-size effect on dielec. and piezoelec. props. 4−76222
  $BaTiO_3$, heat capacity near elec. crit. point *(Russian)* 4−49315
  $BaTiO_3$, i.r. absorption spectra and ferroelectricity investigation 4−76252
  $BaTiO_3$, initial sintering kinetics, influence of Ba/Ti ratio 4−45748
  $BaTiO_3$, obs. of antiparallel polarization, nondestructive pyroelec. method 4−53359
  $BaTiO_3$, permittivity dispersion at ferroelec. transition, obs. at 7 to 15 cm^{-1} 4−57490
  $BaTiO_3$, secondary effects accompanying movement of 180° α domains 4−49314
  $BaTiO_3$, spontaneous deformation of vacuum condensates obs. in reln. to ferroelectric props. 4−57013
  $BaTiO_3$, spontaneous electrooptical absorption 4−76237
  $BaTiO_3$, tetragonal, mobility anisotropy in small polaron model 4−64075
  $BaTiO_3$, u.v. illumination effect on switching processes 4−64342
  $BaTiO_3$, unipolar crystal, state of polarisation in surface layer and pyroelectric responses 4−64334
  $BaTiO_3$, X-ray critical scattering around [005] reciprocal lattice point 4−60585
  $BaTiO_3$ composite ceramics, two-step positive temp. coeff. of resist. 4−48986
  $BaTiO_3$ film, preparation by r.f. sputtering 4−49560
  $BaTiO_3$ film obtained by cathode sputtering, ferroelec. props. investigation 4−49098
  $BaTiO_3$ three crystal X-ray spectrometer anal. 4−53383
  $BaTiO_3$:CuO, semicond., PTC effect below the Curie temp. *(German)* 4−82412
  $BaTiO_3$-MoO_3 system, dielec. const., loss tangent, ferroelec. props. and elec. conductivity 4−45226
  BiSI, ferroelectric semiconductor, photoluminesc. obs. at 80K 4−67634
  $Bi_xSb_{1-x}SeI$ solid solns., paraelec.-ferroelec. transition temp. determ. 4−70047
  $Bi_4Ti_3O_{12}$, domain switching, impurity control 4−61113
  $Bi_4Ti_3O_{12}$, nucleation site drift, depoling 4−70268
  $CaB_3O_4(OH)_3.H_2O$, critical behaviour, ^{11}B spin-lattice relax. obs. 4−79684
  CaF_2, hysteresis loop, birefringence 4−53380
  $Ca_2Nb_2O_7$ single crysts., ferroelec. props. 4−64351
  $Co_3B_7O_{13}Cl$, improper ferroelec., optical absorpt. edge in transition region 4−45257
  $Cr_3B_4O_{13}Cl$, absorpt. spectra, 2000-30000 cm^{-1}, 77-450K 4−76271
  $Cr_3B_7O_{13}Cl$, improper ferroelec., optical absorpt. edge in transition region 4−45257
  CsH_2AsO_4, Raman spectrum, ferroelec. mode, mol. struct. 4−79728
  Cs_2HAsO_4, cryst., ferroelec., n.m.r. study of high temp. struct. phase transitions 4−53379
  CuB_2O_4, absorpt. spectra, 2000-30000 cm^{-1}, 77-450K 4−76271
  $Cu_3B_7O_{13}Cl(Br)$, absorpt. spectra, 2000-30000 cm^{-1}, 77-450K 4−76271
  D_2AsO_4, determination of complex structure by neutron scattering measurements 4−67535
  $Fe_3B_7O_{13}Br$, $Fe_3B_7O_{13}Cl$, improper ferroelec., optical absorpt. edge in transition region 4−45257
  $GdDy(MoO_4)_3$, loss tangent permittivity meas. from 8.78 to 12.26 GHz 4−61117
  $Gd_2(MoO_4)_2$, domain boundaries, antiphase boundaries, dislocations 4−82678
  $Gd_2(MoO_4)_3$, electric field effect on ferroelectric transition temp., obs. by u.s. method *(French)* 4−61121
  $Gd_2(MoO_4)_3$, light scatt. by acoustic waves 4−79701
  Gd_2O_3-MoO_3 system, phase diag. and props. 4−48739
  KD_2PO_4, elastic consts. d elastic wave absorpt., 20-190°C 4−52804
  KD_2PO_4, quadratic-monoclinic transition, 386K *(French)* 4−56875
  KD_2PO_4, struct. and eff. of phase transitions on combination scattering spectrum 4−64349
  KD_2PO_4, symm. in paraelec. and ferroelec. phases, far i.r. and Raman spectra obs. 4−49347
  KH_2AsO_4, n.m.r. of ^{39}K 4−57424
  KH_2AsO_4, Raman spectrum, ferroelec. mode, mol. struct. 4−79728
  KH_2AsO_4, transverse susceptibility investigation 4−64354
  $K(H_{1-x}D_x)PO_4$, effect of deuteration on ferroelec. transition temp., D distrib. coeff. meas. 4−61111
  KH_2PO_4, coupled proton-optic-mode model evaluation using Raman scatt. meas. 4−76229
  KH_2PO_4, cryst., ferroelec., n.m.r. study of high temp. struct. phase transitions 4−53379
  KH_2PO_4, elastic consts. and elastic wave absorpt., 20-190°C 4−52804
  KH_2PO_4, ferroelec. transition, elastic anomaly, Brillouin scatt. obs. 4−49309
  KH_2PO_4, paraelectric phase, Raman spectra temp. depend. 4−57509
  KH_2PO_4, transverse susceptibility investigation 4−64354
  KH_2PO_4, vacuum u.v. reflection spectra obs. 4−76267

ferroelectric materials continued
KH_2PO_4 type, statistics in cluster approximation 4−53384
KH_2PO_4 type ferroelectrics, soft acoustic mode, pseudo spin-phonon coupled model 4−82254
$KH_2PO_4{:}Cr^{3+}$, relax. internal friction, obs. and defect model 4−82222
$KH_2PO_4{:}CrO_4^{2-}$, electronic spectra obs. 4−70331
KIO_3, 120° shift in ferroelectric polarisation, and characteristics 4−82676
$KNbO_3$, half-wave voltages, electro-optic and polarisation-optic coeffs. 4−67555
$KNbO_3$, orthorhombic, dielec., mechanical and optical props. 4−70248
$KNbO_3$, orthorhombic, ferroelec. transition, inelastic neutron scatt. obs. 4−67536
$KNbO_3$, orthorhombic single crysts., refr. indices and nonlinear optical coeffs. 4−74524
$KTa_xNb_{1-x}O_3$, anisotropy in paraelectric vibrational amplitudes 4−69865
$LiH_3(SeO_3)_2$, $LiD_3(SeO_3)_2$, pyroelectricity, magnitude and direction 4−82670
$LiNbO_3$, electron microscope obs. of shear surface decoration patterns *(Russian)* 4−73082
$LiNbO_3$, heating effects on elec. field appl. *(Russian)* 4−49307
$LiNbO_3$, photoconductivity and photo-e.m.f. investigation 4−57141
$LiNbO_3$, single cryst., ferroelec. domains X-ray anal. *(German)* 4−76224
$LiTaO_3$, struct. phase transition, pulsed ^7Li n.m.r. obs. 4−67013
$Mg_3B_7O_{13}Cl$, improper ferroelec., optical absorpt. edge in transition region 4−45257
$ND_4D(ClCH_2COO)_2$, ferroelec. transition Raman and i.r. studies 4−82671
$(NH_4)_2BeF_2$, thermo-optical and dielec. props. near ferroelec. T_c 4−82679
$(NH_4)_2BeF_4$, ferroelectric, hydrostatic press. effects on phase transitions 4−64352
$NH_4H(ClCH_2COO)_2$, ferroelec. transition, Raman and i.r. studies 4−82671
$NH_4H_2PO_4$, cryst., ferroelec., n.m.r. study of high temp. struct. phase transitions 4−53379
$NH_4H_2PO_4$, vacuum u.v. reflection spectra obs. 4−76267
$(NH_4)_2SO_4$, far i.r. spectra in para- and ferroelectric phases *(French)* 4 −79723
$(NH_4)_2SO_4$, pseudoproper ferroelec., far i.r. transmission and refl. 4−70291
$Na_{0.5}Bi_{4.5}Ti_4O_{15}$, ferroelectric ceramic with layer struct., piezoelectric props. 4−82668
$NaH_3(SeO_3)_2$, γ-irrad., formation of monoclinic γ-phase below T_c 4−49313
$NaNH_4SeO_4.2H_2O$, pulsed polarisation switching characts. 4−57488
$NaNO_2$, ^{14}N n.q.r., temp. depend., phase transition 4−57422
$NaNO_2$, Brillouin scatt., Neel and Curie temp. regions 4−45288
$NaNO_2$, laminar ferroelec. domains, second harmonic light scatt. 4−55521
$NaNO_2$, molecular field theory of long range order parameter 4−76226
$NaNO_2$, order parameter, theory of molecular field approx. 4−49308
$NaNbO_3$, cation displacements, octahedral tilts, X-ray differnce refl. 4−69764
^{23}Na, n.m.r. $AgNa(NO_2)_2$, dielectric const. ferroelectric dispersion and spin-lattice relax. 4−64356
$Nd_2Ti_2O_7$, ferroelec., electrooptic and piezoelec. props. 4−76223
$ObBi_4Ti_4O_{15}$, ferroelectric ceramic with layer struct., piezoelectric props. 4−82668
$(Pb_{0.985}, Bi_{0.015}), (Zr_{0.53}, Ti_{0.42})O_3$, ferroelectric ceramic, reln. between thermoelectret and ferroelectric polarisation 4−67533
$(Pb,La)(Zr,Ti)O_3$, β-phase, field induced microstructure obs. 4−63829
$(Pb,La)(Zr,Ti)O_3$, ceramics, polymorphic phase 4−63924
$(Pb,La)(Zr,Ti)O_3$, pyroelec. detector, radiation absorption 4−73109
$(Pb,La)(Zr,Ti)O_3$ ceramic, elec. controlled secondary phase 4−67540
$(Pb,La)(Zr,Ti)O_3$ ceramic, with diffuse transition region, phase relations and dielec. props. 4−70272
$(Pb,La)(Zr,Ti)O_3{:}Nb,Fe$, photochromic effect, transmission spectra 4−76233
$PbBi_2Nb_2O_9$, ferroelectric ceramic with layer struct., piezoelectric props. 4−82668
$Pb(Fe_{0.5}Nb_{0.5})O_3$, ferroelec. antiferromagnet, magnetoresist. 4−53111
$Pb(Fe_{0.5}Nb_{0.5})O_3\text{-}BiFeO_3$, magnetic ferroelectrics, adiabatic calorimeter heat capacity meas., entropy and enthalpy evaluation 4−82673
$Pb_3Ge_2O_7$, single cryst. props. 4−79669
$Pb_5Ge_3O_{11}$, Curie temp., hydrostatic press. effect 4−57482
$PbHPO_4$, $PbDPO_4$, transition temps., spontaneous polarization 4−70260
$PbMg_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, temp. depend. of absorption coeff. 4−64394
$PbMg_{1/3}Nb_{2/3}O_3$ crystal, i.r. and Raman vibr. spectra obs. in ferroelec., paraelec. phases 4−79730
$(PbO)_5.(GeO_2)_3$, growth from melt, optical and elec. props. 4−82829
$Pb_{0.3}Sr_{0.7}TiO_3$, $Pb_{0.95}Sr_{0.5}.\ Ti_{0.7}Zr_{0.53}O_3$, electron irrad. effect on permittivity *(Russian)* 4−67510
$Pb_{0.95}Sr_{0.05}Zr_{0.53}Ti_{0.47}O_3\text{-}PbO$, elec. cond., 250-500°C 4−64089
$PbTiO_3$, electrical conductivity mechanisms 4−64076
$PbTiO_3$, Mossbauer effect of ferroelectric transitions 4−45215
$PbTiO_3$, reciprocal domain obs. and formation 4−64343
$PbTiO_3$ crystals, domain structure obs. 4−53382
$PbZn_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, temp. depend. of absorption coeff. 4−64394
$Pb(Zr,Ti)O_3$, ceramic, permittivity variation with field 4−70267
$Pb(Zr,Ti)O_3$, grain-size effect on dielec. and piezoelec. props. 4−76222
$Pb(Zr,Ti)O_3$, permittivity, elec. field depend. 4−67513
$Pb(Zr,Ti)O_3$, solid soln., dielectric dispersion investigation in ferroelectric phase 4−64341
$PbZrO_3$, temp. depend. of elec. quadrupole interaction 4−76228

ferroelectric materials continued
$Pb(Zr_{0.40}Ti_{0.60})O_3$, current-voltage characts. in vicinity of phase transition 4−64077
$Pb(Zr_xTi_{1-x})O_3$, solid soln., X-ray exam. near morphotropic phase transition 4−76231
$(Ph,La)(Zr,Ti)O_3$, optical recording of digital data 4−67532
$RbCdCl_3$, phase transforms. *(German)* 4−79680
$Rb(D_xH_{1-x})_2PO_4$, high-temp. phase transition obs. 4−82275
$Rb(D_xH_{1-x})_2PO_4$, low-freq. spectrum of Raman scatt. and tunnelling of protons (deuterons) 4−79733
$RbDSO_4$, ferroelectric phase transition investigation by n.m.r. 4−64350
RbH_2AsO_4, Raman spectrum, ferroelec. mode, mol. struct. 4−79728
RbH_2PO_4, coupled proton-optic-mode model evaluation using Raman scatt. meas. 4−76229
RbH_2PO_4, RbH_2AsO_4, cryst., ferroelec., n.m.r. study of high temp. struct. phase transitions 4−53379
$RbH_3(SeO_3)_2$, superlattice struct., ferroelec. phase 4−57481
$Rb_{1-x}(NH_4)_xH_2PO_4$, NH_4^+ reorientation proton spin-lattice relax. 4−76227
SbSI, absorption coeff. and pleochroism, spectral, temp. and field depend. 4−64395
SbSI, band struct. calc. in para- and ferroelectric phases 4−44844
SbSI, ferroelectric semiconductor, photoluminesc. obs. at 80K 4−67634
SbSI, ferroelectric-semiconductor, photocond. review 4−64112
SbSI, illumination influence on double hysteresis loops near phase transition temp. 4−57487
SbSI, influence of illum. on electromechanical props. 4−64345
SbSI, interrelation between photoelectric and ferroelectric props. 4−64340
SbSI, nonequilibrium carriers effect on polarisation distrib. 4−73090
SbSI, phase transitions under high press., theory 4−64347
SbSI, photo-ferroelectricity effect on hysteresis loop 4−64346
SbSI, thin films, vacuum sublimation, ferroelectric transition obs. 4−82330
SbSI ceramics utilization, comparison with monocrystals *(Russian)* 4−79686
$SbSI_{0.35}Br_{0.65}$, repolarization, influence of illumination, electronic mechanism 4−49312
$SbSI_{1-x}Br_{1-x}$, ferroelectric semiconductor, photoluminesc. obs. at 80K 4−67634
$SbS_xSe_{1-x}I$, ferroelectric semiconductor, optical and dielectric props. 4−67563
$Sn_2P_2S_6$, ferroelectricity, spontaneous polarisation, coercive force 4−73086
SnTe, phase transition obs., Raman scatt. 4−45256
$SrBi_4Ti_4O_{15}$, ferroelectric ceramic with layer struct., piezoelectric props. 4−82668
$Sr_2KNb_5O_{15}$, fluorine substitution effect on ferroelec. Curie pt. and dielec. const. *(French)* 4−76230
$SrTiO_3$, permittivity, press. effect, temp. depend. 4−57456
$Zn_3B_7O_{13}Cl$, improper ferroelec., optical absorpt. edge in transition region 4−45257

ferroelectric phenomena
see also ferroelectric switching; ferroelectricity
crystal, kinetoelec., kinetomag. and ferrokinetic effects 4−76106
domains, possibility of creation with mutually opposite directions of spontaneous polarisation 4−64337
ferroelastic domain wall model 4−75562
ferromagnetic ferroelectric crystal, high freq. props., phenomenological theory 4−76221
ferromagnetics, uniaxial, dispersion relns. for bound ferroelectric, spin, elastic and e.m. waves *(Russian)* 4−53247
Rochelle salt, permittivity dispersion, 1 Hz to 300 GHz 4−79687
screening energy of flat charged domain boundary 4−64339
semiconductor, thermoelectric phenomena 4−64106
triglycine sulphate, compressed powders, particle size 55-500 μm, dielectric const. meas. 0-90°C 4−79683
triglycine sulphate, ferroelec. domain delineation etching versus pyroelec. laser technique 4−49285
triglycine sulphate, incident electron energy effect on ferroelectric props. 4−64338
triglycine-sulphate: Cr^{3+} single crystal, ferroelec. polarization reversal, e.p.r. study 4−70259
unipolar crystal, state of polarisation in surface layer and pyroelectric responses 4−64334
$(Ba,Sr)TiO_3$, solid soln., dielectric dispersion investigation in ferroelectric phase 4−64341
$Ba_2AgNb_5O_{15}$, permittivity, hysteresis and Curie temp. investigation 4−70409
$BaTiO_3$, dielectric dispersion investigation in ferroelectric phase 4−64341
$BaTiO_3$, ferroelectric-semiconductor, photocond. review 4−64112
$BaTiO_3$, unipolar crystal, state of polarisation in surface layer and pyroelectric responses 4−64334
$CaTiO_3$, soft mode in i.r. vibr. spectra meas., potential ferroelec. material 4−57555
KD_2PO_4, symm. in paraelec. and ferroelec. phases, far i.r. and Raman spectra obs. 4−49347
$KNbO_3$, half-wave voltages, electro-optic and polarisation-optic coeffs. 4−67555
$(Pb_{0.985}, Bi_{0.015}), (Zr_{0.53}, Ti_{0.42})O_3$, ferroelectric ceramic, reln. between thermoelectret and ferroelectric polarisation 4−67533
$PbMg_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, temp. depend. of absorption coeff. 4−64394
$PbTiO_3$, reciprocal domain obs. and formation 4−64343
$PbZn_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, temp. depend. of absorption coeff. 4−64394
$Pb(Zr,Ti)O_3$, solid soln., dielectric dispersion investigation in ferroelectric phase 4−64341
RbH_2PO_4 crystal, Raman scatt. obs. 4−73088
SbSI, ferroelectric-semiconductor, photocond. review 4−64112
SbSI, influence of illum. on electromechanical props. 4−64345
SbSI, nonequilibrium carriers effect on polarisation distrib. 4−73090
SbSI, photo-ferroelectricity effect on hysteresis loop 4−64346
$SbS_xSe_{1-x}I$, ferroelectric semiconductor, optical and dielectric props. 4−67563

ferroelectric switching
Rochelle salt, nucleation model for domain wall motion 4−61118
secondary ferroics, symm. 4−73084
triglycine sulphate, forward velocity of domain walls 4−70262
triglycine sulphate, localized irreversible thermal switching by laser 4−70264
$BaTiO_3$, u.v. illumination effect on switching processes 4−64342
$Bi_4Ti_3O_{12}$, depoling influence, nucleation site drift 4−70268
$Bi_4Ti_3O_{12}$, domain switching, impurity control 4−61113
$NaNH_4SeO_4.2H_2O$, pulsed polarisation switching characts. 4−57488
(Pb,La)(Zr,Ti)O_3 ceramic, elec. controlled secondary phase 4−67540
Pb(Zr,Ti)O_3, mechanism for permittivity field depend. 4−70267

ferroelectric transitions
ceramic, ferroelectric-antiferroelectric transition with sharp temp. drop, energy conversion *(French)* 4−61112
copper formate tetrahydrate, proton spin-lattice relax. at antiferroelectric transition 4−61059
critical phenomena, Landau theory 4−61122
Curie temperature, ferroelec. and antiferroelec., log normal probability distrib. 4−62871
d-dimensional isotropic model, mech. anomalies and critical behaviour 4−49175
dicalcium lead propionate, II-III transitions, critical points, dielectric constant meas. 4−82674
dicalcium strontium propionate, II-III transitions, critical points 4−82674
dielectric constants near field induced critical point 4−76225
ferromagnetic ferroelectric crystal, high freq. props., phenomenological theory 4−76221
ferromagnetoelectric switching and twinning, domain struct., crystallography 4−76107
film, theory of phase transition characts. 4−73089
hydrosodalite, phase transition, dielectric anomaly, domain struct. 4−82677
improper ferroelectric, optical absorpt. edge in transition region 4−45257
Ising model, pure dipole interaction 4−61123
microscopic mechanism and properties, electron-phonon interaction, review 4−64335
molecular field Hamiltonian, exact and variational treatments, simple model ferroelec. 4−67539
orthophosphate type material, proton ordering, theory *(Russian)* 4−73091
2,2,6,6-piperidine N-oxide nitroxide radical, cryst. struct. of tetragonal disordered phase investig., transitions *(French)* 4−75514
2,2,6,6-piperidine N-oxide nitroxide radical, polymorphism and phase transitions investig. *(French)* 4−75513
rare earth oxyfluorides, new compounds, ferroelec.-paraelec. transition *(French)* 4−57483
Rochelle salt, low temp. phase transition 212K *(Russian)* 4−76232
semiconducting solid solns., thermodynamic theory 4−64344
semiconductor, thermodynamic description of phase transition 4−64336
semiconductor-ferroelectric, temp. depend. of band struct. 4−64020
soft mode i.r. activity, dielec. anomaly 4−69882
soft-mode spectroscopy, review 4−56851
square Ising spin lattice, critical surface renormalisation transforms 4−81248
symmetry restoring modes and soft modes in continuous phase transitions 4−75611
transverse mode, influence of charge carriers 4−82675
triglycine fluoroberyllate, Curie point, polarisation, high press. 4−70263
triglycine selenate, press.-temp. phase diagram determ. 4−79682
triglycine selenate, thermodynamics near triple point, Landau-Ginzburg-Devonshire theory 4−73087
triglycine sulphate, Curie point, polarisation meas. at high press. 4−70263
triglycine sulphate, dispersion of permittivity in vicinity of phase transition 4−49311
triglycine sulphate, high hydrostatic press., kinetics 4−57489
triglycine sulphate, selenate, refl. spectra meas., temp. induced changes through Curie point 4−79752
tris-sarcosine calcium chloride, ferroelec. crystal, Raman and i.r. spectra 4−53434
$AgNa(NO_2)_2$, ferroelectric dispersion and dielectric const. meas. 4−64356
$Ba_xLi_{5-2x}Nb_{5(1-y)}Ta_{5y}O_{15}$, crystallographic, dielectric and nonlinear opt. props. *(French)* 4−64353
$Ba_2NaNb_5O_{15}$, ferroelec. and ferroelastic transitions, DTA obs. 4−61114
$Ba_2NaNb_5O_{15}$, fluorine substitution effect on ferroelec. Curie pt. and dielec. const. *(French)* 4−76230
$Ba_2NaNb_5O_{15}$, phenomenological theory 4−67537
$Ba_{0.5}Sr_{0.5}Nb_2O_6$, temp. depend. of forbidden-band width in phase transition region 4−79754
$BaTiO_3$, ferroelectric-semiconductor, photocond. review 4−64112
$BaTiO_3$, grain size effects 4−76222
$BaTiO_3$, heat capacity near elec. crit. point *(Russian)* 4−49315
$BaTiO_3$, i.r. absorption spectra and ferroelectricity investigation 4−76252
$BaTiO_3$, permittivity dispersion, refl. and transmission coeff. modulus obs., 7 to 15 cm^{-1} 4−57490
$BaTiO_3$, spontaneous deformation of vacuum condensates obs. in reln. to ferroelectric props. 4−57013
$BaTiO_3$: ^{89}Zr, electron capture decay lifetime rel. to antiferroelec.-paraelec. transition investig. 4−73081
$Bi_{1-x}La_xFeO_3$, solid soln., rel. to elec. and mag. props. 4−57457
$Bi_xSb_{1-x}SeI$ solid solns., paraelec.-ferroelec. transition temp. determ. 4−70047
$CaB_3O_4(OH)_3.H_2O$, ^{11}B nuclear spin-lattice relax. obs. 4−79684
Cs_2HAsO_4, cryst., ferroelec., n.m.r. study of high temp. struct. phase transitions 4−53379
$CsPbCl_3$, phase transitions investig., neutron diffr. techniques 4−69907
$Cu_3B_4O_{13}Cl(Br)$, absorpt. coeff., near phase transition 4−76271
$Gd_2(MoO_4)_2$, domain boundaries, antiphase boundaries, dislocations 4−82678

ferroelectric transitions continued
$Gd_2(MoO_4)_3$, electric field effect on ferroelectric transition temp., obs. by u.s. method *(French)* 4−61121
KD_2PO_4, struct. and eff. of phase transitions on combination scattering spectrum 4−64349
$K(H_{1-x}D_x)PO_4$, effect of deuteration on ferroelec. transition temp., D distrib. coeff. meas. 4−61111
KH_2PO_4, coupled proton-optic-mode model evaluation using Raman scatt. meas. 4−76229
KH_2PO_4, cryst., ferroelec., n.m.r. study of high temp. struct. phase transitions 4−53379
KH_2PO_4, elastic anomaly, Brillouin scatt. obs. 4−49309
KH_2PO_4 crystal, light scattering study of phase transition at 175°C 4−49373
KH_2PO_4 type ferroelectrics, statistics in cluster approximation 4−53384
KH_2PO_4-like crystals, spin-phonon model, low freq. response 4−70271
KIO_3, 120° shift in ferroelectric polarisation, and characteristics 4−82676
$KNbO_3$, orthorhombic, inelastic neutron scatt. obs. 4−67536
$KNbO_3$, orthorhombic phase characterisation 4−70248
$KTaO_3$:Na(Li), Raman scatt. from impurity soft modes 4−73119
$LiNH_4SO_4$, vibration spectra, NH_4^+ ion hindered rotation 4−49341
$LiTaO_3$, struct. phase transition, pulsed ^7Li n.m.r. obs. 4−67013
$(NH_4)_2BeF_2$, thermo-optical and dielec. props. near ferroelec. T_c 4−82679
$(NH_4)_2Cd_2(SO_4)_3$, vibration spectra, NH_4^+ ion hindered rotation 4−49341
$NH_4H_2AsO_4$, and deuterate, antiferroelectric phase transitions, mag. reson. obs. 4−61116
$NH_4H_2AsO_4$, theory of antiferroelectric phase transition 4−79681
$NH_4H(ClCH_2COO)_2$, $ND_4D(ClCH_2COO)_2$, Raman and i.r. studies 4−82671
$NH_4H_2PO_4$, cryst., ferroelec., n.m.r. study of high temp. struct. phase transitions 4−53379
NH_4HSO_4, i.r. absorption vibration spectra, ordering effects 4−49342
$(NH_4)_3H(SO_4)_2$, i.r. absorption vibration spectra, ordering effects 4−49342
$(NH_4)_2SO_4$, far i.r. spectra in para- and ferroelectric phases *(French)* 4−79723
$(NH_4)_2SO_4$, pseudoproper ferroelec., far i.r. transmission and refl. 4−70291
$(NH_4)_2SO_4$, vibration spectra, NH_4^+ ion hindered rotation 4−49341
$NaH_3(SeO_3)_2$, γ-irrad., formation of monoclinic γ-phase below T_c 4−49313
$NaH_3(SeO_3)_2$, influence of hydrostatic pressure on α-β transition, meas. of dielec. permitt. 4−57486
$NaH_3(SeO_3)_2$, spin model, thermodynamic props. 4−70265
$NaNH_4SO_4.2H_2O$, vibration spectra, NH_4^+ ion hindered rotation 4−49341
$NaNO_2$, at 180K, ^{14}N n.q.r. 4−57422
$NaNO_2$, Brillouin scatt., Neel and Curie temp. regions 4−45288
$NaNO_2$, molecular field theory of long range order parameter 4−76226
$NaNO_2$, order parameter, theory of molecular field approx. 4−49308
$Nd_2Ti_2O_7$, characterization 4−76223
(Pb,La)(Zr,Ti)O_3 ceramic, with diffuse transition region, phase relations and dielec. props. 4−70272
$Pb(Fe_{0.5}Nb_{0.5})O_3$-$BiFeO_3$, magnetic ferroelectrics, adiabatic calorimeter heat capacity meas., entropy and enthalpy evaluation 4−82673
$PbHPO_4$, $PbDPO_4$, transition temp., rel. to cryst. struct. 4−70260
$PbMg_{1/3}Nb_{2/3}O_3$ crystal, i.r. and Raman vibr. spectra obs. in ferroelec., paraelec. phases 4−79730
$PbTiO_3$, anomalous behaviour of Mossbauer fraction 4−45215
$PbTiO_3$, reciprocal domain obs. and formation 4−64343
Pb(Zr,Ti)O_3, grain size effects 4−76222
$PbZrO_3$, temp. depend. of elec. quadrupole interaction 4−76228
$PbZrO_3$: ^{89}Zr, electron capture decay lifetime rel. to antiferroelec.-paraelec. transition investig. 4−73081
$PbZr_{0.9}Ti_{0.1}O_3$, thermal expansion crit. behaviour 4−61119
$Pb(Zr_xTi_{1-x})O_3$, solid soln., X-ray exam. near morphotropic phase transition 4−76231
$RbCdCl_3$, dielec. anomalies and phase sequence *(German)* 4−79680
$RbDSO_4$, deuteron mag. reson. obs. in paraelectric phase 4−64350
RbH_2AsO_4, thermodynamic props. 4−79685
RbH_2PO_4, coupled proton-optic-mode model evaluation using Raman scatt. meas. 4−76229
RbH_2PO_4, RbH_2AsO_4, cryst., ferroelec., n.m.r. study of high temp. struct. phase transitions 4−53379
$RbHSO_4$, i.r. absorption vibration spectra, ordering effects 4−49342
$RbH_3(SeO_3)_2$, superlattice struct., ferroelec. phase 4−57481
$Rb_{1-x}(NH_4)_xH_2PO_4$, NH_4^+ reorientation proton spin-lattice relax. 4−76227
Sb_2S_3, anomalous u.s. damping 4−79690
SbSI, ferroelectric-semiconductor, photocond. review 4−64112
SbSI, illumination influence on induced phase transition 4−57487
SbSI, impurities influence on Curie temp. 4−79691
SbSI, phase transitions under high press., theory 4−64347
SbSI, thin films, vacuum sublimation, ferroelectric transition obs. 4−82330
SbSI film, energy gap kink at transition temp., optical absorpt. meas. 4−76338
$SnCl_2.2H_2O$, protonic order-disorder transition, isomorphic planar dimer model 4−72549
SnTe, Raman scatt. obs. 4−45256
$Sr_2KNb_5O_{15}$, fluorine substitution effect on ferroelec. Curie pt. and dielec. const. *(French)* 4−76230
ZrO_2: ^{89}Zr electron capture decay lifetime rel. to antiferroelec.-paraelec. transition investig. 4−73081

ferroelectricity
see also antiferroelectricity; ferroelectric devices; ferroelectric materials; ferroelectric phenomena
dipolar theory, expt. data analysis 4−57485
dipole theory, temp. depend. of effective charge investigation 4−57484
faintness index, group theory interpretation 4−44641

ferroelectricity continued
- hard and soft vibrational mode condensation, faintness index for ferroelectricity and ferroelasticity 4−79134
- ice model on triangular lattice, first order phase transition 4−74422
- internal friction of polydomain ferroelec. crysts., electronic cond. influence 4−79688
- model ferroelectric, comparison of mean-field theories, equilib. properties 4−67538
- Mossbauer spectra of ferroelectric in electric field, theory 4−57445
- optical absorption spectra theory 4−64363
- perovskite type, elec. polarisation anisotropy of cubic paraelec. phase 4−79673
- Rochelle salt, Be-doped, internal bias 4−82672
- rock salt type crystal, interband vibronic interaction theory 4−70261
- semiconducting solid solns., thermodynamic theory 4−64344
- two-dimensional Slater KDP model of ferroelectric 4−61120
- uniaxial ferroelectric, freq. depend. of fluctuation type sound absorption 4−79689
- weak, magnetoelec. classification of materials, review 4−82540
- Cu-Al-Ni alloy, struct. depend. of superelasticity 4−76426
- KH_2AsO_4, transverse susceptibility investigation 4−64354
- KH_2PO_4, transverse susceptibility investigation 4−64354
- $Pb_5Ge_3O_{11}$, Curie temp., hydrostatic press. effect 4−57482
- SbSI, interrelation between photoelectric and ferroelectric props. 4−64340

ferromagnetic metals
- Alcomax III, prop. variation with size on 50Hz excitation 4−57312
- current distribution nonuniformity in neighbourhood of 180° domain wall, 4.2K, theory 4−60979
- magnetic neutron scattering, mag. struct. 4−57286
- $muon^+$ precession meas. in transverse fields to 1900Oe *(Russian)* 4−66953
- properties, meas. by magnetic and e.m. methods *(German)* 4−50066
- self-diffusion coeffs. estimation method *(Russian)* 4−79182
- soft, demagnetisation curve approx., calc. *(Russian)* 4−49191
- superconductivity, transition temp., Eliashberg eqn. *(Russian)* 4−67298
- thermo-e.m.f. anomaly near Curie temp. *(Russian)* 4−75842
- Fe, dilute ^{207}Pb impurity, anomalous temp. behaviour of local mag. field, 87-983K 4−49166
- Fe, film, orientational magneto-optical effect meas. 4−57505
- Fe, interstitial carbon influence on mag. props. 4−79552
- Fe, oriented transformer sheets, ferromagnetism for electronic engineers *(German)* 4−67404
- Fe, permanent magnet prod. and effect of technological factors on mag. props. 4−70537
- Fe, sp.ht. and thermal cond. near Curie pt. *(Russian)* 4−67372
- Ni, domain wall motion, electron microscope obs., test of theories 4−67402
- Ni, electrolytic, anisotropic effects in magnetoelastic behaviour 4−49207
- Ni, film, orientational magneto-optical effect meas. 4−57505
- Ni, low temp. electron irrad., defect-induced changes of mag. anisotropy 4−53249
- Y-Co powder magnet, magnetic properties and heat treatment effect *(Japanese)* 4−61407
- Y-Sm-Co powder magnet, magnetic properties and heat treatment effect *(Japanese)* 4−61407

ferromagnetic properties of substances
- *see also coercive force; ferromagnetic relaxation; ferromagnetic resonance; ferromagnetism; magnetic domains; magnetisation process; magnetisation state; remanence*
- Alcomax III, prop. variation with size on 50Hz excitation 4−57312
- Alcomax III with dynamic excitation, calcs. 4−70179
- alloys, multiband coherent-potential approximation with orbital degeneracy 4−49148
- Alnico magnets, mag. props in rel. to crystal texture of columnar castings 4−53255
- anisotropic media with cube crystal lattice, magnetostrictive effects anal. *(Bulgarian)* 4−82580
- binary alloys, generalized CPA approach to the disordered Heisenberg ferromagnet 4−67330
- e.m. energy nonlinear absorption near phase transition *(Russian)* 4−67375
- α-Fe, atomic treatment of magnetovolume effect 4−45161
- ferromagnetic magnetostrictive material, acoustic wave attenuation 4−57340
- film, domain wall width and shape 4−64234
- film, on ferrite film, exchange interaction, magnetisation *(Russian)* 4−61004
- Gd:transition metal, d-electron mag. coupling, hyperfine fields 4−72962
- Heisenberg model, low temperature, calculation of the magnetization 4−64178
- Heisenberg paramagnet, second order Green function theory, mag. props. 4−53196
- internal stresses due to wall junction in perfect ferromagnet 4−60977
- Invar, r.f. striction of paraprocess, Mossbauer obs. *(Russian)* 4−70244
- Invar, unidirectional anisotropy below 50K, coexistence of antiferromag. and ferromag. phases *(Russian)* 4−79534
- Invar alloy, high field susceptibility meas., 4.2 to 150K 4−72954
- Invar with Mn admixture, Mossbauer effect and mag. struct *(Russian)* 4−76204
- liquid, effect of rot. mag. field, separation appl. *(Russian)* 4−81955
- magnetisation fluctuation, over spin wave excitation threshold *(Russian)* 4−45126
- magnetite, disaccommodation of magnetic susceptibility of natural single crystals 4−68072
- magnetite, high-temp. magnetostriction of natural and synthetic crystals 4−70638
- magnetocrystalline anisotropy and other non-linear anisotropic properties, advantages of using spherical harmonics to analyse data 4−64233
- magnetoferroelectric ceramic, with ferromagnetic phases of various crystalline structures 4−70545
- manganese (II) phthalocyanine, canted ferromagnetism investigation by torque and magnetisation meas. 4−60982

ferromagnetic properties of substances continued
- metal, impurity corrections to magnon damping 4−57300
- metal, measurement by magnetic and e.m. methods *(German)* 4−50066
- Mossbauer spectrum, broadening and shift for a ferromagnet and paramagnet 4−64305
- Mumetal alloy, Ni-Fe-Cu-Cr, mag. props., Mn content and baking temp. effects 4−72961
- orthoferrites, weak ferromagnets, nonlinearity of magnetisation 4−57315
- Permalloy, bubble domains obs. 4−45146
- Permalloy, mag. annealing of single crysts., expt. *(Russian)* 4−67389
- Permalloy, quenched single crysts., annealing effect on rolling induced anisotropy *(Russian)* 4−49187
- Permalloy, thin film, spin wave spectra below saturation magnetisation 4−82618
- Permalloy film, bubble domain deform. and motion vel. under mag. field *(Russian)* 4−49198
- Permalloy film, cathodically sputtered, mag. props. depend. on deposition parameters *(Russian)* 4−53261
- Permalloy film, coercivity spectrum and domain wall creep 4−45148
- Permalloy film, fluctuation noise intensity depend. on magnetisation freq. *(Russian)* 4−79560
- Permalloy film, interaction energy of dislocations with magnetostriction, anisotropy explanation 4−53267
- Permalloy film with stripe domain struct., ferromag. reson. spectra *(Russian)* 4−49232
- Permalloy type alloys, powder metallurgical prod, method and mag. characteriz. 4−80060
- polycrystalline sample, singular points on magnetisation curve 4−82583
- rare earth Al_2 alloy, spin wave dispersion relns. determ. by variational method 4−60966
- rare earth Co_5 permanent magnets, easy domain wall nucleation investigation 4−60984
- rare earth cobaltides, RCo_5, phase stability, influence on permanent magnetic properties 4−70474
- rare earth intermetallics, $R_2(Co_{1-x}T_x)_{17}$, R=Sm, Er, and T=Fe, Ni, mag. characts. and lattice consts. 4−53260
- rare earth metal films, optical props. and mag. ordering 4−79823
- rare earth-Co, RCo_5, magnetic anisotropy, crystal field theory 4−57307
- rocks, magnetic viscosity due to spin fluctuations in wide temp. range 4−68070
- semiconductor, spin waves in mag. field of current, instability *(Russian)* 4−67386
- semiconductors, magnetic with narrow bands, spin polaron theory 4−75826
- silicon iron, mag. props. stabilising domain struct., closing surface *(Russian)* 4−67391
- soft, demagnetisation curve approx., calc. *(Russian)* 4−49191
- sol, surface forces of particle interaction determ. using rot. mag. field 4−64645
- steel, Fe-Si, new high permeability, core loss and magnetostriction improvements, transformer appl. 4−72995
- steel, low-C electric sheet, mag. ageing 4−60986
- steel, stainless, Type 316L, in-pile irrad., ferromag. phase form. mechanism *(French)* 4−59849
- steel, transformer grade, textured, surface coatings influence on mag. props. *(Russian)* 4−60976
- steel rimmed thin sheet, magnetocryst. anisotropy, crystallite orientation distrib. influence 4−72983
- transition metals, Fermi surfaces, review 4−72681
- with uniaxial anisotropy, numerical results for spin-one systems 4−53250
- uniaxial transparent ferromagnetics, hysteresis loop recording by Faraday effect 4−54996
- Au-Fe(15 at%) alloy, mag. ordering, spin glass behaviour 4−53242
- Au-Ni, electrical resistance, magnetisation, temp. depend. 4−72743
- Au-Ni alloy, elec. resist. and magnetization, 4.2K-room temp. 4−64056
- Au_2Mn, antiferromag. spiral and ferromag. phases, sp. ht., 0.3-4K 4−53233
- BiMn, ferromagnetic hyperfine field at Bi, low temp. nuclear orientation 4−73053
- $(CH_3NH_3)_2\ CuCl_4$, magneto-optic study *(German)* 4−79705
- $CdCr_2S_4$, magnetostriction and mag. anisotropy, ferromag. reson. obs. 4−49205
- $CdCr_2S_4(Se_4)$, mag. props. meas., Curie temp. obs. 4−60970
- $CdCr_2Se_4$, cryst., prep. and basic props. 4−79878
- $Cd_{1-x}Fe_xCr_2S_4$, preparation, electrical and mag. props. 4−44976
- Co, bubble domain struct., changes prod. by ion implantation, direct obs. 4−76109
- Co, nonuniform current distrib. in neighbourhood of 180° domain wall, 4.2K 4−60979
- Co, origin of ferromagnetism and hyperfine fields 4−57250
- Co-Fe-Ni-Al, alloys, effect of heat treatment and mag. tempering 4−64239
- Co-Fe-Ru in f.c.c. and h.c.p. phases, magnetisation, Mossbauer and cryst. struct. meas. 4−82588
- Co-Mn alloy, electrodeposited, electrolyte parameters influence *(Rumanian)* 4−60987
- Co-Ni ferromagnetic alloys, multiband coherent-potential approximation with orbital degeneracy 4−49148
- Co-P alloy, ferromag., mag. struct. determ. using neutron diffr. 4−64222
- Co-P alloys, amorphous, mag. props. 4−60978
- Co-W alloy, magnetic state on quenching and annealing *(Russian)* 4−79546
- Co_{1-x}, Fe_xSi, low temp. study, magnetic behaviour of Co and Fe nuclei 4−70237
- $CoCl_2$/graphite laminar cpds., mag. ordered state with easy plane type anisotropy *(Russian)* 4−67406
- $(Co_{3.5}Cu_{1.5})Pr_{1-x}Y_x$, lattice parameters and coercivity 4−63793
- CoFeGe(Sb) alloys, $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4−73057
- $(Co_xFe_{1-x})_2P$, orthorhombic, magnetocryst. anisotropy 4−82578
- Co_cGa, (C=0.85-1.46), mag. props. rel. to atomic struct. 4−45098

ferromagnetic properties of substances continued
- Co_2MnSn ferromagnetic alloy under 14 kbar pressure, Mossbauer effect *(Russian)* 4−82647
- $(Co_3Ni_2)Pr_{1-x}Y_x$, lattice parameters and coercivity 4−63793
- Co_2P, band struct. calc., spin independent 4−44842
- CoP_xS_{2-x}, comparison with $CoAs_xS_{2-x}$, $CoSe_xS_{2-x}$ 4−72965
- CoS_2-NiS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
- $Co_{1-x}V_x$, mag. moments, comp. depend. 4−48540
- $(Cr_{1-x}Ni_x)_2As$ solid solns., comp. depend. *(French)* 4−48563
- CrTe, ferromagnetic, non-collinear struct. change in 4.2 to 450K range *(Russian)* 4−53246
- $Cr_2Te_2S_x$, investigation between 80 and 800K 4−45108
- Cs_2CrCl_4, neutron diffraction obs. of cryst. and mag. struct. 4−67379
- Cu complex, $[(CH_3)_3NH]CuCl_3.2H_2O$, low temp. mag. susceptibility and e.s.r. obs. 4−53218
- Cu-Mn-Al alloys, magnetisation and coercive force *(Japanese)* 4−45150
- Cu-Ni, ferromag. and superparamag. alloys, moment assignments from saturation magnetisation data 4−76058
- Cu-Ni alloys, crit. conc., susceptibility meas. above Curie point 4−53212
- $Cu_yCr_2Se_{4-z}Br_x$ spinels, prep., stochiometry, rel. to Curie temp. 4−64214
- $CuFeS_2$, chalcopyrite type magnetic semiconductor 4−61319
- $CuFe_{2-2x}Zn_xTi_xO_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
- Cu(II) complex, μ_4-oxo-hexa-μ-chlorotetrakis[(pyridine)copper(II)], mag. susceptibility, 1.7-294K 4−67357
- Cu_2MnAl, effect of antiphase boundaries 4−45142
- Dy, crit. behaviour of heat capacity near Neel temp. 4−82565
- Dy, u.s. absorpt. near ferromagnetic-spiral transition 4−53274
- Er_2Ni_7, point-charge crystal field model explanation of mag. struct. 4−76092
- $Eu_{1-x}Gd_xO$, conc. depend. of Curie temp. determ., mag. impurity states 4−79508
- EuH_2, Mossbauer studies 4−73055
- $EuLiH_3$, high ferromag. transition temp. rel. to $EuTiO_3$, $EuZrO_3$, Eu^{2+} 5d splittings, cryst. field calc. 4−76068
- EuO, powder, nuclear spin-lattice relax. time determ. 4−73044
- EuO, scaling and universality hypotheses, verification from specific heat data 4−57240
- EuO, temp. depend. of first and second-order anisotropy constants from ferromag. reson. 4−53315
- EuO, thin reeds, thermoelastic relax. near Curie point, acoustic props. meas. 4−57279
- EuO:Gd exchange optics, absorpt. and Faraday rotation meas., 13 eV to 250 μ 4−57568
- Eu_2P_2, observation of magnetic unsaturated surface layers below Curie temp. *(German)* 4−79503
- EuS, doped, ferromag. semicond. nonuniform state and hysteresis in resistivity 4−82466
- EuS, ferromagnetically ordered phase, anomalous LO phonon scattering, Raman scattering meas. 4−82698
- EuS, observation of magnetic unsaturated surface layers below Curie temp. *(German)* 4−79503
- EuS, single crystal, melt-grown, characterization 4−61289
- Eu_2TaCrO_6 and Eu_2TaAlO_6, ordering at low temp. *(French)* 4−44512
- $EuTiO_3$, Eu^{2+} 5d splittings, ferromag. transition temp., cryst. field calcs. 4−76068
- $EuZrO_3$, Eu^{2+} 5d splittings, ferromag. transition temp., cryst. field calcs. 4−76068
- Fe, deformed single crystals, mag. obs. on dislocation density at 295K 4−57731
- Fe, exchange splitting temp. depend., de Haas-van Alphen freq. variation, 1-4.2K 4−48894
- Fe, interstitial carbon influence on mag. props. 4−79552
- Fe, itinerant ferromagnet with Hund's coupling, spin wave dispersion relns. 4−67343
- Fe, nitride precipitation effect on anisotropy 4−64228
- Fe, oriented transformer sheets, ferromagnetism for electronic engineers *(German)* 4−67404
- Fe, origin of ferromagnetism and hyperfine fields 4−57250
- Fe, permanent magnet prod. and effect of technological factors on mag. props. 4−70537
- Fe, scaling and universality hypotheses, verification from specific heat data 4−57240
- Fe, specific heat and elec. resist. meas. near Curie point 4−64217
- Fe complex, iron(III)chlorodithiocarbamate, mag. interactions 4−53222
- Fe diluted with 3d transition elements, ferromag., antiferromag. exchange interactions 4−76067
- Fe-Co-Cu-V alloys, semi-hard mag. material characts. *(Japanese)* 4−45139
- Fe-Co-Cu-V alloys, semi-hard mag. material characts. and prop. changes on heating *(Japanese)* 4−45140
- Fe-Co-Ni alloy, high-coercivity, phosphorus additions effect on mag. characts. 4−82586
- Fe-Co-V alloys, mag. and mech. props. correl. with microstruct. 4−80014
- Fe-FeSi, Barkhausen noise power spectrum, surface effect 4−72993
- Fe-Ni, Invar, validity of Stoner-Wohlfarth model 4−57319
- Fe-Ni, invar alloy, positron annihilation ang. correl., rel. to mech. props. in ferromag. state 4−79280
- Fe-Ni, local mag. moments and effective magnetomechanical ratio 4−53275
- Fe-Ni, Mn alloys, Mossbauer effect, effective mag. field *(Russian)* 4−67493
- Fe-Ni alloy, Curie temp. depend. on composition, cluster components method 4−57284
- Fe-Ni alloys, Invar type, magnetovolumetric effects *(Russian)* 4−61005
- Fe-Ni alloys with directional order, uniaxial anisotropy consts., equil. values, temp. and conc. depend. *(Russian)* 4−60968
- Fe-Ni-C alloy, dil., magnetostrictive aftereffect due to interstitial redistrib. 4−79563
- Fe-Ni-C(Mn) alloys, Invar type, crit. conc. region, ^{57}Fe Mossbauer effect 4−64300

ferromagnetic properties of substances continued
- Fe-Ni(30-50%) alloys, Curie temp., conc. depend. 4−67366
- Fe-Pd alloy, ion impact, recoil velocity dependence of transient magnetic field 4−45397
- Fe-Pt alloy, ion impact, recoil velocity dependence of transient magnetic field 4−45397
- Fe-Rh alloy, ion impact, recoil velocity dependence of transient magnetic field 4−45397
- Fe-Si, total power loss, domain wall spacing meas. 4−72992
- Fe-Si (3 wt.%), mag. anisotropy consts., torque magnetometer obs. *(Russian)* 4−67388
- Fe-Si(3%), grain oriented, domain struct. rel. to mag., metallurgical props., review 4−79538
- Fe-zNi alloy, oxygen content influence on mag. props. 4−72960
- $Fe_{0.5}Au_{0.5}$ alloy, mag. hyperfine field at Au nuclei, Mossbauer spectra 4−49266
- FeB, charge and spin density, neutron diffr. obs. 4−60962
- $FeBO_3$, mag. field effect on coherent scatt. of X-rays 4−73002
- Fe_3C, photoelectron spectra of Fe, evidence for change in atomic magnetic moment at Curie temp. 4−49172
- $FeCl_2$, magnon temp. renormalization and magnon-phonon coupling 4−57297
- $FeCl_2$, selfconsistently renormalized spin wave approximation 4−45124
- $FeCl_2$-graphite compounds, Mossbauer spectra and mag. susceptibility obs. 4−61071
- FeIr, ferromag. dilute alloy, nuclear electric quadrupole interaction exam. 4−82633
- FeMn alloy, mag. hyperfine fields at $^{55}Mn^{57}Fe$ nuclei, mol. field calcs. 4−76066
- FeMnGe alloys, $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4−73057
- $Fe_{3-x}Mn_xSi$ alloys, structural and mag. props. 4−76091
- $Fe_{65}Ni_{35}$, Invar alloy, mag. and magnetoelastic props., thermodynamic discussion 4−76132
- γ-$Fe_{5o}(Ni_xMn_{1-x})_{50}$, mag. phase diag. determ. by Mossbauer technique 4−53238
- α-Fe_2O_3, mag. field effect on coherent scatt. of X-rays 4−73002
- Fe_3O_4, mag. after-effects 4−70180
- Fe_3O_4, magnetite, small particle size effects on kinetic and mag. props. *(Russian)* 4−79556
- Fe_3P, mag. struct., magnetis., Mossbauer and neutron diffr. obs. 4−45120
- $Fe(Pd_xPt_{1-x})$ alloy, mag. props., ferrimag.-ferromag. transition, Curie and Neel temps. 4−57273
- Fe_3Pt, ordered alloy, mag. form factor, local moments 4−72978
- FeRh, FeRhPd(Ir) ordered alloys, magnetisation, 4.2K, 0-370 kOe 4−79326
- FeS_2-CoS_2, pyrite struct., ferro-, antiferro-and paramag. props., metal and insulator phases 4−76057
- $GaMn_3C$, Mossbauer effect of ^{57}Fe, antiferro-ferromag. transition *(French)* 4−61080
- Gd, a.c. susceptibility and hysteresis, domain effects near Curie temp. 4−45141
- Gd-Co system, thermal expansion anomalies 4−75637
- Gd-La, exchange interactions, lattice parameters and Curie temp. meas. 4−57266
- Gd-Y (6-64 at.% Gd), magnetisation and microwave reson., mag. struct. 4−45099
- Gd-Y alloy, mag. transition temp., press. effect 4−57272
- GdCo, amorphous bubble domain material anisotropy factor affected by local heating 4−64236
- $Gd_{1-x}Co_x$ film, amorphous, r.f. sputtered, perpendicular anisotropy 4−57330
- $GdCu_2$, antiferromagnetic-ferromagnetic transition, mag. props and indirect exchange 4−79520
- $GdMg_{1-x}Zn_x$, magnetic and n.m.r. studies 4−73036
- $GdNi_2$, critical mag. susceptibility in presence of long-range forces 4−49176
- GdSm, Curie temp., nonlinear conc. depend. 4−64210
- $GdZn_{1-x}In_x$, galvanomag. anomalies, $(0 \leqslant x \leqslant 0.15)$ 4−64102
- Ge-Mn-Te dilute alloys, magnetisation and magnetoresistance meas. at low temps. 4−44902
- $(GeTe)_{1-x}(MnTe)_x$, pseudobinary alloy, magnetisation meas., RKKY theory 4−57316
- $HgCr_2S_4(Se_4)$, mag. props. meas., Curie temp. obs. 4−60970
- Ho with ^{111}Cd impurities, temp. depend. of mag. hyperfine field 4−76201
- HoZn, sp. ht., mag. props. 4−70156
- K_2CuF_4, covalency effects by critical neutron scatt. 4−66857
- K_2CuF_4, ferromagnetic, absorption spectrum exciton lines meas., optical props. and spin dynamics 4−79514
- K_2CuF_4, parallel pumping of brillouin-zone-boundary magnons 4−76096
- K_2CuF_4, two-dimensional ferromagnet, exptl. obs. *(Japanese)* 4−45125
- $LiNiO_2$, susceptibility, moments, magnetis. *(French)* 4−82552
- Mg ferrites, effect of non-magnetic ions on Curie temp. 4−53229
- Mn-Bi-Te film, magneto-optical material, mag. props. temp. depend. 4−57331
- MnBi, film growth, ferromag. recovery during thermal cycle, writing appl. 4−67408
- MnBi film, coercive force temp. depend., rel. to laser beam addressing 4−57337
- MnBi film, domain nucleation and propagation phenomena, demag. obs. using W needle 4−57327
- MnBi film, magnetooptic properties, component ratio depend. 4−70285
- MnBi thin films, mag. domain config. and coercivity 4−76127
- MnBi:Sb, thermomagnetic writing, ferromagnetic-paramagnetic phase transition, Curie temp. meas. 4−79559
- $Mn_xFe_{3-x}O_4$, ferromag. relax. obs., 1.8 to 300K 4−76166
- Mn_2N, group theory analysis of magnetic structure *(French)* 4−53243
- MnP, mag. phase diagram determ. by u.s. pulse echo technique 4−49177
- $NdAl_2$, mag. excitons, dispersion relations 4−70172
- $NdAl_2$, single cryst., high field, cryst. field theory anal. 4−73000
- Ni, band struct. calc. of momentum density distrib. for positron annihilation and Compton scatt. 4−53038

ferromagnetic properties of substances continued
- Ni, domain wall motion, electron microscope obs., test of theories 4−67402
- Ni, electrical resistivity near Curie temp., temp. and mag. field depend. 4−64062
- Ni, electrolytic, anisotropic effects in magnetoelastic behaviour 4−49207
- Ni, electronic sp. ht. and entropy, of 0-1200K 4−76075
- Ni, ferromagnetic after effect, due to interstitials 4−72998
- Ni, film, magnetic domain wall response for ultrasonic stress due to magneto-eleastic pressure 4−82597
- Ni, itinerant ferromagnets with Hund's coupling, spin wave dispersion relns. 4−67343
- Ni, low temp. electron-irrad., defect-induced changes of mag. anisotropy 4−53249
- Ni, mag. anisotropy, band theory, review 4−72984
- Ni, magnetic form factor analysis, new interpretation of experimental data 4−57288
- Ni, magnetoelastic damping, domain struct. and boundaries *(Russian)* 4−67412
- Ni, negative magnetoresist., disappearance after H absorpt. 4−72755
- Ni, origin of ferromagnetism and hyperfine fields 4−57250
- Ni, scaling and universality hypotheses, verification from specific heat data 4−57240
- Ni, spin-orbit coupling effect in energy band calcs. 4−72686
- Ni (001) film, crit. thickness rel. to magnetisation direction, magnetoresist. meas. 4−57339
- Ni particles in amorphous SiO_2, Al_2O_3, granular films, superparamagnetism and relax. effects 4−64246
- Ni-base f.c.c. alloys, high field susceptibility meas. up to 300 kOe, rigid band model 4−76060
- Ni-Co alloys, magnetic form factor analysis, new interpretation of experimental data 4−57288
- Ni-Co alloys, sp. ht. meas. in temp. range 1.2-8K 4−49180
- Ni-Cu, giant spin clusters contrib. to resistivity, sp. ht. and neutron scatt. cross section 4−53236
- Ni-Fe, films formed electrolytically in mag. fields, mag. props. *(German)* 4−67410
- Ni-Fe, mag. domain struct. obs. 4−45145
- Ni-Fe, strong and weak ferromagnetism 4−72966
- Ni-Fe alloys, sp. ht. meas. in temp. range 1.2-8K 4−49180
- Ni-Fe film, new type of domain wall, Lorentz microscopy obs. 4−53259
- Ni-Fe-Nb system, Hardperm high permeability alloys 4−67399
- Ni-Fe(10 wt.%) alloy films, domain boundary starting field, isotropic stresses influence *(Russian)* 4−61003
- Ni-Fe(17%) alloy, domain wall motion, electron microscope obs., test of theories 4−67402
- Ni-Pt, electronic specific heat coeff., coherent potential approximation calc. 4−82562
- Ni-Pt, itinerant ferromagnetism and susceptibility, temp. depend. 4−72957
- Ni-Pt, thermal expansion near crit. conc., low temp. 4−72579
- Ni-Pt alloy, spin coupling, variation with chem. order 4−70144
- Ni-Pt alloys, ferromag. props. at high field and press. near crit. conc. for ferromagnetism 4−53256
- Ni-Pt alloys electronic sp.ht. meas. near crit. conc. for ferromagnetism 4−49179
- Ni-Rh, critical magnetic behaviour of giant moments 4−67370
- Ni_3Al, thermal expansion near crit. conc., low temp. 4−72579
- $NiCl_2$/graphite lamellar cpd., disordered, phase transitions *(Russian)* 4−70160
- $NiCl_2$/graphite laminar cpds., mag. ordered state with easy plane type anisotropy *(Russian)* 4−67406
- NiF_2, weak ferromag., magnetisation meas. 4−79551
- $Ni_3(Fe,V)$ alloys, vanadium effects on mag. and mech. props. *(Russian)* 4−64235
- $Ni_{1-x}Fe_x$-C, ($x=0$-0.65), impurity and composition effects, transition from strong to weak ferromag. 4−45111
- NiIr, ferromag. dilute alloy, nuclear electric quadrupole interaction exam. 4−82633
- Ni_3Mn, mag. moment and superparamag. Curie point, changes during atomic ordering 4−64203
- Ni_2MnGa, Heusler alloy, Curie point, magnetisation and saturation magnetic moment 4−79510
- NiS_2-CuS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
- $NpAl_3$, magnetisation, susceptibility, hyperfine field meas., 4-300 K 4−64211
- NpN, meas. of 87K Curie temp., mag. moments 4−64224
- Pd-Fe alloy, dil., sp.ht. and magnetization, effect of strong spin correl. 4−64201
- Pd-Gd alloy, dil., low temp. sp.ht. 4−64202
- Pd-Ni, dilute alloys, high press. behaviour, Curie temp. and saturation magnetisation 4−76121
- $(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, alloys, Mossbauer effect obs. of ferromag. phase transitions 4−64216
- $(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, low field susceptibility, temp. depend. in region of ordering temp. 4−64190
- $Pd_{80-x}Co_xSi_{20}$, amorphous alloys, electrical resistivity, low temp. minimum 4−70009
- $Pd_{80-x}Co_xSi_{20}$, amorphous alloys, magnetic properties, effect of Co conc. 4−70182
- Pd_2MnSn, Heusler alloy, neutron spin wave scatt., exchange parameters 4−72980
- PrAg, antiferromag. coupling of ferromag. (110) planes 4−49183
- PtMnSb(Sn), hyperfine fields at nuclear sites 4−72714
- Sm-Co system, thermal expansion anomalies 4−75637
- SmCd, ferromagnetic props. and resistivity meas. 4−60953
- $Sm_2(Co, Fe)_{17}$, permanent magnet characts. 4−60980
- $SmCo_5$, cryst. field anisotropy of Sm^{3+} 4−72987
- $SmCo_5$, solid-phase sintering, kinetics, mechanism and effects 4−64576
- $SmCo_5$, temp. depend. peculiarities of mag. props., 77-300K 4−67403
- $(Sm_{1-x}R_x)Co_{17}$, ($R=Pr$, Gd, Y), mag. characts. and lattice consts. 4−53260
- Tb, u.s. absorpt. near ferromagnetic-spiral transition 4−53274
- $TbAl_2$, magnetocrystalline anisotropy in single crystals 4−45129
- $Tb(OH)_3$, mag. and thermal props., Ising-like behaviour 4−45100
- $Tb(OH)_3$, Tb^{3+} mag. form factor in paramag., ferromag. states, polarised neutron obs. 4−57290
- TbZn, sp. ht., mag. props. 4−70156
- $Th(Co_xFe_{1-x})_5$, intermetallic compounds, cryst. and mag. struct. 4−70167
- $TmCrO_3$, meas. of weak ferromag. moments, antiferromag. exchange and cryst. field splittings 4−76105
- Tm_2Fe_{17}, mag. struct., neutron diffr. study 4−72977
- $TmFeO_3$, Faraday effect, various directions of weak ferromagnetic moment *(Russian)* 4−82690
- U_3As_4, anisotropy, magnetisation meas. in strong fields 4−79533
- UAsS, anisotropy, magnetisation meas., field theory model 4−53251
- UAsS, neutron diffraction, magnetic moments and Curie points calc. 4−79526
- $UAs_{1-x}S_x$ system antiferromag. and ferromag. props. with varying comp., 4.2 to 200K, magnetisation meas., 4.2 to 200K 4−79543
- UAsSe, anisotropy, magnetization meas., field theory model 4−53251
- UP-USe, magnetic transitions, neutron diffr. 4−76081
- U_3P_4, anisotropy, magnetisation meas. in strong fields 4−79533
- UPSe, neutron diffraction, magnetic moments and Curie points calc. 4−79526
- VCo_3, transformation temp., comp. depend., hexagonal order 4−57258
- $Y_{3-x}Ca_xFe_{5-x}Sn_xO_{12}$, Mossbauer spectra obs. of magnetically nonequivalent cation positions 4−53226
- $YFeO_3$, weak ferromagnet, nonlinearity of magnetisation 4−57315
- $Y_3Fe_5O_{12}$, scaling functions, critical mag. props. *(Russian)* 4−64219
- $ZnMn_3C$, Mossbauer effect of ^{57}Fe, spin directions *(French)* 4−61080
- $ZrZn_2$, doped with ^{57}Fe nuclei, hyperfine field, Mossbauer spectra 4−76199
- $ZrZn_2$ polycryst., weak itinerant ferromag., elastic moduli, sound velocity meas. 4−82594

ferromagnetic relaxation
- *see also ferromagnetic resonance*
- ferromagnetic resonance, instabilities due to nonlinear relaxation 4−53313
- ferromagnetic thin film, effect of relaxation on spin wave resonance 4−64265
- magnetisation fluctuation, over spin wave excitation threshold *(Russian)* 4−45126
- Fe_3O_4, mag. after-effects 4−70180
- $Mn_xFe_{3-x}O_4$, meas. from 1.8 to 300K, valence-exchange relax. 4−76166
- Ni_3Fe, ferromag. reson. linewidth and relax. freq., Mo and Cu additions influence *(Russian)* 4−76164
- YIG, double-freq. meas. of phase relax. 4−57383
- YIG, homogeneous mag. relax. near second order phase transition *(Russian)* 4−67373

ferromagnetic resonance
- *see also ferroacoustic resonance; ferromagnetic relaxation*
- dynamic resonance phenomena for harmonically magnetised gyromag. system 4−76168
- ferroelectric ferromagnetic crystal, high freq. props., phenomenological theory 4−76221
- ferromagnetic conducting layer with asymm. boundary conditions, spin wave reson. *(Russian)* 4−73030
- ferromagnetic thin film, effect of relaxation on spin wave resonance 4−64265
- film, angular dependence of surface spin-wave mode 4−67455
- film, perpendicular spin wave spectrum, temp. depend. 4−64264
- film, surface and bulk mag. exciton resonance 4−75825
- films, application of pinning diagram to study of surface modes 4−53312
- instabilities due to nonlinear relaxation 4−53313
- magnetoelectric resonance theory *(Russian)* 4−76169
- magnetoplumbite, with cylindrical domain structure *(Russian)* 4−70219
- γ-Ni-Fe, low temp. phase diagram construction 4−61354
- nonlinear e.m. energy absorption, phase transition effect *(Russian)* 4−67375
- nonlinear resonance instability, fine structure *(Russian)* 4−67458
- Permalloy, thin film, spin wave spectra below saturation magnetisation 4−82618
- Permalloy film, cathodically sputtered, mag. props. depend. on deposition parameters *(Russian)* 4−53261
- Permalloy film with stripe domain struct. *(Russian)* 4−49232
- polycrystalline plate with planar strain, spin wave approach 4−70218
- spin wave even numbered modes excitation 4−82619
- spin wave resonance theory, case of tensorial surface anisotropy 4−57382
- surface boundary conditions, ang. depend., anisotropy effects 4−67457
- thin film, magnetic surface reconstruction in spin wave resonance 4−49233
- uniaxial crystals with cylindrical domain structure *(Russian)* 4−70219
- Zener model, dynamic susceptibility calc. 4−45188
- $Ca_3Fe_{3.5}V_{1.5}O_{12}$, single crysts. 4−53314
- $CdCr_2S_4$, obs. of magnetostriction and mag. anisotropy at 10 GHz 4−49205
- $CsMnF_3$, antiferromag., dynamic susceptibility meas. *(Russian)* 4−82620
- EuO, temp. depend. of first and second-order anisotropy constants from ferromag. reson. 4−53315
- $Eu_2Y_{3-x}Fe_5O_{12}$ film, growth induced anisotropy obs. 4−57329
- Fe, thin film oxidation, initial stages 4−57001
- Fe-Ni single crysts., conc. and temp. depend., order-disorder transform. behaviour *(Russian)* 4−67459
- FeGe, cubic, microwave reson. line shape investigation 4−67454
- FeNi, film, spin wave resonance obs. at 9.3 GHz 4−57302
- LiCoAl ferrite, absorption line width, elastic stress depend. *(Russian)* 4−57381
- $MnCO_3$, antiferromag., dynamic susceptibility meas. *(Russian)* 4−82620

ferromagnetic resonance continued
- $Mn_xFe_{3-x}O_4$, meas. from 1.8 to 300K, valence-exchange relax. 4−76166
- $MnSb_{1-x}Sn_x$, thin films, spin wave resonance 4−73031
- Ni-Cr alloys, magnetisation, g-value and anisotropy const. determ. 4−61038
- Ni_3Fe, linewidth and relax. freq., Mo and Cu additions influence *(Russian)* 4−76164
- $Y_3(Fe,Ir)_5O_{12}$, anisotropy and magnetostriction, ferromag. reson. 4−45127
- YIG, CO^{2+} ion magnetoelastic coupling, f.m.r. obs. 4−73006
- YIG, double-freq. meas. of phase relax. 4−57383
- YIG, magnetostatic waves in normally magnetized disc 4−76165
- YIG, two-photon absorpt. in u.h.f. range, nonlinear susceptibility, spin wave excitation *(Russian)* 4−69093
- YIG single crystal line width 4−76388
- YIG:Pr^{3+}, relax. mechanism, press. induced change 4−79605

ferromagnetism
- *see also coercive force; domain walls; ferromagnetic metals; ferromagnetic properties of substances; ferromagnetic relaxation; ferromagnetic resonance; Heisenberg model; Ising model; magnetic domains; remanence; spin waves*
- acoustic resonance and dispersion in bulk ferromagnets, theory 4−64266
- alloy, amorphous, spin-excitation spectrum and resistivity minima 4−48963
- alloy, concentrated, hyperfine fields systematics at sites of nonmag. ions 4−67361
- alloy, mag. impurities, coexistence of ferromagnetism and superconductivity 4−67300
- alloys, heterogeneous, weakly ferromagnetic, high field susceptibility 4−67358
- amorphous, CPA-RPA treatment of fluctuating bond anisotropy 4−49136
- amorphous ferromagnetic chain, spin wave mode distrib. 4−67384
- amorphous Heisenberg ferromagnet, spin wave spectrum 4−67383
- anisotropic ferromagnetic insulator, surface e.m. waves investigation 4−79568
- band theory, single electron spectrum, electron-hole pairing *(Russian)* 4−67348
- Barkhausen jump, mag. field intensity, eddy currents *(Russian)* 4−67392
- bilayer films, differential susceptibility *(Russian)* 4−53265
- conducting polycrystalline magnets, dynamic mag. props. *(Russian)* 4−60974
- critical exponents for systems with slowly decreasing potential *(Russian)* 4−72972
- crystal, kinetoelec., kinetomag. and ferrokinetic effects 4−76106
- cubic magnet, mag. dipole forces and crit. dynamics above Curie pt. *(Russian)* 4−70158
- current-voltage characts., ferromag. semicond.-dielec.-ferromag. semicond. system 4−75951
- degenerate electron fluid, high frequency spectrum of spin waves *(Russian)* 4−82575
- degenerate system, longitudinal susceptibility and correlations 4−77582
- demagnetisation energy, Poisson's method for dipole distributions 4−53258
- dilute alloy, dynamic theory of coexistence of supercond. and ferromag. *(Russian)* 4−72880
- dilute Heisenberg system, spin waves, coherent pot. approx. 4−45123
- dilute system, response function, method of moments 4−45106
- dipolar interactions, long-range, elastic and magnetoelastic effects, acoustic mode depend. 4−53273
- domain boundaries interaction with charged point defects, internal friction *(Russian)* 4−53272
- domain boundaries pinning by impurity atmospheres *(Russian)* 4−49192
- domain wall motion, energy stored in wall deform., solid and tape-wound cores 4−60981
- Dzialoshinski-Moriya interactions, responsibility for orientation of surface spins in thin films 4−53221
- eddy current losses, nonlinear, analytical soln. 4−79542
- electrical conductivity of ferromagnet with domain struct. 4−75840
- electron liquid, degenerate, conductivity tensor calc. 4−79471
- electron-magnon bound states, Hubbard model extension 4−57245
- excitons, calc. of bound states of Frenkel-like excitons in linear chain 4−48946
- ferroelectric ferromagnetic crystal, high freq. props., phenomenological theory 4−76221
- ferromagnet, microscopic mechanism for macroscopic asymmetry 4−57237
- ferromagnetic colloidal suspension, effect of rotating mag. field 4−76555
- ferromagnetic ions, finite linear chain, single ground state, longitudinal magnetic excitons 4−64048
- ferromagneto-electric crystal, magneto-electric susceptibility and polarisation to magnetisation ratio 4−82555
- film, bubble array, theory *(Russian)* 4−67411
- film, large-angle ripples, stripe domains, micromag. theory 4−70187
- film, mag. fluctuations near Curie point investigation 4−60990
- film, reversal magnetisation anomalies at ferro-antiferro. interaction *(Russian)* 4−53266
- film, surface and bulk mag. exciton resonance 4−75825
- film with magnetisation parallel to surface spin wave spectrum 4−57302
- films, with uniaxial mag. anisotropy in a.c. mag. fields of low intensity *(Rumanian)* 4−70188
- Hall effect, d.c., nonexistence of dipole-driving mechanism 4−53086
- harmonic spectrum, dipole-dipole interactions, analysis of ferromagnets 4−79472
- Heisenberg, ferromagnet, three-spin system, correlation inequality 4−67334
- Heisenberg ferromagnet, biquadratic exchange effects 4−53200
- Heisenberg ferromagnet, local order parameter near crit. point, Monte Carlo investigation 4−76043

ferromagnetism continued
- Heisenberg ferromagnet, singlet ground state system, surface excitations 4−45085
- Heisenberg ferromagnet, two-dimensional, numerical calc. of two-spin wave bound states 4−72945
- Heisenberg ferromagnet above critical temp. susceptibility and spin wave props. 4−53199
- Heisenberg ferromagnet with impurity, damping of local oscillations anal. 4−79484
- Heisenberg magnets, ferromag. and antiferromag. coupling, dynamics props. 4−57234
- Heisenberg model, amorphous, coherent potential approx. at zero temp. 4−49146
- Heisenberg model, anisotropic, single-magnon Green's function, generalized Hartree-Fock approx. 4−53198
- Heisenberg model, antiferromag. impurity levels and effects *(Russian)* 4−67340
- Heisenberg model, correlation functions of weakly bonded impurity spin at high temp. 4−57236
- Heisenberg model, disordered, distribution of magnon modes 4−57243
- Heisenberg model, first order Green function theory 4−70126
- Heisenberg model, mag. order, Pade, random-phase and mol. field approxs. 4−60934
- Heisenberg model, magnon damping caused by spin-spin exchange interaction 4−70132
- Heisenberg model, Oguchi Hamiltonian, zeroth approximation in diag. technique 4−49144
- Heisenberg model, one-dimens., two spin wave states, numerical calcs. 4−49186
- Heisenberg model, one-dimensional, with second-neighbour interaction, two-magnon states 4−60935
- Heisenberg model, thermodynamics calcs., $T \ll T_c$ *(German)* 4−79479
- Heisenberg-Ising ring, $\Delta \geqslant 1$, finite temp. excitations and thermodynamics 4−67338
- Heusler alloys, virtual double exchange mechanism 4−76071
- Hubbard model, disordered mag. insulator, proof of existence of band tails 4−57251
- Hubbard model, phase separation instability 4−79489
- Hubbard model, single band, stability of itinerant ferromagnetism versus antiferromagnetism 4−70135
- i-d interaction anisotropic, equiv. neighbour version 4−76039
- insulator, quantum transport eqns. for parametric excitation of spin waves 4−79531
- insulator, thermodynamic one-particle Green function in renormalised spin wave approx. 4−70171
- Ising alloy, dilute Ising ferromagnet, transition temps. upper bound 4−76038
- Ising ferromagnet, applic. of iterative procedure in cluster-variation calcs. 4−52851
- Ising ferromagnet, three-dimensional, specific heat above Curie temp., star cluster expansion 4−72934
- Ising model, correlation function in mol. field approx. and sum rule 4−49142
- Ising model, dilute, tricritical behaviour 4−53191
- Ising model, kinetic, metastable states and nucleation investigation 4−53195
- Ising model, two dimensional, phase separation 4−70131
- Ising model critical field, magnetisation process, with first, second-neighbour interactions 4−67331
- Ising model spin correlations, time dependent function 4−70127
- Ising models containing many-spin interactions, proof of transition 4−67332
- Ising spin system, single bond, GHS inequality 4−79480
- Ising system, dil., singularities 4−70128
- itinerant, critical exponents 4−53201
- itinerant electron ferromagnet, magnetovolume effects press. depend. of Curie temp., theory 4−76046
- itinerant electron ferromagnetism, functional integral approach, mol. field theory 4−45086
- itinerant ferromagnets with Hund's coupling, spin wave dispersion relns. 4−67343
- itinerant model, longitudinal and transverse spin susceptibilities 4−76047
- itinerant model, proximity effect 4−64181
- itinerant theories, rel. to expt. data for NiPt alloys 4−72957
- kinematic interaction, renormalized spin-wave theory, isotropic ferromagnet 4−67382
- Kondo effect in band ferromagnet, study using vertex part integral-equation method 4−49165
- linear models, solved in thermodynamic limit in mag. field 4−64177
- local levels in anisotropic ferromagnet with impurities 4−70150
- local surface susceptibility, calc. for ferromagnetic spherical model, enhanced surface exchange 4−82541
- magnetic cold-work peak theory 4−76104
- magnetisation irreversible processes, Barkhausen jumps 4−72996
- magnetisation self-oscillations, high intensity microwave electromagnetic fields 4−64243
- magnetocrystalline anisotropy, review 4−76100
- magnetohadrochironics, similarity between ferromagnetic effects and chiral symmetry breaking in stringlike model of hadrons 4−47463
- magnetostriction, forced, in cubic ferro-, ferri- and antiferromagnets, field depend. 4−67413
- magnetostrictive, h.c.p., renormalization of magnon-phonon interaction 4−82570
- magnon sideband shapes, impurity effects, one-dimens. calcs. 4−72979
- magnon-phonon mixing, nonlinear effects 4−79565
- mean field model, master eqn. 4−45076
- metal, band structure and band-gap effects for photoelectron spin polarisation 4−64473
- metal, nuclear spin-lattice relax. rates investigation 4−67484
- metal, prediction of domain-drag effect 4−60983
- metal, spin-orbit interaction influence on elec. cond. tensor *(Russian)* 4−48965
- metal film, surface spin susceptibility in paramag. phase 4−45092
- models, comparison of long-range exchange interaction and short-range direct interaction models 4−70129

- **ferromagnetism** continued
  - Mott insulators, Hubbard model, small hopping probability, quasi-particle energy calc. 4−79487
  - nuclear spins and domain walls, coupled oscills. 4−79612
  - phase transition second order, cubic four-axial ferromagnet in external field, Landau theory 4−53227
  - planar ferromagnet, divergent transport coeffs. at critical points, renormalization-group calcs. 4−51498
  - plate, local variation in anisotropy const. influence on mag. state *(Russian)* 4−72990
  - Procopiu effect, magnetoelastic phenomenon identification 4−45162
  - quadrupolar interactions at ferromag.-crit. points 4−53237
  - Raman scattering, by parametrically excited spin waves *(Russian)* 4−82705
  - random spin systems, application of coherent potential approx. 4−53186
  - reversal magnetisation dynamics, cores with square hysteresis loop *(Russian)* 4−76120
  - semiconductor, conduction electron energy determ. near Curie point by short range magnetic ordering 4−67345
  - semiconductor, ferromag., hot electrons, magnon scatt. processes 4−72791
  - semiconductor, heavily doped, screening, uniform state instability and charge carrier scattering 4−79340
  - semiconductor, spin wave amplification, plasma effects and s-d interaction considered 4−82572
  - single domain particles, hysteresis props. 4−57324
  - single-domain particles, susceptibility dispersion *(Russian)* 4−82590
  - singlet-triplet ferromagnet, dynamics 4−70123
  - singlet-triplet ferromagnet, soft mode dynamics 4−70124
  - soft magnetic materials, conference, Torino Italy (1973) 4−72929
  - solitons and wave trains, rel. to spin waves 4−70173
  - spin configurations of ferromag. magnons in periodic loop 4−49139
  - spin glass alloy behaviour in Au-Fe system 4−53242
  - spin wave, parametric excitation in ferromagnet with domain struct. 4−76097
  - spin wave damping, easy plane anisotropy 4−60967
  - spin wave dispersion relns. determ. by variational method for disordered ferromagnet 4−60966
  - spin wave energies in ferromag. linear finite chain, temp. depend. 4−70169
  - spin wave spectrum, effect of one-ion anisotropy 4−79529
  - spin wave spectrum for ferromagnet with single domain wall 4−57301
  - spin waves in crystal with linear defects *(Bulgarian)* 4−57295
  - spin-free quantum chemistry, infinite interaction range model for ferromagnetism 4−45069
  - spin-wave interaction effects, longitudinal dynamic suceptibility, Heisenberg ferromagnets 4−82545
  - square Ising spin lattice, critical surface renormalisation transforms 4−81248
  - superconducting film, ferromag. substrate influence on props. 4−72899
  - surface magnetic order above bulk ordering temp., mag.-field theory 4−57277
  - surface magnetic order above bulk ordering temperature mag.-field theory 4−57276
  - thin film, magnetic surface reconstruction in spin wave resonance 4−49233
  - time reversal illustration from existence of two magnetisation spin vectors 4−53183
  - transition metal, exchange splitting temp. depend., Stoner excitation, de Haas-van Alphen effect 4−48895
  - transition metals, correlation effects in narrow energy bands 4−79491
  - transverse nuclear spin-spin relaxation model 4−45203
  - tricritical behaviour of Blume-Capel model 4−72932
  - uniaxial crystals with twinned orientations, mag. reversals *(Russian)* 4−60975
  - uniaxial ferromagnetics, dispersion relns. for bound ferroelectric, spin, elastic and e.m. waves *(Russian)* 4−53247
  - uniaxial magnet, domain wall oscills., theory *(Russian)* 4−67405
  - Van Vleck system, surface mag. props., theory 4−57344
  - variational approximation to ferromagnet in mag. field 4−76041
  - weak, magnetoelec. classification of materials, review 4−82540
  - X-Y model, variation of Curie temp. with uniaxial anisotropy for $S=1$ ferromagnets 4−49140
  - Zener model, dynamic susceptibility calc. 4−45188
  - Co, de Haas-van Alphen effect, Fermi surface determ. 4−57028
  - Eu_xLa_{1-x}, magnetic superconductor, phase diagram 4−70091
  - $YFeO_3$, weak ferromagnetism near T_n, Mossbauer effect 4−79522
- **ferromagnets** *see ferromagnetic properties of substances*
- **ferrous alloys** *see iron alloys*
- **f.e.t.** *see field effect transistors*
- **few-nucleon systems** *see nuclei with* $A\leqslant 5$
- **Feynman diagrams**
  - atomic energy level recoil corrections for strong nuclear field 4−51958
  - charge form factors, rel. to peak consts. *(Russian)* 4−81452
  - compensation, for weak and strong interactions 4−69107
  - covariant formalism, connection with time-ordered perturbation theory in infinite-momentum frame 4−47456
  - critical indices of (0,l) operators, Feynman graph calcs. 4−77578
  - dense systems of correlated scatterers, equil. props. of electrons, φ fields *(Russian)* 4−79260
  - dipole ghosts and unitarity 4−81389
  - effective potential, series expansion derivation by Feynman path integral method 4−69119
  - eikonal approximation validity in scalar-scalar theory 4−59493
  - electron magnetic moment, sixth order radiative corrections calc. 4−69134
  - factorization of dual loop amplitudes, unitary planar corrections to leading trajectory 4−55640
  - hadron hadron wide-angle double-scatt. diag. derivation using Feynman parametric integral technique 4−71736
  - lepton trident production in nucleus field, differential cross section calc. 4−47686
- **Feynman diagrams** continued
  - meson-nucleon scatt. amplitude high-energy behaviour in scalar model, functional integration 4−51687
  - parametric integrals, computer generation of integrands 4−69135
  - perturbation series, Green's function representations in new method 4−59477
  - QED, use in functional formulations of Feynman and Schwinger 4−71625
  - quasipotential equation, soln. in form of Feynman integral 4−55567
  - renormalized amplitudes, behaviour under scale transformations 4−69127
  - scalar field theory $L_{int}=g\psi^2\varphi$, for high-energy hadron scatt. *(Russian)* 4−69181
  - single-loop amplitudes, generalised Euler-Pochhammer integral representation 4−47455
  - sixth order magnetic moment calc. method 4−65994
  - third-order, in quantum gravity, continuous dimension method calcs. 4−62727
  - unitary gauge renormalisation 4−81373
  - vertex function of T exponential function, integral eqn. system 4−55568
  - Wilson's theory of critical phenomena, Callan-Symanzik eqns. in 4-ϵ dimensions 4−59323
  - Yang-Mills fields, massive and massless canonical formalism using Lagrange multiplier field 4−69118
  - e magnetic moment anomalies, sixth order contributions 4−43410
  - $E^0\to\nu\gamma$, decay rate of heavy electron in Georgi-Glashow model 4−59532
  - $\eta\to\pi\pi\pi$, model-independent calc. of decay rate 4−43406
  - $\Gamma\to\nu+\nu$, energy loss rate in plasma 4−60272
  - μ anomalous magnetic moments, contributions to eighth order corrections 4−71667
  - μ magnetic moment anomalies, sixth order contributions 4−43410
  - πN-πN scattering, numerical evaluation of partial wave contrib. to perturbations 4−47570
- **fiber optics** *see fibre optics*
- **fibers** *see fibres*
- **fibre optics**
  - applied mechanical theory of light 4−71518
  - attenuation coefficient, length and diameter depends. 4−69013
  - communications applications *(French)* 4−69019
  - conference, Washington, USA, Spring (1974) 4−46624
  - convertor illumination apparatus 4−46622
  - diameter meas. using laser beam sweeping 4−42703
  - diameter measurement, laser scatt. technique 4−42790
  - dielectric fibre waveguide, dispersion minimization 4−59342
  - dielectric fibre waveguide, dispersion minimization 4−59343
  - diffraction of light on entrance face plane of optic fibre investig. 4−71496
  - elliptical fibre, light scatt. ellipticity meas. 4−74040
  - fatigue crack development applic. 4−61574
  - geometric optics interpretation of modes 4−43239
  - geometrical optics analysis limitations, leaky ray attenuation 4−62800
  - glass, clad fibres, effective numerical aperture due to refractive index change 4−43245
  - graded index material, light propagation path, time and pulse response, theory *(French)* 4−69007
  - hydrodynamic porous media microscopical study, appl. of fibre optics *(French)* 4−42974
  - image extraction from very low temp. cryostat 4−80872
  - laser drawing of fused silica fibres, CO_2 laser system 4−59458
  - light absorption coeff. meas. *(French)* 4−69004
  - light acceptance property, trapped mode power 4−74465
  - liquid crystal sensor, for e.m. wave power absorption meas. in tissue 4−65275
  - losses by leaky rays, circular struct., Fresnel's laws 4−62799
  - lossless fibre, power fluctuations, asymptotic behaviour 4−59354
  - low loss glass production technique, for optical fibre communication system 4−49972
  - materials, characteristic properties *(French)* 4−69003
  - mode pattern interference, source coherence depend. 4−59353
  - multichannel photometer for chemical analysis 4−68850
  - multimode, diffusion losses meas. *(French)* 4−69005
  - multimode, filter theory applic. *(French)* 4−69006
  - optical displacement sensor using two, large diameter fibres 4−46570
  - power transfer, nonparallel circular or parallel conical fibres 4−46392
  - radiation pattern, mode coupling effects 4−77617
  - radiation protection of materials, oxidation and reduction effect 4−57493
  - Rayleigh scattering, mode-coupling applic. and impulse response effect 4−47294
  - refractive index measurement, laser scatt. technique 4−42790
  - scattering attenuation meas., photometer design 4−77072
  - scattering loss measurement using integrating sphere 4−74039
  - scintillation crystal photomultiplier coupling, light losses, solutions 4−46810
  - side illuminated clad glass fibre parameters, light scatt. 4−74467
  - silica, fused fibres and preforms, refractive index wavelength depend. 4−57494
  - solid laser pumping technique 4−51597
  - transmission losses, ionising radiation effect 4−57492
  - two colour, pyrometer, Y-shaped fibre optics 4−62440
  - Nd:fibre laser, room temp. c.w. operation with injection laser pump 4−59419
  - SiO_2, proton-bombard. fused silica fibres, refractive index variations 4−57495
- **fibres**
  - *see also asbestos; carbon fibres; composite materials*
  - in alloy, two-phase, tensile behaviour simulation under tensile load *(Japanese)* 4−45630
  - aluminium borosilicate glass, contact angle of wetting by polyethylene 4−49928
  - borosilicate E glass fibre strand, tensile failure in resins and waxes 4−49927
  - Borsic, Al-Borsic composite, necking of Al matrix 4−82963

fibres continued
  Borsic reinforced Al, delamination process, crack length and bond strength effect 4−61519
  Borsic reinforced Al, elastic-plastic Poisson's ratio 4−61516
  Borsic/Al composite, dynamic fracture behaviour 4−49961
  closed front masses, acoustic impedance properties 4−68556
  composite, fibrous, design appl. of self adjusting interfaces, shear, tensile strength 4−80075
  composite, testing of adhesion between materials 4−50060
  diameter measurement by laser diffr. method 4−80100
  discontinuous fibre reinforced composite, creep strength 4−61512
  displacement in a.c. electric field 4−51506
  elastic, problem of sliding on cylindrical surface soln. *(Russian)* 4−43043
  elasticity modulus determ. using strain meas. techniques 4−76564
  fibre reinforced material, bi-directional, elastic wave propagation 4−64626
  fibre suspension, drag reduction in turbulent flow 4−69607
  fibre suspension, resistance to stock flow in pipe *(Russian)* 4−52522
  fibreglass surfaces, anal. and investig. by X-ray photoelectron spectroscopy (ESCA) 4−58974
  glass, apparent viscosity meas. below vitreous transition temp. *(French)* 4−49964
  glass, borosilicate, structure, n.m.r. and Mossbauer spectra with thermal shock 4−52695
  glass, impregnation with polymer dispersions, advancing contact angle determ. 4−82993
  glass, in Nylon 6, notched specimen, crack propag. by bending fatigue *(Japanese)* 4−49922
  glass, liquation struct. investigation using internal friction and electron microscopy 4−48512
  glass, reinforced plastic, fatigue and change of elastic modulus 4−82965
  glass, reinforced plastics, behaviour under biaxial stress, expt. *(German)* 4−80089
  glass, tensile fragmentation 4−67956
  glass, tensile stress effect on rupture mode 4−45801
  glass fibre materials, scatt. effect on heat transfer 4−64642
  glass fibre reinforced plastic, flexural fatigue strength *(Japanese)* 4−57767
  glass fibre reinforced plastic composites, acoustic emission rel. to tensile failure mechanism *(Japanese)* 4−45766
  glass fibres in glass microsphere-reinforced epoxy resin, mech. props. 4−80070
  glass reinforced epoxy laminate, unidirectional, tensile creep 4−49924
  glass reinforced epoxy resin, deform. characts. 4−49932
  glass reinforced epoxy resin, thermally activated deform. 4−49933
  glass reinforced gypsum, strength and stiffness properties 4−67931
  glass reinforced plastic, bending of cantilevered plate, transverse shear effect 4−45778
  glass reinforced plastic, damage accumulation under cyclic tension/compression 4−45781
  glass reinforced plastic, extremal directions determ. 4−45779
  glass reinforced plastic, failure due to stress conc. 4−61530
  glass reinforced plastic, fracture toughness 4−61531
  glass reinforced plastic, stress and strain conc. around circular hole 4−80085
  glass reinforced plastic, SVAM-type, anisotropy effect on cyclic deform. and heating 4−45782
  glass reinforced plastic cylindrical shells, creep buckling 4−45776
  glass reinforced plastic cylindrical shells in axial compression, buckling mode and crit. load 4−45784
  glass reinforced plastic ring with unidirectional struct., friction and bending effect on perimeter strain distrib. 4−45785
  glass reinforced plastic rings, climatic loading effect on residual stresses and carrying capacity 4−53844
  glass reinforced plastic rings operating under press., carrying capacity 4−53843
  glass reinforced plastic shells, initial imperfections and buckling modes under hydrostatic press. 4−53841
  glass reinforced plastics, adhesion effect on tensile props. *(Japanese)* 4−80082
  glass reinforced plastics, anisotropy and resist. to interlayer shear and compression perpendicular to fibres 4−49946
  glass reinforced plastics, creep characts. rel. to instantaneous stress/strain curves 4−45772
  glass reinforced plastics, fracture characts. in cyclic tension-compression 4−45773
  glass reinforced plastics, matrix interaction with short reinforcing fibres 4−49942
  glass reinforced plastics, oriented, creep and long-time strength in interlaminar shear 4−49941
  glass reinforced plastics, oriented, long-term strength criterion in interlayer shear 4−49947
  glass reinforced plastics, oxygen etching for supermol. struct. investig. 4−50004
  glass reinforced plastics, shear moduli determ. using ring specimens 4−50086
  glass reinforced plastics, unidirectional hollow fibres, compressive creep relations 4−45780
  glass reinforced polyester resin laminates, macroscopic fracture mechanics 4−76532
  glass reinforced polyethylene, residual stresses, axial and radial components 4−45777
  glass reinforced polyethylene, stress relax. *(Japanese)* 4−80083
  glass reinforced textolite, thermal effects in uniaxial tension 4−45770
  glass reinforced thermoplastic, tensile stiffness 4−64625
  multicomponent fabric dyeing, computer-aided colour matching system 4−54914
  noncrystalline, disorientation effect on X-ray intensity distrib. 4−69692
  nylon fabrics, inter- and intra-fibre pore characts. determ. by mercury porosimetry 4−53928
  nylon fibre, novolac blends, filament strength 4−82973
  plastic materials, unidirectionally reinforced for geophysical apparatus, mechanical properties obs. *(Russian)* 4−50390
  poly(ethylene terephthalate), oriented, crystn. 4−60422

fibres continued
  poly(ethylene terephthalate) drawn fibres, shrinkage and chain folding 4−60421
  poly-n-phenyleneterephthalamide, i.r. spectra and structure *(Russian)* 4−53456
  polycaproamide, crystallinity index determ. by half-integral intensity method 4−69734
  polycaproamide, supercryst. struct., effect of iodine treatment *(Russian)* 4−48527
  polydisperse ultrafine fibre filters, gas flow 4−64646
  polyester, orientation measurement *(Bulgarian)* 4−57768
  polyester fibre fabric with PVC coating, nonlinear two-dimensional material law *(German)* 4−62691
  polyformaldehyde, structural changes effect on sorptivity and mech. props. 4−50005
  polymer monofilament, compressive deformability in radial direction, multiple apparatus 4−53947
  polymer solution produced, mech. props. *(Russian)* 4−53896
  polymeric monofilaments, deform. bands by twist *(Japanese)* 4−53855
  polypropylene, methylmethacrylate-grafted, thermal props. *(Japanese)* 4−50015
  polypropylene fibres, manufacture, cryst. struct. and mech. props. *(Polish)* 4−80118
  polythene, anisotropic structure, related properties 4−63771
  polyurethane, with varying hard segment conc., chem. struct. influence on rheological props. 4−50012
  porous metal fibre materials, hydraulic characts. and porous struct. 4−49872
  reinforced composite, failure analysis under combined axial tension and shear 4−70565
  reinforced composite, fracture energy 4−53837
  reinforced composite, fracture mechanics approach to failure 4−64633
  reinforced composite, interaction of elements under cyclic loads 4−49950
  reinforced composite, internal damping meas. 4−76536
  reinforced composite, laminated, thermal expansion in thickness direction 4−61522
  reinforced composite, metal-matrix type, failure of reinforced sheets under thermal cycling 4−49949
  reinforced composite, metal-matrix type, one-dimens. press. effect *(Russian)* 4−49936
  reinforced composite, microbuckling compression failure 4−49953
  reinforced composite, nonlinear elastic, shear waves and shock waves 4−80074
  reinforced composite, notched unidirectional, approx. analysis method 4−67924
  reinforced composite, reinforcement curvature effect on mech. and thermophys. props. 4−49943
  reinforced composite, time-harmonic elastic wave propag. 4−70566
  reinforced composite, torsion-flexure coupling obs. 4−53833
  reinforced composite, unidirectional, elastic and viscoelastic parameters, Airy method *(French)* 4−45787
  reinforced composite, unidirectional continuous, damping props. under tension/compression 4−53845
  reinforced composites, chopped, elastic moduli dependence on modulus ratio and fibre length 4−45792
  reinforced metals, strain hardening behaviour, tension test *(German)* 4−50049
  reinforced plasma sprayed coatings, effective area of adhesion 4−70554
  reinforced plastic, unidirectional, impact behaviour obs. 4−80162
  reinforced plastic, unidirectional, viscoelastic behaviour, constitutive eqns. 4−49931
  reinforced plastics, elastic modulus change obs., under tensile sinusoidal and impact stresses 4−82964
  reinforced plates, edge beam supported, optimal layout shape 4−81149
  reinforced rigid plastic beams, dynamical behaviour 4−70563
  reinforced viscoelastic materials, dynamic investig., model approach 4−76526
  sintered fibre metal composite, mech. characts. 4−57766
  solidification zone of fibre bundle, bath penetration *(Polish)* 4−82982
  static electrification, conf. Frankfurt, Germany (March 1973) 4−72846
  steel, stainless, chopped, in reinforced composites, elastic moduli determ. by u.s. pulse technique 4−45792
  steel reinforced Al, microprobe analysis of transition zone 4−61524
  tobacco mosaic virus gel, disorientation effect on X-ray intensity distrib. 4−69693
  triacetate, thermal degradation, multiple extension effect 4−53885
  yarn, continuous filament, tensile behaviour 4−82971
  Al, fibre texture formation process rel. to drawing wire *(Japanese)* 4−45726
  B, B-Al composite, uniaxial compression 4−82969
  B, reinforced Al, crippling strength improvement 4−49957
  B, reinforced Al, elastic consts. by u.s. vel. meas. 4−61509
  B, reinforced Al alloy, tensile failure modes 4−70564
  B, reinforced fibreglass-plastics, mech. props. 4−80084
  B, reinforced plastics, structural characts. 4−45774
  B/epoxy composites, fabrication defects effect on struct. integrity 4−49951
  B/epoxy prepreg, prestressing effects on composite strength props. 4−49921
  Be reinforced Ti microcomposites, state-of-the-art review 4−80071
  Fe, reinforced Cu, internal friction changes on cold rolling 4−80088
  Mo, reinforced Ti, creep and long-term strength 4−49948
  $NbN_{1-x}C_x$, multifilamentary, supercond. props. 4−60901
  TaC, a.c. discharge growth, 673-873K 4−57772
  TaC reinforced Co-Cr eutectic, strengths and failure mechanisms 4−80009
  TaC reinforced eutectic Co alloys, struct. and mech. props. 4−45641
  W, reinforced Cu, diffusion bonded, mech. characts. *(Slovak)* 4−49934
field, crystal internal *see crystal internal fields*
field effect devices
  see also metal-insulator-semiconductor devices
  m.i.s., with layered dielectric, instability, review 4−45011

field effect devices continued
- self aligned gate structure, implanted ion lateral spread effect 4−67735

field effect transistors
- cryogenic environment performance characts. 4−77052
- gate oxide-PSG thickness determination microprobe technique 4−45458
- i.g.f.e.t., stability characterisation, obs. of charge motion and insulator layer polarisation 4−57173
- m.o.s., effective mobility in strong inversion layer, diffuse scatt. model 4−60871
- m.o.s., gate oxide vapour deposition, characts., device applics. 4−67742
- m.o.s., in temp.-compensated electrometer for environmental measurements 4−51108
- m.o.s., n-channel, Ni-doped, positive shift 4−49071
- m.o.s., n-channel, radiation effects, interface state growth 4−57179
- m.o.s., surface quantisation, admittance studies 4−64141
- m.o.s., threshold voltage calc. for exponential doping profile *(German)* 4−67286
- m.o.s. structures, Cr-doped and undoped, ionising radiation dose effects at 90K, obs. 4−45001
- m.o.s. surface oscills., Shubnikov-de Haas effect 4−75967
- m.o.s.f.e.t. dosimeters, advantages 4−46823
- GaAs, electrolytic etching and electron mobility 4−82414
- GaAs Schottky-barrier, using heteroepitaxial layer on BeO, characts. 4−60889
- Si, (100) and (111) f.e.t.s, p-type inversion layers, quantum oscills. 4−70078
- Si, gate s.a.o.s.t. 4−64139
- Si, junction f.e.t., n- and p-channel, electron and neutron irrad. damage 4−67275
- Si, n-channel (100) inversion layers in FETs, negative magnetoresistance at 2 to 10K 4−57175
- Si inversion layers, localized wavefunctions, spatial extent 4−70072
- Si m.o.s.t. structures, photoeffect analysis w.r.t. to surface states 4−57170

field emission, electron *see electron field emission*

field emission microscopes
- *see also ion microscopes*
- shadow image characteristics *(Japanese)* 4−77247
- surface self-diffusion investigation of metals and alloys *(Russian)* 4−44757

field intensity patterns (antenna) *see antenna radiation patterns*

field ion microscopy
- *see also ion microscopes*
- atom imaging, b.c.c. tip, computer simulation 4−81039
- atom probe, advances 4−68813
- crystallographic distribution of field desorbed species 4−75674
- domain type determination, appl. to β-Ni$_4$Mo 4−49689
- image overlap, obs. of field emitter end morphology 4−52650
- ionisation probability calculations 4−42928
- metal, elevated temp. technique 4−82794
- metallographic examination of planar defects in pure metals and ordered alloys 4−76445
- organic molecular crystals, detection of lattice defects *(German)* 4−75521
- steel, tempered martensite 4−82860
- surface self-diffusion, review 4−60683
- Co, hydrogen cluster form. and slip 4−67805
- Co, pure, influence of small impurity additions *(German)* 4−61397
- Fe-Cu(1.4 at.%) alloy, precip. of Cu 4−45559
- Fe-Cu(1.4 at.%) alloy, precip. of Cu, atom probe analyses 4−45560
- Fe-Ni-Co-Mo alloy, obs. of aged martensite, technique 4−61395
- Ir based dilute substitutional solid solns., image contrast obs. of structure 4−57739
- Mo, three-fold symmetric dissociation of $1/2\,a<111>$ screw dislocations, FIM obs. 4−79040
- Ni$_3$Fe, ordering mechanism, FIM obs. 4−70444
- Pt$_3$Co, image interpretation, atom probe investigation, comment 4−63790
- Pt$_3$Co, image interpretation, atom probe investigation, reply 4−63791
- Rh, surface self-diffusion, obs. of atomic diffusion 4−52984
- Ru, hydrogen cluster form. and slip 4−67805
- Ti on W, surface diffusion and adsorption 4−56976
- W(111) surface, direct visualisation of adatom sites by field ion microscopy 4−75696

field measurement, electric *see electric field measurement*

field measurement, magnetic *see magnetic field measurement*

field plotting
- *see also field strength measurement*
- analogue technique, appl. to field ion microscope 4−65541
- electric field plotting experiment for students, use of pantograph 4−54797
- external beam radiation fields, three-dimensional visualisation by diagonal isodose plots 4−54703

field strength measurement
- *see also electric field measurement; magnetic field measurement*
- e.m. field meas. for hygienic purposes 4−68536
- magnetic field generation and recording apparatus applic. 4−74097

field theories, unified *see unified field theories*

field theory, classical *see classical field theory*

field theory, crystal *see crystal field theory*

field theory, electromagnetic *see electromagnetic field theory*

field theory, meson *see meson field theory*

field theory, quantum *see quantum field theory*

fields, electric *see electric fields*

fields, magnetic *see magnetic fields*

filament lamps
- a.c., spectra calc. from Planck's radiation equation *(Polish)* 4−54930
- spectral radiance and irradiance standards, 0.25 to 2.5 μm *(Japanese)* 4−80889
- W, solubility of C at 1400 to 2000°C, obs. *(German)* 4−49738
- W rod sintering in Coolidge drawing process, impurity behaviour obs. *(German)* 4−49873

file management *see file organisation*

file organisation
- *see also data handling*
- cancer patient information computer files 4−46431
- radioastronomy, NOD2, data analysis system using document or file concept 4−62222

films
- *see also coating techniques; interface phenomena; liquid films; optical films; substrates; thick films; thin films*
- cooling, analysis of heat transfer 4−78586
- Teflon, electron irrad., cond. and breakdown, split Faraday cup obs. 4−82442
- ZrO_2, X-ray stress meas., high-temp. oxidation of fuel cladding *(Czech)* 4−55921

filtering and prediction theory
- *see also information theory; Kalman filters; random processes*
- γ-ray scintillation flow detectors, smoothing filter time constant optimisation 4−46916
- after-stack multichannel filters without mixing effects 4−76754
- digital filtering technique for restoration of hum-contaminated correlation functions 4−55081
- gravity fields, filters for upward and downward continuation using linear programming 4−45949
- logarithmic filtering with coherent optical processing system 4−51535
- multimode fibre optics applic. of filter theory *(French)* 4−69006
- seismic data processing, wavelet shaping and noise reduction 4−76755
- Toeplitz$_{(\alpha\ by\ \beta)}$ matrices and statistically periodic processes 4−65646

filters
- *see also active filters; band-pass filters; digital filters; electromechanical filters; Kalman filters; microwave filters; optical filters*
- after-stack multichannel filters without mixing effects 4−76754
- automatic filter changer for short-period high-volume aerosol sample collection 4−68276
- bank signal processor, laser anemometry application 4−77329
- differential, activation anal. of rocks 4−46936
- $E\times B$ ion velocity filters, spectrum monitor 4−51136
- electronic, optical scanning microscopy, OTF enhancement 4−65446
- electrostatic energy filter, for electron diffraction and electron microscopy 4−82093
- Kolomogorov-Smirnov, texture patterns processing application, performance estimation 4−50817
- polymer film, for nondispersive X-ray spectral anal. 4−46938
- pulsar radio signal dispersion distortion removal filters 4−62227
- resonance technique for Mossbauer study of ^{119}Sn 4−42929
- Ross filter-Si diode detector system for X-ray spectra of nanosec. plasma 4−48450
- time-dependent mathematical filter construction for geophysical processes *(German)* 4−64981
- transducer array for spatial frequency filtering of turbulent pressure fluctuations *(Russian)* 4−51245
- Wien double focusing filter for electron energy analysis 4−43371

filters, optical *see optical filters*

finite automata
- neoplastic processes, finite automata approach 4−80696

finite element analysis
- adhesive joint bonding composite to metallic substrate, linear elastic analysis 4−53822
- aerodynamics, unsteady, soln. of Navier-Stokes eqn. 4−81896
- anisotropic materials, transforms. for elliptical holes applied to finite element analysis 4−59122
- anisotropic plate, stress analysis *(Italian)* 4−77408
- anisotropic solids of revolution, thermal stresses 4−62677
- axisymmetric solids, nonlinear dynamic analysis 4−81184
- beam bending, axially constrained beams on elastic foundation 4−51326
- biomechanics, applic. 4−62269
- boundary and interior approx. errors 4−43133
- boundary value problems, local error bounds 4−59066
- boundary-value problems in domain with sharp cutout *(Japanese)* 4−43033
- box beam, torsion stress diffusion *(Italian)* 4−77407
- building vibrations, modelling techniques 4−59217
- c.g. method, adaptability 4−51292
- composite, transversely loaded unidirectional, elastoplastic crack propag. 4−61518
- composite, two-phase, finite element analysis of cracks in interfacial region 4−64631
- composite reinforced cutouts and cracks, stress and strain fields 4−49956
- computational techniques, status report 4−63260
- conical shell finite element, asymmetrical bending and free vibr. 4−77405
- continuum mechanics, by variational principles with relaxed continuity requirement 4−59104
- continuum mechanics applic., survey 4−59105
- controlled thermonuclear reactor toroidal magnet three-dimensional elastic stress analysis 4−59872
- convergence of Galerkin method in viscoelasticity 4−65680
- cylinder, axisymmetric problems soln. in elasticity theory 4−59131
- cylindrical shell, hybrid finite element anal. 4−77444
- cylindrical shells, large deflection geometrically nonlinear behaviour 4−59170
- diffusion in metals, finite element method applic. *(Czech)* 4−79181
- discontinuous, local and global smoothing by least squares method 4−62681
- dynamic response, rate of change, optimisation procedure 4−59219
- elastic deformations, energy forms 4−59158
- elastic shell, numerical accuracy test for finite element and difference methods *(Italian)* 4−77406
- elastic structures, acoustic radiation from 4−46508
- elasticity, cases requiring combination of elements possessing different numbers of degrees of freedom 4−59162
- elastoplastic large deformation anal. program DYPLAS 4−71335
- elastoplastic plate bending 4−43088
- element generation, by Euler's variational method 4−59157
- e.m. finite difference eqns., fast direct soln. methods 4−74458

finite element analysis continued
  e.m. wave scattering by dielectric cylinders 4−71477
  error analysis w.r.t. plane stress analysis 4−47071
  error bound evaluation in optimisation problems 4−77434
  fatigue crack propagation under cyclic loading, elastic-plastic analysis 4−50105
  fatigue cracks closure, kinematic hardening theory 4−66972
  fibre-reinforced materials, anal. of loading props. *(German)* 4−65673
  first-reactor core subassemblies, dynamic response 4−74783
  flat slab with openings, distrib. of bending moments 4−71332
  flexible plates, plastic deformation *(Russian)* 4−47114
  flexural stiffness of rectangular plates *(Russian)* 4−55239
  flexural vibration problem anal. for rotationally symmetric bodies 4−51382
  flow, least squares finite element analysis of laminar boundary layer flow 4−81830
  flow problems, laminar, viscoelastic 4−60155
  fracture, adhesive, Griffith energy balance analysis 4−67978
  fracture mechanics, two-dimens. problems, assumed displacement hybrid finite element procedure 4−50108
  frame systems stiffened by panels, limit analysis 4−77423
  functionals, class giving improved convergence 4−59040
  fusion reactors, structural problems, finite element and finite difference stress anal. capabilities 4−69336
  Gauss Seidel finite element analysis, Dugdale model solutions, single edge cracked plate 4−65662
  geological structures, nonlinear in-plane bending of plane stress-strain finite element model 4−54118
  graphite, fracture mechanics applic. to failure pressures determ. under complex stress conditions 4−73365
  grid optimisation, variational approach 4−59163
  ground water flow, modelling 4−61717
  head-helmet system, impact loading, numerical and expt. study 4−82998
  heat conduction transient, two-dimensional problems 4−62755
  hybrid models 4−59120
  hybrid plate elements with assumed stress 4−62683
  incompressible material, residual energy balancing 4−65684
  Indiana limestone, stability of experimentally deformed single layer 4−54119
  isoparametric elements, flow anal. using substructure theory *(German)* 4−63518
  jet, free-surface problems, finite element anal. 4−72328
  large deflection elastic-plastic dynamic response of stiffened shells of revolution 4−81134
  least squares techniques, for partial differential equations 4−59067
  lifting-surface programs evaluation 4−78618
  magnetic structures, eddy current losses 4−47270
  Navier-Stokes eqn. soln. 4−65639
  Navier-Stokes eqns. for tide dynamics 4−65638
  noncoplanar plate folded structure, appl. of finite element method *(French)* 4−81145
  nonlinear elasticity theory, conjugate gradient method *(German)* 4−65690
  nonlinear heat conduction problems, with reference to phase change 4−62756
  nonlinear models, effect of higher order terms 4−47068
  nonlinear structural dynamics, for equations of motion 4−81183
  nuclear power plant structures and substructures, seismic analysis 4−47768
  nuclear reactor fuel, thermally stressed, crack propag. analysis 4−72001
  operators, linear parabolic, applic. 4−59039
  plane elasticity theory of inhomogeneous regions in curvilinear coordinates *(Russian)* 4−51350
  plasma, cylindrical homogeneous, eigenmodes study by finite element method *(German)* 4−82018
  plasma, homogeneous cylindrical, anal. of natural modes *(French)* 4−66742
  plasma screw pinch, anal. of natural oscillations 4−66743
  plastic deformation around crack tip using stress/strain relations for Zircaloy 4−80036
  plate bending, elastic, thermoelastic analysis *(Greek)* 4−43080
  plate bending, three-dimensional anal. 4−74279
  post-buckling behaviour of thin plates and shells 4−59201
  post-yield analysis of proposed standard three-point bend fracture test pieces 4−67977
  postbuckling behaviour of structures 4−47066
  pre-seismic crustal deformation, Japan 4−45969
  pressure vessels, cylindrical, elastoplastic deformation under cyclic loading 4−63258
  pressurized water reactor, appl. to two-dimensional diffusion problems 4−78165
  prestressed concrete pressure vessel, rupture analysis creep effects 4−78171
  prestressed concrete reactor vessels, finite element analysis 4−78169
  pretensioned stiffened panels, dynamic photoelasticity, crack arrest capability 4−73995
  reactor pressure vessels, viscoplastic effects 4−81560
  rectangular orthotropic plate, response to randon excitations 4−51395
  rigid body modes, automatic extraction, from stress and strain elements 4−59161
  seismic wave propagation problems, in saturated media 4−61708
  shaft torsion, finite space-time element calcs. *(German)* 4−65716
  shape function formulations for elements other than displacement models 4−59160
  shell elements, curved rotational, by constraint method 4−59171
  spherical shells with eccentric cutout, three-dimens. theory, stress/strain state 4−47098
  spine, human, initially curved, computer model of the effects of caudocephalad acceleration 4−65236
  steel, cold-rolled sheet, residual stresses and flatness defects *(German)* 4−45580
  stiffened shell instability in nonlinear regime 4−47106
  stiffness matrix, method of construction and solution, finite element method *(Polish)* 4−71326
  stress concentration factors determ. 4−65685
finite element analysis continued
  stress problems, solution bounds, compared with the hypercircle method 4−59178
  stresses in nearly incompressible materials applic. to excess pore pressure calc. 4−62678
  structural mechanics, finite element discretization, stiffness props. and stresses 4−78170
  tectonic folding, stress-induced diffusion 4−61701
  thermal stresses in open cylindrical shells of arbitrary boundary conditions, by a finite strip method 4−59167
  thick and thin plates, free vibration and transient response 4−81197
  thick plates, high precision triangular plate bending element 4−81166
  thin shell analysis, axisymmetric and nonaxisymmetric, ring finite elements 4−59159
  thin-walled sections, instability analysis 4−71336
  torsional problem, St. Venant's *(German)* 4−51357
  transient temperature fields, with finite elements in space and time dimensions 4−62757
  triangular membrane, transformation matrix anal. 4−74210
  two-dimensional stress concentrated parts, transient creep problem 4−51359
  unsteady incompressible flow around arbitrarily shaped obstacles 4−48228
  unsymmetrically tapered beam, dynamic coupling 4−62697
  variational methods in engineering, conf., Southampton, Hants., England, (25 Sep. 1972) 4−59101
  variational principles, extended, applic. 4−59065
  variational technique alternative 4−59156
  vertical cylindrical sector, self weight deform. 4−59134
  vibr. of quartz plates, appl. finite element method, admittance curves 4−80806
  vibration of pre-twisted beams 4−77463
  vibrations, coupled, of tapered twisted blades 4−59218
  viscoelastic cylinder, dynamic problems, direct numerical method 4−43063
  viscoelastic plates, quasistatic-problems 4−59141
  viscous flows, variational principle formulation 4−60156
  wave equation, using an equilateral triangle grid 4−62708
  wheel rolling on rigid track, elastic-plastic analysis 4−68898
finite state automata *see finite automata*
Finlay-Freundlich red-shift hypothesis *see gravitational red shift*
fireproofing *see flameproofing*
fires
    see also accidents; combustion; flames; safety
  coal mine fires, remote sensing of thermal activity 4−61916
  hydrocarbon emission control, oxygen depletion, roofing products manufacture 4−50904
fission, nuclear *see nuclear fission*
fission counters
    see also nuclear fission
  detector using Si, electronic spectrometer 4−42883
  differential current pulse preamplifier 4−46872
  gamma irradiation performance, design and operation effects 4−68779
  LMFBR neutron monitoring systems, review of French, British, German, American systems 4−47751
  superheavy elements, spontaneous fission, experimental search *(Russian)* 4−78133
  SiC detector operation characteristic changes, obs. 4−46830
fission products *see nuclear fission products*
fission reactors *see nuclear reactors*
fissures *see cracks*
flameproofing
    see also fires
  nylon fibre, novolac blends 4−82973
flames
    see also combustion; fires
  acetylene-air, Ca absorpt., inorg. acids effect *(Russian)* 4−42966
  acetylene-air, organic solvents, spectrochemical analysis, oxidation-reduction properties *(Russian)* 4−68849
  adiabatic homogeneous systems, ignition analysis including reactant consumption 4−57814
  aerodisperse systems, front form. and propag. radiation mechanism 4−61608
  alkali + N_2 collisions in flames, quenching cross section investig., energy transfer mechanism, model 4−74872
  alkyl-M, where M = Al, Zn, Sn, oxidation in flame, chemiluminesc. investig. 4−61591
  Bunsen, laminar flow jet interaction with sound, role of acoustic streaming 4−56417
  chemically reacting turbulent flow, two-dimensional analysis 4−44170
  diffusion, criteria for extinction 4−50146
  extinction of spherical diffusion flames, Spalding's theory 4−76577
  flame gases, positive ion mobilities, electrostatic probe meas. 4−56351
  flame plasma diagnostic techniques, review 4−46944
  free electrons from additives on wires rel. to soot reduction 4−50162
  gas, acoustic oscill. generation, impedance condition for prevention 4−68553
  homogeneous counterflow diffusion, model relating extinction to reaction kinetics 4−53963
  hydrocarbon cool, influence of HBr on properties 4−50164
  ionised-flame detector for hydrocarbon conc. meas. in air *(Croatian)* 4−46500
  laboratory flames, temps. calc. for flame models, comparison with expt. values 4−55157
  laminar, freq. characts. *(Russian)* 4−54014
  laminar burning velocity and ignition delay relationship 4−57817
  methane-air, ground-state population distrib. of OH, tunable u.v. laser determ. 4−70599
  one-dimensional stability of normal combustion in const. mag. field 4−45905
  oscillating diffusion, instantaneous velocity and temperature measurements 4−50166
  periodic wave propag. as hydrodynamic discontinuity *(Russian)* 4−52532

flames continued
- pyrotechnic flames, spectral power distribution, visible waveband 4—73433
- rectangular recess wall flame holder, separated flow 4—43976
- refractive index distribution, meas. using holographic interferometer with sensitivity regulation technique *(Russian)* 4—54948
- stabilisation behind bottom of axisymmetric body, external supersonic flow struct. effect *(Russian)* 4—48291
- stabilization around an obstacle in high speed shock tube flow 4—72350
- stream of coding particles, emission spectra 4—81973
- thermal conductivity, influence on at. form. in flame spectrometry 4—55133
- transition flow region in free gas jets 4—44064
- turbulent, uniform distrib. obs. 4—52352
- $CF_3Br + O(^3P)$, rate const., 800-1200K 4—80180
- CN^*, form. from active N_2 and C_2N_2 in flame, mechanism, rate, investig. 4—53958
- CO-air, with temp. and comp. distribs., spectral intemsities of i.r. radiation 4—61606
- C_2radical, laser excited fluorescence in flames, radical conc. meas. 4—50169
- $H + CH_4 \rightarrow H_2 + CH_3$, kinetics meas., low press. flame technique 4—73425
- $H_2/O_2/N_2$ flames, catalysis of H and OH radical recombination by iron investig. 4—61581
- H_2-O_2 flames, AlO dissociation energy determ. *(German)* 4—52241
- H_2-O_2 flames, lean, OH chemiluminescent radiation 4—76595
- H_2-O_2-N_2 flame, HO_2 mass spectra obs. 4—61576
- H_2 + air, flame, numerical predictions *(German)* 4—64708
- $K + N_2(H_2)(O_2)(H_2O)$, 4^2P-doublet quenching and mixing cross sections 4—72073
- Mg, radiation props. and temp. distrib. 4—57815
- Mg-$NaNO_3$, pyrotechnic flame, radiative transfer model for predicting spectral radiant flux 4—76597
- $Ni(CO)_4$, oxidation in flame, chemiluminesc. investig. 4—61591
- $V(CO)_6$, oxidation in flame, chemiluminesc. investig. 4—61591

flare stars *see stars*

flares, solar *see solar flares*

flash lamps
- coaxial glass, use in dye laser system 4—54958
- conference, gas discharges, London, (Sept. 1974) 4—75343
- dye laser pumping, prepulse enhancement for power output increase 4—74498
- dye laser pumping, simmering-mode flash lamp operation 4—77666
- dye laser switching, flash lamp in series with rotary spark gap 4—74076
- optical pumping, dye laser with tunable wavelength 4—62840
- pumping of high-energy planar self-guding dye laser 4—59416
- solid laser pumping, power supply circuit *(German)* 4—54956
- stroboscopic frequency-constant equipment *(German)* 4—46714
- Xe, generation of msec flashes using pulse forming network and chopper 4—54991

flash photolysis *see photolysis*

flashover
- bypass gap to discharge voltage surge across a parallel gap 4—54985
- dielectric spacers in cold compressed He, flashover voltage 4—82076
- insulators in vacuum, impulse testing, effect of d.c. prestress, expt. 4—68729
- preflashover and electron-stimulated desorption in high electric fields 4—56985
- probability, standard deviation calc. in gases *(Czech)* 4—56551
- resistive surface, long discharge development 4—60372
- voltage changes over ceramics in high vacuum 4—82058

flicker noise *see random noise*

flip-chip devices
- *see also thin film circuits*
- No entries

flip-flops
- asynchronous odd number counter with 50/50 duty cycle 4—65527
- tunnel diode amplitude discriminator for scintillation detector 4—42891

floating zone refining *see zone melting and refining*

flocculation
- *see also colloids; sedimentation*
- Liesegang phenomena, one-dimensional, refined time law 4—64649

flow
- *see also boundary layer flow; compressible flow; Couette flow; external flows; flow measurement; flow of gases; flow of liquids; flow through porous media; hypersonic flow; Knudsen flow; laminar flow; multiphase flow; non-Newtonian flow; plasma flow; rotational flow; shear flow; stratified flow; supersonic flow; turbulent flow*
- incompressible inviscid fluid, free streamline problems 4—66559
- inviscid flow equations, average Bernoulli's equation 4—66555
- noise in hydrodynamic stream near instability threshold *(Russian)* 4—52364
- numerical treatment of fluid flow, review 4—43920
- two-phase, particle size and velocity meas. by holographic method *(French)* 4—66655

flow birefringence
- anisotropic uniaxial molecules, rel. to a.p.r. 4—49212
- dilute gas of symmetric top mols., kinetic theory of flow birefringence 4—69554
- polycarbonate, conform. determ. 4—60136
- polymer solution, internal viscosity 4—49323
- polymer solution, temp. and conc. depend. 4—56421
- HD-Ne(Ar)(He) mixtures, flow birefringence, transport-relaxation eqns. 4—66552
- N_2-Ne(Ar)(He) mixtures, transport-relaxation eqns. 4—66552

flow control
- automatic constant flow double nozzle for matrix isolation spectroscopy 4—58805
- differential thermal analysis gas regulating assembly 4—71284

flow measurement
- *see also flowmeters*
- anemometers, laser-Doppler 4—51238

flow measurement continued
- arc, differential interferometry 4—68854
- blood, non-invasive, review 4—68821
- blood, thin film gauges 4—59021
- blood, u.s. interferometric technique 4—50749
- blood flow measurement in bone, non-invasive approaches 4—68823
- blood flow rate, and mean circulation time, direct and indicator-dilution measurements, comparison 4—51197
- cardiac output, continuous monitoring, non-invasive u.s. technique 4—81051
- concrete rheometer construction and meas. on mixes 4—46987
- convection, natural, automatic determ. of turbulence characts. *(French)* 4—59017
- e.m. flow measurement 4—55166
- fibre optics, appl. for hydrodynamic porous media microscopical study *(French)* 4—42974
- free jet, laser-Doppler Fabry-Perot technique 4—71296
- gas, dust-laden, using hot-plate anemometer 4—81109
- gas, laser Doppler velocimeter, signal processing for 4—46995
- gas dynamic research, optical interferometry 4—48286
- heat flux probe as flowfield diagnostic method 4—46972
- heterogeneous mixtures, monitoring 4—74196
- holographic system with large viewing angle 4—68705
- hot film gauge for measuring 3 dimens. velocity vector 4—68856
- hot film sensors for turbulence meas. in water 4—77319
- hot wire anemometer method for vel. fields downstream from four-bladed helix *(French)* 4—42968
- hot-wire coil probe for high-speed flows 4—46973
- hypersonic boundary layer, Reynolds stress meas. by X-array hot wire probe technique 4—48262
- hypersonic low density flow, static press. 4—46990
- intermittency measuring circuit, calibration with pseudo-turbulent signal 4—65602
- laminar fluid, vel. meas. by n.m.r. 4—71295
- liquid, device for meas. at various pressures 4—65600
- liquid, u.s. devices, review 4—42984
- low-density gas flow meas. with electron diffraction camera *(Russian)* 4—81105
- low-flow, instruments, advantages 4—46975
- microscope, laser Doppler type, appl. for flow velocity meas. 4—51053
- nonuniform, laser Doppler velocimeter, error estimates 4—74189
- normal stress difference determ. by capillary tube method *(Japanese)* 4—77324
- powder flow rate meas. method using rotamers 4—80149
- Preston Tube calibration in supersonic flow 4—46971
- radioisotopic renal function monitoring 4—46460
- rarefield flows, high-speed, probe interference 4—55164
- renal blood flow meas. with ^{85}Kr and ^{133}Xe 4—46368
- renal clearance techniques, review 4—46458
- reversible pump-turbine, on-site efficiency tests, comparison 4—42970
- rheology, h.p. measurement apparatus design and operation difficulties 4—42976
- rheometer, l.f. torsional, for polymer melts 4—46988
- rheometer, nearly viscometric flow phenomena 4—42977
- rubber moulding, point-pressure meas. using micro press.-pickups 4—50007
- seawater turbulence structure meas. system *(Russian)* 4—65007
- seawater turbulent stream structure obs. method *(Russian)* 4—65008
- sensor, fine wire grid, design and sensitivity 4—46985
- shear flow, two-dimensional, through concentric annulus, yaw probe meas. 4—46989
- shock flows, unsteady, particle trajectory analysis 4—46991
- skin friction determ. using press. drop probe *(French)* 4—42969
- slow liquid in small channel, determ. by solid-sphere radiotracer method 4—81108
- stagnation pressure measurement, subsonic and supersonic stagnation pressure probe 4—77321
- static probe design 4—81095
- tachometric transducer for water vel. meas. *(Russian)* 4—51239
- Taylor vortices, meas., very restricted spaces *(French)* 4—43995
- transonic two-dimens. flow density meas. with shearing interferometer 4—59023
- turbulent dispersion, fluid and particle motion, tracer particle method 4—52516
- turbulent flow boundary detector using differentiating circuits 4—55170
- turbulent mixing diagnostics using laser Raman scatt. 4—81922
- two-phase flow, particle rot. vel., Doppler method *(Russian)* 4—59020
- two-phase gas-liquid flow, single-beam Fraunhofer holography 4—77322
- two-phase stream, initial film separation vel. determ. by drop indication method 4—42971
- vacuum gauge calibration, dynamic flow technique, duct flow conductance calcs. 4—62447
- velocity meas., acoustic method *(German)* 4—46980
- visualisation, double exposure method in holography 4—55169
- wake, axisymmetric, coherence meas. 4—48301
- water, large quantities, errors due to oscillations obs. *(Japanese)* 4—81102
- water in pipe, meas. of turbulence onset using pressure nozzle *(German)* 4—62657
- water velocity, conical hot film anemometer, calibration and use 4—55171
- wind tunnel, laser anemometry system, photon correlation analysis 4—46997
- H_2O, flow velocity measurement using fine wire grid sensor 4—46985
- ^{197}Hg, quantitative meas. of kidney function 4—46459
- ^{203}Hg, quantitative meas. of kidney function 4—46459
- Na, liquid, pressure and temp. meas. using high frequency instrument 4—77327

flow of gases
- *see also acoustic streaming; aerodynamics; anemometers; effusion*
- acoustic duct of variable cross section, sound propagation rel. to flow parameters 4—58649
- acoustic streaming, nonlinear 4—76995

flow of gases continued
aerodynamic sound generation in presence of solid boundaries, unified approach 4−81908
air, boundary layer flow on flat plate, leading edge shape influence on transition processes 4−48257
air, duct flow, plane symmetric sudden expansion 4−56415
air, heat transfer, local, on plates, in transitional flow regime 4−43935
air, heat transfer and pressure drop in heat exchanger 4−43934
air, heat transfer from vibrating cylinder 4−52369
air, in narrow channels, heat transfer 4−43954
air, isothermal turbulent boundary layer, turbulent stresses rel. to mean flow parameters 4−44008
air, laminar flow along electric arc in tube, heat transfer *(Russian)* 4−56378
air, recirculation zone, nozzle flow 4−44051
air, supersonic, effects of the He, Ar, H injection, stagnation conditions 4−81972
air, supersonic jet impinging on plate, near wall jet 4−81929
air, turbulent flow in smooth pipes 4−43925
air, turbulent flow through concentric annuli 4−60164
air, turbulent jet, disturbance press. waves development 4−66626
air, turbulent stream, heat transfer from cylinders 4−56414
air bearing, circular, moving at low forward speed, analysis of flow 4−81860
air injection, turbulent transition, characts. 4−48202
air past circular cylinder at low Reynolds numbers, vel. distribs. 4−72326
air slot, into blocked passage, anal. 4−44049
air/water mixture, pressure turbulence *(German)* 4−44107
air/water two-phase flow in spirally grooved tubes 4−48342
annular chnnel with rot. axial air flow, hydraulic resist. and heat transfer 4−43962
arc-jet chamber vortex expts. 4−78598
axisymmetric jet column, unstable waves investig. 4−78642
binary gas mixture, accelerating compressible laminar boundary layer flows, Mach no. effect 4−81883
bounary layer gas flow around macroscopic body, drag coeff., Boltzmann eqn. 4−44011
boundary layer flow, laminar, of viscous homogeneous gas 4−56404
boundary layer flow on plate, temp. and turbulent Prandtl number profiles 4−43937
capillary flow relax. in polar gas viscosity determ. 4−52332
carbon tetrachloride-air mixture, vertical surface condensation from turbulent stream 4−75622
chemical reactor processes, Boltzmann transform. appl. to dispersion model with locus-depend. process const. *(German)* 4−60634
chemically reactive binary gas mixture, convection in mag. field *(Russian)* 4−63628
chemically reactive flow, linear theory 4−81971
compressible flow, nozzle discharge coeffs., boundary layer development 4−66629
compressible fluid, one-dimensional shock turbulence investig. 4−75140
conducting dusty gas, MHD flow past flat plate 4−56452
dilute gas of symmetric top mols., kinetic theory of flow birefringence 4−69554
discrete hole cooling with free-stream turbulence and favourable press. gradient 4−75090
dissociative fluid, stability of horizontal layer, stationary and oscillatory convection *(Russian)* 4−52536
duct, flat, inlet region, turbulence anal. 4−43933
dust-laden, flow rate meas., using hot-plate anemometer 4−81109
dusty gas, supersonic flow over slender wedge 4−66663
EHD shock waves, struct. in many-component many-phase mixtures for arbitrary interaction parameter *(Russian)* 4−75172
elastic shell-gas system, wave mech. anal. 4−48266
electromagnetic shock tube, flow field and vel. profile measurement 4−71298
entry flow in curved pipe investig. 4−78609
expansion from nozzle, supersonic, into vacuum 4−81928
flame, turbulent chemically reacting flow, two-dimensional analysis 4−44170
gas flow around reactive body, non-equilib. chem. reactions, heat-mass transfer *(Russian)* 4−60264
gas mixture, turbulent flow, condensation on vertical surface *(German)* 4−56362
gas sublimation between horizontal plates, heat and mass transfer 4−66572
gas-liquid, cocurrent, interfacial area obs. 4−52483
gas-liquid flow in vertical tubes, press. loss, phase boundaries *(German)* 4−56440
gas-liquid interface, wavy disturbance effect on heat transfer 4−63586
gas-liquid mixtures, flow through vertical tube fitted with twisted tape 4−60243
gas-liquid mixtures in short tubes, unsteady fluctuating flows 4−81957
gas-particle mixture, supersonic jet eqn. of motion *(Russian)* 4−52519
gas-saturated liquid discharge through venturi, flow rate determ. 4−63613
gas/water mixture, pipe flow, stat. characts. of temp. field 4−44114
gaseous system, stirrer power determ. rel. to gas flow, power input etc. *(German)* 4−44123
grey gas, radiation-convection interaction in bounded flow past hot plate 4−63526
grid-generated turbulent flow, universal similarity at high grid Reynolds numbers 4−78585
heat transfer, critical value, in presence of large vapour contents 4−78578
heat transfer intensification during pipe flow 4−43945
high-temperature, in cold-walled tube, heat transfer and frictional drag 4−43936
hot wire response to sound pressure 4−68855
hypersonic flow around blunt body, non-equilib. air stream *(Russian)* 4−60197

flow of gases continued
ideal gas mixtures, diffusion through capillaries, transport eq. derivation *(German)* 4−52525
inert rarefied gases, orifice flow at small press. differentials 4−52461
ionised, hypersonic turbulence diagnostics, hot shot wind tunnel 4−48315
ionised, weakly, electron distrib. function in time-depend. elec. field 4−63649
ionised gas flow, nonmagnetic kinetic energy-electricity conversion, theory and appl. 4−44408
isentropic, partial soln. of eqn., theory of shallow water *(Russian)* 4−56353
jet, free, transition flow region 4−44064
jet, supersonic underexpanded in hypersonic stream, mixing layers 4−72327
layer counter flow apparatus and heat exchangers, transient thermal processes 4−43953
lifting using cylinder combinations, transonic flow, calcs. 4−72294
low-density gas flow meas. with electron diffraction camera *(Russian)* 4−81105
low-velocity, meas., hot-wire anemometer *(Hungarian)* 4−46976
lung airways, oxygen transport, convection and diffusion of gases 4−46366
MGD flows of finite cond. past wedge profile, Hall effects investigation 4−60233
MHD, vorticity and current density behind shock wave 4−52471
MHD generators, induction-type, interaction with exciting field, field of circuit 4−78826
MHD ionised gas flow round body, heat flux *(Russian)* 4−75165
mixing in fan-shaped jets 4−75154
mixture, reactive laminar flow over plate heat transfer, friction stress *(Russian)* 4−75098
mixture, rheological effects due to centripetal injection of air 4−63627
mixture, temp. factor effect on heat and mass transfer in flat parallel channel *(Russian)* 4−63533
mixtures, influence of diffusion velocity on motion, successive approx. method *(Russian)* 4−56350
monatomic, rapid rot. of massive sphere 4−56384
moving obstacles in air flow, eqns. of motion and turbulent energy conservation *(Russian)* 4−69565
multinozzle jets, internal wave structure 4−48309
natural convection heat transfer from high temp. wires to gases, low Rayleigh number 4−56373
Newtonian fluid horizontal layer with heat-generating plane *(German)* 4−78589
noise generation in jet exhaust 4−78583
nonequilibrium ionised radiative gas, hypersonic flow around blunt body *(Russian)* 4−52426
nonlocal generalization of boundary layer eqns. *(Russian)* 4−52418
nonstationary nonisothermal flow of real gas in pipes, linearization of eqns. 4−43918
nonstationary plane axially-symmetric, with strong shock waves *(Russian)* 4−75143
nozzle discharge parameters for gas-liquid mixture 4−78639
nozzle flows, vibr. energy relaxation, parametric depend. of similar solns. 4−72329
nozzles, variable inlet geometry, maximum thrust design 4−81925
nuclear reaction products, transmission through capillary tubes 4−77134
nuclear reaction products, transmission through nozzle skimmer system 4−77135
one-dimensional unsteady flow in channels, numerical computation technique 4−63517
oscillatory, visualisation, nontoxic, liquid aerosol generation 4−48376
partially ionised, transport phenomena *(Russian)* 4−75194
perfect gas with chemical reactions, reverse case of Laval's nozzle theory *(Russian)* 4−60265
plate, gas suction from thermally insulated laminar boundary layer 4−48244
Poiseuille flow in long tube with accommodating wall for arbitrary Knudsen numbers 4−78667
polar gas, thermal transport props. determ. from thermal transpiration meas. 4−66677
polyatomic, nonhomogeneous gas, forces on small particles 4−75186
polydisperse ultrafine fibre filters 4−64646
polytropic, unstable plane flow, soln. of nonlinear eqn. for velocity potential *(Russian)* 4−56355
porous media, blowing-in region, partially unknown boundary anal. *(Russian)* 4−75187
porous media, penetration, determ. of real coeff. by analytical method *(Russian)* 4−48379
porous media, sound velocity, critical flow velocity *(German)* 4−48366
porous surface, slip boundary condition 4−78710
Prandtl-Meyer flow, anisotropy of mean free path 4−78666
Prandtl-Meyer flow of dusty gas with small deflection angle 4−78703
pressure drop investig. through fluidised bed, model *(German)* 4−60241
quasiclosed volume with temp. gradient, gas dynamics eqn. 4−60166
radiative heat transfer from point source, opticaly thick gas flow 4−60163
radioactive tracer investigation of impurity transport in air flows 4−42957
rarefied, capillary network, temp. depend. *(Russian)* 4−69596
rarefied gas flow in different channels, expt. 4−63583
rarefied gas suspension, turbulent diffusion, Schlieren-diffusion method 4−66664
rarefied gas tube flow, Boltzmann eqn. *(Russian)* 4−52459
reacting gas flow in tubes, hydrodynamics and heat transfer *(Russian)* 4−52531
reactive flow through porous solid, intragrain diffusion effect 4−52530
rectilinear anisentropic gas flows 4−78571

flow of gases continued
- regenerative counterflow heat exchangers, temperature fields *(Russian)* 4−43610
- Reynolds number, axisymmetric free jet, transition region, circular tube, mean velocity measurement *(Japanese)* 4−78643
- rotating cylinder of gas centrifuge, scaling analysis, field of flow 4−81861
- Scott effect, torque resonances, free-path model 4−48340
- Seyfert galaxies, steady gas flow from nuclei 4−46273
- shock driven laser, cavity flow aerodynamics 4−71546
- shock wave, Boltzmann eq. soln. at upstream and downstream singular points 4−75141
- silencers, aero acoustic rating for forward and reverse sound-air flow 4−65313
- single-row system of jets in crossflow 4−48310
- sonic jet, liquid-submerged, eqns. of motion, reln. to fission-gas-jet in LMFBR 4−51868
- stability, rel. distrib. local props., eigenvalue spectrum 4−48187
- stagnation pressure measurement, subsonic and supersonic stagnation pressure probe 4−77321
- stars in semidetached close binary systems, numerical simulation of gas flow 4−50569
- steam, condensing, high speed flow, nonequilib. expsn. 4−69605
- steam, supersonic flow in straight nozzles 4−69592
- Stokes flow, numerical computation of optimum profile 4−75074
- stratified gas-liq. flow, natural convection 4−78581
- subsonic flow into downstream facing inlet 4−72293
- supersonic, vibr.-dissoc. relax. in laminar boundary layer, catalytic effects 4−48265
- supersonic, with bent shock wave, Navier-Stokes eqns. soln. *(Russian)* 4−56407
- supersonic boundary layer flow past conical body, method of matched asymptotic expansions 4−44023
- supersonic flow of gas mixtures with chem. reactions, blunt body analysis 4−52428
- supersonic gas flow past blunt body of revolution 4−48279
- supersonic jet, strongly rotating, reverse flow zone 4−44063
- supersonic submerged underexpanded gas jet, closing compression shock 4−44061
- three-dimensional blunt-body flow, time-split finite-volume method 4−48259
- transfer phenomena, multicomponent mixtures, Burnett approx. *(Russian)* 4−56371
- transverse flow over cylinder, convective heat transfer 4−43964
- tube entry, non-thermality and gas injection effect on friction coeffs. *(Russian)* 4−52537
- turbulent, electric arc heated, heat transfer 4−60175
- turbulent, heat transfer, flow meas. rel. to injection in annulus 4−43942
- turbulent boundary layer, flow of fine solid particle gaseous suspension, suppression of gas turbulence 4−44145
- turbulent boundary layer, of fine solid particle gaseous suspension, suppression of gas turbulence 4−44144
- turbulent gas jet, momentum-, mass- and heat transfer *(German)* 4−75149
- turbulent gas jets, cocurrent flow, turbulent mixing 4−48306
- turbulent jet moving along porous cylinder 4−69611
- turbulent mixing diagnostics using laser Raman scatt. 4−81922
- turbulent mixing layers between two gas streams, density effects, large structure 4−66569
- turbulent nonequilibrium gas flow, dissoc., vibr. relax., heat and mass transfer 4−60266
- two-gas interface in fluid piston wind tunnels, Raman scattering meas. technique 4−46996
- two-phase gas-liquid flow, single-beam Fraunhofer holography 4−77322
- unsteady, in shock tube nozzle 4−72304
- unsteady flow, meas. by orifices operating with supercritical press. differential 4−63576
- unsteady flow, nonlinear Boltzmann eqn., asymptotic soln. 4−66556
- vacuum gauge calibration, dynamic flow technique, duct flow conductance calcs. 4−62447
- velocities in high current arc discharges, laser Doppler technique 4−62654
- vibrational freezing in nozzle flow of dissociating dilute diatomic gas 4−52226
- viscous barotropic gas, laminar flow along annular tube 4−48281
- viscous heat-conducting, in planar channels with strong local injection, modelling 4−75153
- viscous incompressible fluid flow normal to uniformly accelerated cylinder investig. 4−78608
- visualisation interferometry, two-beam, review of progress 4−48286
- visualisation techniques, combination of optical, tracer and surface indicator 4−46994
- visualisation techniques, particle trajectory analysis, gas properties 4−46991
- vortex rings in air laminar and turbulent exp. 4−75111
- wall impact, freely expanding gas, Monte Carlo simulation 4−44034
- water vapour, condensation in inclined tube, hydrodynamics, heat transfer 4−66563
- wing-body combinations, slender properties nonlinear lift and pitching moment *(German)* 4−75137
- Ar, condensation of Cs vapour, mist form. influence 4−43946
- Ar, effect of forced blowing through plasmatron on arc 4−69679
- Ar, laminar flow along electric arc in tube, heat transfer *(Russian)* 4−56378
- Ar, partially ionised, expansion through a supersonic nozzle 4−75152
- H_2, high vel. shock tube flow by compression and rarefaction of liquid H_2 4−72315
- H_2, rarefied orifice flow at small press. differentials 4−52461
- H_2-He mixture, in shock tube, duplication of stagnation region condition for Jovian entry probe 4−72308
- H_2 + air, flame, numerical predictions *(German)* 4−64708
- HD-Ne(Ar)(He) mixtures, transport-relaxation eqns. 4−66552
- He-N_2 mixture, test gas to accelerating gas boundary layer in expsn. tube 4−72311
- He-N_2-methane, gas mixture, diffusion through porous gamma-alumina pellets investig. models 4−44153

flow of gases continued
- He-Ne-Ar mixture, diffusion in capillaries, Knudsen to molecular diffusion transition 4−56347
- N_2, dissociating, hypersonic flow over wedge 4−66678
- N_2, high vel. shock tube flow by compression and rarefaction of liquid N_2 4−72315
- N_2, laminar flow along electric arc in tube, heat transfer *(Russian)* 4−56378
- N_2, rarefied orifice flow at small press. differentials 4−52461
- N_2-Ne(Ar)(He) mixtures, transport-relaxation eqns. 4−66552
- NO_2, chemically reacting in cooled flat tube, heat and mass transfer in laminar flow *(Russian)* 4−63630
- NO_2, chemically reactive, heat and mass transfer in triangular rod beam 4−78718
- NO_2, heat transfer in laminar flow in circular pipe 4−69561
- N_2O_4 chemically reactive coolant, calcs. for gas counterflow single-pass heat exchanger *(Russian)* 4−43653
- N_2O_4 dissociating, turbulent flow, cooling in pipe, heat exchange characts. 4−78717
- $N_2O_4 \rightleftharpoons 2NO + O_2$ chemically reactive system in turbulent flow, heat and mass transfer calcs. *(Russian)* 4−44169
- O_2, mass transfer to rotating cones 4−48194
- O_3, gas transfer near Earth's surface 4−61770

flow of liquids
- *see also acoustic streaming; flow birefringence; hydrodynamics; superfluidity*
- acetone drops, evaporation into N_2 stream, electric field effects on transfer rates 4−75180
- acoustic streaming, nonlinear 4−76995
- aerosol, inertial impaction, stagnation flow, aerosol theory 4−72347
- air/water mixture, pressure turbulence *(German)* 4−44107
- air/water two-phase flow in spirally grooved tubes 4−48342
- axisymmetric flow with developed cavitation, ring model *(Russian)* 4−52502
- axisymmetric jet column, unstable waves investig. 4−78642
- baroclinic fluid flow at low latitudes 4−73516
- baroclinic ocean current dynamics, seasonal variations rel. to N. Atlantic 4−50263
- bentonite-water thixotropic suspension, time-depend. viscosity 4−67960
- blood flow in narrow tubes, peripheral plasma layer model 4−60267
- boundary layer flow on plate, temp. and turbulent Prandtl number profiles 4−43937
- buoyant plumes, 3-dim. unsteady conservation eqns. 4−44056
- burn up of liquid flowing through a pipe in heat transfer experiments, detection 4−42753
- cavitation in hydrodynamic flow, strength of water 4−78698
- cell analysis and sorting using high-speed flow methods, biological applications 4−54631
- channel, two-dimens., temp. depend. viscosity coeff., asymmetric vel. profile 4−44009
- channel glow, mixing cell model for longitudinal dispersion 4−66581
- chemical reactor processes, Boltzmann transform. appl. to dispersion model with locus-depend. process const. *(German)* 4−60634
- coastal upwelling, numerical model for zonally oriented coastline 4−50278
- coastal upwelling models, ocean interior basin, wind driven dynamics 4−50277
- compressible fluid, one-dimensional shock turbulence investig. 4−75140
- condensate film, laminar stability anal. 4−63535
- conducting liquid, boundary layer flow on cylinder, radial mag. field *(Russian)* 4−63608
- conjugate nonstationary heat transfer 4−43959
- convection, water, vel. and heat transfer meas. with laser Doppler velocimeter 4−43968
- convective heat transfer in prismatic pipe of triangular section 4−43951
- between corotating discs, laminar and turbulent regimes 4−66605
- Couette flow, pressure-stabilized, with variable viscosity and mech. energy dissipation 4−43922
- entry flow in curved pipe investig., appl. to haemodynamics 4−78609
- estuaries, tidal flow rel. to influence of channel shape on shoaling 4−57959
- ferrofluids, applications 4−70587
- filled precessing spherical cavity, energy assessment 4−43975
- film, downward flow along vertical surface with attendant heat transfer 4−43947
- film, gravitational instability in thermal entry region 4−48198
- film, heat transfer in nucleate boiling 4−52384
- film, motivated, surface wave effects on triple-phase front of dry path 4−72332
- film, turbulent, motion in vertical tubes 4−66599
- film, vertical falling, hydrodynamics and heat transfer 4−48201
- film in inclined tube, flow breakdown 4−63550
- films, inertia forces in laminar and turbulent flow 4−52349
- flowmeter, at various pressures 4−65600
- forced convection mass transfer between vibrating sphere and liquid flow *(French)* 4−52368
- free surface flows with and without gravity 4−52342
- gas-liquid, cocurrent, interfacial area obs. 4−52483
- gas-liquid flow in vertical tubes, press. loss, phase boundaries *(German)* 4−56440
- gas-liquid interface, wavy disturbance effect on heat transfer 4−63586
- gas-liquid mixtures, flow through vertical tube fitted with twisted tape 4−60243
- gas-liquid mixtures in short tubes, unsteady fluctuating flows 4−81957
- gas-saturated liquid discharge through venturi, flow rate determ. 4−63613
- gas/water mixture, pipe flow, stat. characts. of temp. field 4−44114
- glass manufacturing process, rel. to heat transfer 4−70584
- glass melt, flow patterns during stirring, effect on homogeneity 4−49971
- glass melt, natural convection, temp. distrib. 4−48206

flow of liquids continued
  glycerine drops in castor oil, circulation patterns, optical records 4−56459
  glycerol-water mixture, convective heat transfer in presence of turbulator 4−52373
  ground water flow, modelling, finite element method 4−61717
  Gulf of Carpentaria, Australia, nearshore circulation from ERTS imagery 4−61729
  heat transfer, critical value, in presence of large vapour contents 4−78578
  heat transfer in plug regime, liquid N film boiling 4−43938
  heat transfer influenced by convection, flow in vertical tubes 4−69563
  heat transfer intensification during pipe flow 4−43945
  hexane-paraffin oil, two-phase flow, effect of mass transfer 4−63612
  hydrological forecasting, seasonal parametric linear stochastic models 4−68133
  ideal fluid, stationary and quasistationary flow *(Russian)* 4−48191
  ideal incompressible, motion of deforming body 4−52416
  imbibition in flow of 2 immiscible fluids, similarity solutions 4−66673
  immiscible layer in porous medium, Saffman-Taylor instability 4−44158
  incompressible, heat transfer in initial portion of circular tube, laws of heat supply 4−60168
  incompressible viscous liquid, stationary laminar flow over plate with moving surface 4−78611
  intermittent pipe flow, Pitot tube flow probes, high frequency response 4−81834
  jet, penetration depth into supersonic crossflow 4−63577
  lake circulation, wind induced, model 4−46007
  laminar boundary layer, three-dimens., in incompressible liq., approx. soln. *(Russian)* 4−69579
  laminar liquid film, hydrodynamic stability 4−56388
  lenticular filament, longit. flow down inclined plane 4−78610
  liquid crystal molecular flow alignment temp. dependence relation 4−48507
  liquid cyclone, flow dynamics 4−66586
  liquid film flow on inclined plane, wave state stability *(Russian)* 4−75158
  liquid jet stationary nodes, spherical surface contact 4−56413
  liquid metal MHD condenser cycle with preheating *(German)* 4−69600
  liquid mixture with temp. gradient, laminar flow stability 4−69557
  liquid sheet/hot atmosphere, flow and disintegration 4−56444
  macromolecular solution, bead-rod model, linear unsteady flow props. 4−61536
  macromolecular solution, steady flow and equilib. rheological props., kinetic theory 4−49976
  macromolecules, deformability, light scattering expt. 4−48323
  mass transfer between solid particle and liq. in field of oscillations excited by spark discharge 4−45849
  metal, bubble growth inception at heated wall 4−44131
  metal, eddy diffusivities for heat and momentum 4−43984
  metal, eddy diffusivity, heat transfer 4−43981
  metal, flow in horizontal beds 4−44167
  metal, heat transfer anal., through eccentric annuli 4−43985
  metal, probeless temp. meas., thermoelectric wall effect 4−42985
  metal, reactor coolant, transient boiling, slug-annular regime 4−44136
  metal, stress corrosion cracking, minor components mass transfer in crack 4−76465
  metal, turbulent forced convection, heat transfer coeff. 4−43987
  metal, turbulent MHD, heat transfer 4−44106
  metal cooled rod assembly, temp. fields 4−43615
  metal solidification, two-dimens. model including convection in liq. region 4−73279
  MHD, instability onset, flow equations *(Russian)* 4−81950
  MHD, motion of nonconducting particle in liq. conductor *(Russian)* 4−81951
  MHD, secondary flows between rot. coaxial cylinders 4−81949
  MHD, viscous, low Hartmann flow, annular gap, magnetic Prandtl number expansion 4−69601
  MHD channel flow, periodic boundary conditions, boundary value problem *(Russian)* 4−63600
  MHD channel flow, three-dimensional to two-dimensional turbulence transition, rel. to orientational magnetisation *(Russian)* 4−63607
  MHD droplet, nonconducting, effect of current on vel. field and dissolution rate in liq. *(Russian)* 4−81962
  MHD flow past flat plate, soln. by initial value method 4−78679
  MHD free convective flow past vertical flat plate, with variable viscosity and thermal cond. 4−75169
  MHD turbulence, Loytsyansky-type invariant, MHD turbulence *(Russian)* 4−63606
  mixing in developed turbulence region across low penetrability separator 4−52381
  Navier-Stokes eqns. approximation 4−56357
  Newtonian fluid horizontal layer with heat-generating plane *(German)* 4−78589
  non-Newtonian, filtration through porous media 4−44156
  non-Newtonian, flow in cylindrical tubes 4−78605
  non-Newtonian, obstructed sedimentation of solid particles in pseudoplastic fluids *(German)* 4−44139
  non-Newtonian MHD shear flow *(Russian)* 4−63599
  nonisothermal extrusion under continuous shear of liqs. with anomalous viscosity characts. 4−52456
  nonlinear, study using electrical model 4−60219
  nonuniform free motion, criterial eqns. *(Russian)* 4−43919
  nozzle discharge parameters for gas-liquid mixture 4−78639
  ocean horizontal current vertical structure near Bermuda 4−50266
  ocean meandering currents, turning processes 4−50270
  oil, local heat transfer from plates, laminar to turbulent transition 4−43935
  open channel flow, geometrical scales and correl. coeff. vertical distrib. 4−43966
  oscillatory flow of incompressible viscous fluid near entry between two parallel plates 4−78675
  western Pacific Ocean, sea level and equatorial current seasonal variations 4−50274

flow of liquids continued
  peristaltic motion, effect of Poiseuille flow, anal. 4−83290
  permeation through thin membranes, mol. model, effect of dydrodynamic interaction 4−81969
  permeation through thin membranes, mol. model, effect of hydrodynamic interaction 4−81969
  pH measuring device 4−68013
  pipe, flow stability indicators *(Russian)* 4−56360
  plane parallel flow in channel, anal. of instability *(Russian)* 4−75108
  polyethylene oxide soln., pipe flow, turbulent dispersion in drag-reducing fluid 4−78648
  polyethylene oxide-water, jet spray droplet formation 4−52446
  polymer, coil-stretch transition under ultrahigh velocity gradients investig. 4−75062
  polymer dilute soln. pipe flow drag reduction 4−78656
  polymer solution, flow in flat duct, rheological eqns. of state 4−48321
  polymer solution, turbulent channel flow, drag reduction 4−69595
  polymer solution turbulent flow around enclosed disc, friction reduction 4−75156
  polymer-oil mixture, flow in mixing tube 4−78661
  polyox in glycerine + water soln., turbulent pipe flow, onset of drag reduction 4−66635
  potential field characteristics in sudden expansion, reduced mass calc. *(Russian)* 4−44165
  pseudoplastic falling film, surfactant stabilizing effect 4−78649
  pulsation diffusion, diffusion transport, freq. depend. *(German)* 4−63937
  pulsation diffusion, general theory *(German)* 4−63936
  pulsed stream, mean discharge determ. *(Russian)* 4−52535
  quantum fluid, thermodynamics for degenerate statistical equilibrium *(Russian)* 4−69938
  reactive flow, adiabatic stirred flow reactor, thermodynamic stability, entropy prod. 4−44164
  reservoir, distribution of water discharges and mean speeds *(Russian)* 4−57962
  river flood decay, power law dependence on time 4−57966
  rotating channel, convection effects, free and forced 4−81851
  Samoan Passage, intensified deep western boundary current 4−50271
  self-evaporating liquid discharge, critical phenomena 4−69591
  shock wave, Boltzmann eq. soln. at upstream and downstream singular points 4−75141
  silicone oil, natural circulation in heated inclined rectang. channel 4−72278
  silicone oil horizontal convecting layer, heat transfer meas. 4−75079
  slow, in small channels, volumetric flow rate and flow channel volume determ. by solid-sphere radiotracer method 4−81108
  slow viscous flow caused by translation and rot. of spherical cap 4−60189
  sound field, hydrodynamic flow generation, structure kinematics, expt. study 4−74199
  specific volume, determ. from set of ordinary differential eqns. *(Russian)* 4−78569
  Stokes flow, numerical computation of optimum profile 4−75074
  Straits of Florida, surface current structure 4−50264
  stratified, mass transport sustained by oscillations of finite amplitude 4−63587
  stratified flow past obstacles, blocking 4−43992
  stratified gas-liq. flow, natural convection 4−78581
  stratified salt solution, cellular convection due to lateral temp. grad. 4−43993
  streamflow simulation, broken line hypothesis and operational hydrology 4−68132
  sugar-salt-water system, double-diffusive convection, two-dimensional effects 4−43994
  superfluid, fourth sound velocity investig., flow through porous media 4−60669
  suspension bearing stream turbulence, Lagrangian characteristics *(Russian)* 4−81968
  Taylor instability, of accel. air-water interface 4−44095
  Taylor vortices in short annular clearance 4−66591
  temperature boundary layer problem plane, convective flow *(Russian)* 4−48256
  thermal ignition and extinction phenomena *(Russian)* 4−52538
  turbulent, mass transfer coeff. determ. for gas absorpt. and chem. react. 4−44166
  turbulent, power-law liquid in straight tubes, solute axial dispersion 4−44143
  turbulent boundary layer, tangential stress distrib. 4−44006
  turbulent channel flow, struct. of viscous sublayer and adjacent wall region investig. 4−78593
  turbulent dispersion, fluid and particle motion, liq. turbulence influence 4−52517
  turbulent dispersion, fluid and particle motion, particle-liq. hydrodynamics and mass transfer 4−52518
  turbulent dispersion, fluid and particle motion, tracer particle method 4−52516
  turbulent stresses ellipsoid *(Russian)* 4−52359
  two-phase gas-liquid flow, single-beam Fraunhofer holography 4−77322
  uneven film thinning, parallel disc model 4−72288
  u.s. flow measurement, review 4−42984
  vessel natural oscillation, slow rot. anal. 4−48230
  viscoelastic, flow past rotating sphere 4−60158
  viscoelastic, u.s. vibrs. effect 4−52457
  viscoelastic liquid orifice angle of convergence prediction 4−56423
  viscoplastic, structural flow in round tube, heat of internal friction effect *(Russian)* 4−78660
  viscous, between rot. spheres, Navier-Stokes eqns. *(Russian)* 4−75075
  viscous, finite element method, variational principle formulation 4−60156
  viscous, plane circular-symmetric boundary-initial value problem *(German)* 4−78600
  viscous, plane circularly symmetric boundary value problem *(German)* 4−81870
  viscous, thin layer, heat exchange, diffl. eqn. *(Russian)* 4−56370

flow of liquids continued
- viscous compressible liquid, axisymmetric flow, network method *(Russian)* 4−52350
- viscous flow past spherical drop 4−44128
- viscous fluid, two-dimensional stabilized flow in cylinder *(Russian)* 4−48192
- viscous incompressible fluid flow normal to uniformly accelerated cylinder investig. 4−78608
- viscous liquid film flowing along inclined plane, fine amplitude side-band stability 4−44005
- viscous turbulent action of surfactant polymer additives 4−78658
- wake nonisothermal flow, viscosity temp. depend., anal. 4−44050
- water, density stratification due to introduction of heated water *(German)* 4−78592
- water, film thickness formed behind air bubble in sloping channel 4−52497
- water, free convection, density inversion effects in porous layers 4−78713
- water, laminar boundary layer at solid surfaces, onset of turbulence 4−48246
- water, local heat transfer from plates, laminar to turbulent transition 4−43935
- water, plane jet in counter flow, vortex street formation 4−66630
- water, rotating cylindrical annulus, effect of upper boundary condition on thermal convection 4−66564
- water, turbulent flow, temp. depend. viscosity variation effect on skin friction *(French)* 4−63523
- water, turbulent flow in entry region of rough pipe 4−66580
- water layer between penetrable surfaces, approx. solns. *(Russian)* 4−75192
- water tunnel cavitating hydrofoils, wall effects comparison *(German)* 4−72344
- water with sediment-containing stream added, sloping bottom density flow *(Russian)* 4−78706
- wave motion structure in a flow for arbitrary change of density with depth *(Russian)* 4−70681
- western intensification in rotating water tunnel rel. to ocean currents 4−70667
- wetting of solids, contact line flow origin 4−82312
- CuSO$_4$, electrolyte soln., laminar flow, Hg^{2+} electroreduction, viscosity, diffusion investig. 4−54036
- He II, adiabatic flow, cooling, mutual friction and press effects 4−63953
- He II, adiabatic flow capillary temp. distrib. during stationary flow 4−63954
- ^{3}He-^{4}He, superfluids, acoustical approximation, sound propag. 4−75666
- ^{3}He-^{4}He, superfluids, hydrodynamic eqns. 4−72618
- ^{3}He-^{4}He film, thickness and flow rate ^{3}He conc. depend. 4−56942
- ^{4}He, superfluid, flow through small hole, critical velocities 4−60664
- Hg, cavitation during flow in transverse mag. field *(Russian)* 4−81961
- Hg, forced flow in tube, boiling characts. 4−44132
- HgNO$_3$, electrolyte soln., laminar flow, Hg^{2+} electroreduction, diffusion investig. rel. to temp. 4−54036
- K, boiling heat transfer in tubes, press. influence 4−44133
- K, boiling in short rod bundles, crit. heat flux 4−43625
- K, vaporizing through convergent-divergent nozzle, transfer processes 4−44137
- Li, in conducting wall pipe in transverse mag. field, MHD pressure drop, rel. to fusion reactor blanket cooling 4−69603
- Li cooled fusion reactor blanket, use of insulated walls to reduce MHD pressure effects 4−69341
- N$_2$ liquid in tube, boiling, subcooled liq. film, hydraulic resist. 4−60253
- Na, boiling, crit. conditions for dryout 4−43627
- Na, boiling in channels, press. drop meas., instability 4−44135
- Na, eddy cond. meas., temp. profiles 4−43983
- Na, eddy diffusivity in circular duct, meas. technique 4−43982
- Na, forced convection boiling loop, crit. conditions 4−44134
- Na, incipient boiling in single-pin annular channel 4−78229
- Na, mixed convection meas., body forces effect 4−43986
- Na, reactor coolant, distrib. around blockage 4−43622
- Na, reactor coolant, mixing effect, temp. distrib. 4−43623
- NaK alloy, through tube bundles, heat transfer 4−43616

flow resistance *see viscosity*

flow through porous media
- aerosol, sonically enhanced depth filtration 4−66666
- aerosol filtration by fibrous filters 4−66669
- aerosol filtration by fibrous filters 4−66670
- allene, diffusion in synthetic faujasite powder and pellets 4−69609
- annulus with porous walls, quasilinearisation technique 4−78708
- boundary layer at porous plate, variable blowing *(Russian)* 4−63555
- bulk diffusion in macroporous media, porosity, tortuosity and constrictivity depend. 4−75189
- convection, in vertical slab asymptotic stability condition 4−44157
- convection, natural in vertical permeable space 4−63624
- convective flow, large amplitude, stability 4−56455
- convective flow in horiz. porous gap 4−81970
- Darcy's law, flow through porous wall with convective acceleration 4−75190
- diffusion in porous media of random structure 4−60257
- electrical double layer effect on liq. flow through micropores *(German)* 4−48382
- emulsion, flow model 4−78712
- fibre optics, appl. for hydrodynamic porous media microscopical study *(French)* 4−42974
- filtration, specific resistances determ. by Laplace eqns. with mixed boundary conditions *(Russian)* 4−56456
- filtration medium with crack, equil. geom. *(Russian)* 4−75193
- filtration of ideal gas, nonstationary temp. field calc. 4−52527
- gas, blowing-in region, partially unknown boundary anal. *(Russian)* 4−75187
- gas, slip boundary condition 4−78710
- gas, sound velocity, critical flow velocity *(German)* 4−48366
- gas penetration, determ. of real coeff. by analytical method *(Russian)* 4−48379
- gas reactive flow, intragrain diffusion effect 4−52530

flow through porous media continued
- gas-ventilated charge of fine-porosity material, temp. field calc. 4−60167
- granular material, fixed and fluidised bed, porosity near wall 4−66675
- granular media, effective porosity occurrence 4−66676
- granular medium, hydrodynamic characts. of filtration 4−48381
- heat exchange intensity, coolant props. depend. 4−44154
- horizontal anisotropic porous layer, criterion for appearance of natural convection *(French)* 4−48378
- horizontal layer divided by permeable wall, convective currents 4−52526
- ideal gas mixtures, diffusion through capillaries, transport eq. derivation *(German)* 4−52525
- immiscible displacement with unfavourable mobility ratio 4−67962
- inclined layer, natural convection, extremity effects influence on stability *(French)* 4−44152
- inhomogeneities interaction 4−48380
- inhomogeneous medium, filtration problem, stationary flow, free boundary case *(Italian)* 4−78711
- laminar flow through porous walls, parallel and uniform, of different permeability 4−66674
- liquid layer, immiscible, Saffman-Taylor instability 4−44158
- membrane, reverse osmosis and ultra-filtration in diffusion boundary layer 4−69610
- membrane transport model, kinetic extension to continuum liquid flow theory 4−76944
- methylacetylene, diffusion in synthetic faujasite powder and pellets 4−69609
- microporous materials, moisture transport interpret. 4−61550
- natural convection about heated sphere in porous medium 4−78714
- non-Newtonian liquids, filtration 4−44156
- nonsteady-state porous cooling problem soln. by approx. method 4−60258
- nth-order reaction, mole changes in porous catalyst, transport regime effects 4−63625
- nuclear reaction products, transmission through capillary tubes 4−77134
- numerical solution of flow eqn. using dynamic programming *(French)* 4−44151
- permeable plate oscillating in presence of suction, lateral flow *(Russian)* 4−52399
- permeation through thin membranes, mol. model, effect of hydrodynamic interaction 4−81969
- polydisperse ultrafine fibre filters, gas flow 4−64646
- power-law resistance fluid, nonlinear filtration through porous semispace with groove 4−44155
- squeeze film behaviour in porous circular discs 4−75199
- stationary motion in media with lenticular inhomogeneities *(French)* 4−48377
- superfluid, fourth sound velocity investig., flow through porous media 4−60669
- suspension, random functions theory appl., mean concentrations determ. 4−56454
- suspension, random functions theory appl. for diffusive and stochastic processes 4−56453
- transport processes, creeping flow rel. to fixed swarm of particles 4−78709
- turbulence, variational theory 4−52351
- turbulent boundary layer on porous plate, wall press. fluctuations, suction 4−56399
- turbulent jet moving along porous cylinder 4−69611
- turbulent jet passing through semipermeable obstacle 4−52450
- unsteady filtration type eqns., differential properties of generalized solutions 4−52528
- vapour transfer through capillary porous body, theory 4−75188
- variable-penetrability, of layer with pumping from central hole *(Russian)* 4−75191
- water, free convection, density inversion effects in porous layers 4−78713
- water, through snow overlying an impermeable boundary, model 4−57968
- water layer between penetrable surfaces, approx. solns. *(Russian)* 4−75192
- wave motions in saturated medium 4−44159
- He-N$_2$-methane, gas mixture, diffusion through porous gamma-alumina pellets investig. models 4−44153
- He-Ne-Ar mixture, diffusion in capillaries, Knudsen to molecular diffusion transition 4−56347

flowmeters
- *see also anemometers; flow measurement; laser velocimeters*
- calibration and testing by combined pneumohydraulic multipurpose device 4−55167
- cross correlation, using u.s. transducer 4−46981
- effors due to oscillations obs. *(Japanese)* 4−81102
- e.m., direct measurement of coronary collateral blood flow in conscious dogs by an e.m. flow meter 4−58493
- e.m. flowmeter, rel. distrib. effect on readings *(Russian)* 4−62655
- e.m. measurement of blood flow, const. field interrupted reson. system 4−62656
- flat-area type, discharge coeffs. 4−46974
- gas of high sensitivity utilizing a manometer 4−55172
- hot film gauge for measuring 3 dimens. velocity vector 4−68856
- laser Doppler system for meas. gas flow velocity in high current arc discharge 4−62654
- laser Doppler velocimeter for contactless flow rate meas. 4−68859
- low-flow meas. instruments, advantages 4−46975
- oil displacement flowmeter for low flows at subambient pressures 4−81106
- petrochemical liquid turbine flowmeter test methods 4−77326
- pressure-drop type for liquids and gases, performance 4−55165
- propeller-type 4−81096
- Savonius rotor type flowmeter, effect of tilt in turbulent flow regime 4−54344
- small liquid flows, at various pressures 4−65600
- thermal, with constant heating power 4−74197
- thermodynamic, based on flow through hydraulic resistances *(German)* 4−55168
- two-channel e.m. flowmeters with frequency and time signal separation *(Russian)* 4−81104

flowmeters continued
u.s. Doppler, for blood 4−68822
vortex flowmeter 4−68860

fluctuations
see also Brownian motion; current fluctuations; noise; random processes
biopolymers, order-disorder transitions, theory 4−66532
dielectric media, space- and time-dependent polarization fluctuations 4−55300
Einstein-Lorentz formula, e.m. fluctuation 4−51542
equilibrium fluctuations, phenomenological theory, thermodynamic inequalities 4−74450
finite isothermal gas spheres, radial pulsations 4−73604
guided wave fluctuation growth anomaly near interference minima 4−71468
hydrodynamic fluctuations in many-body system with non-local interactions, microscopic derivation 4−71426
impedance, glancing sound wave above plane interface *(Russian)* 4−80774
irreversible circulation of fluctuation around steady state or cyclic balance 4−71428
Landau-Lifshitz formulae, two-point kinetic theory 4−55379
magnetic fields, behaviour of classical spin, magnetic moment decrease 4−47224
mass, momentum, jet engine exhaust noise 4−78583
nonequilibrium system, nucleation of crit. fluctuations and onset of instabilities 4−59303
nuclear power reactor noise theory 4−59828
oscillating superfluid flow, effect of fluctuations 4−67082
Permalloy film, fluctuation noise intensity depend. on magnetisation freq. *(Russian)* 4−79560
phase transitions, difficulties in comparing theory and observations *(German)* 4−55409
pulses in time-varying random media 4−71469
recorded fluctuations, phenomenological theory 4−59302
sound, phase, long-range, depth depend. drifting hydrophones 4−80801
sound pressure, effect of rotating diffusers, sampling techniques in reverberation rooms 4−76998
spherical wave amplitude and phase fluctuations 4−58648
spin systems, fluctuation phenomena using Wangness Bloch model 4−71427
statistical systems, higher order parameters 4−68955
thermodynamics, non linear *(Russian)* 4−81243
trajectory parameters, effect on inverted aperture synthesis *(Russian)* 4−77726

fluctuations of cross sections *see statistical theory of nuclear reactions and scattering*

fluid composition control *see chemical variables control*

fluid composition measurement *see chemical variables measurement*

fluid dynamics
see also aerodynamics; electrohydrodynamics; flow; hydrodynamics; magnetohydrodynamics; Navier-Stokes equations; rarefied fluid dynamics; relativistic fluid dynamics; turbulence; wakes
Arbitrary Lagrangian-Eulerian computing method for all flow speeds 4−60154
boundary-value problems, sensitive, two-point type, shooting-splitting method 4−60153
chemically reacting streams in equilibrium, energy eqn. 4−63631
coastal jets and upwelling in bounded basins 4−50268
conference, ASME Winter Annual Meeting, (11-15 Nov. 1973) 4−66553
conference, Kamienny Potok, Poland (Sept. 1973) 4−81826
cylinder motion reln. to resting fluid, anal. of heat transfer *(German)* 4−63538
finite difference methods, soln. of elliptic eqns. 4−81828
flow around spherical bubbles rising in dilute surfactant solns. 4−56446
fluid problems in industry, conf. vol. IV, Keswick, England (Apr. 1973) 4−48184
free molecular stream containing semi-infinite plate, eqn. soln. *(German)* 4−66638
heat and mass transfer near rotating surfaces, review 4−78588
heavy fluid, partial soln. of eqn. of motion, theory of shallow water *(Russian)* 4−56353
incompressible fluid, nonlinear Kelvin-Helmholtz instability, effect of aligned mag. field 4−78671
internal waves, h.f., influence on sound field of point source 4−77001
interstellar gas, solar wind asymm., retardation area, dynamic press. *(Russian)* 4−80470
inviscid equations, comparison of numerical solns. 4−60204
Kelvin waves in rotating basins with bottom steps 4−81869
linear-instability of basic flows varying slowly 4−56356
Milne-Thompson's circle theorem, generalization 4−51278
nonlinear flow, application of stabilized march technique 4−81867
radiative gas self-simulating motion 4−66681
screw motions in liquid of solid body 4−81868
second-order fluids, Holder stability 4−69555
slow flow, MAC code, numerical expts. 4−78568
stability, linearized, bifurcation and perturbation of simple eigenvalues 4−55174
stationary flow stability of Newtonian liquid *(German)* 4−69556
substructure theory anal. of flow problems *(German)* 4−63518
thermal-hydrulic multichannel anal. using cross-flow approx. 4−81846
transonic flow, integral eqn. soln. *(German)* 4−66611
unsteady homothermal motions of fluids and isotropic solids 4−62676
vibration problems in industry, conf. Vol. I, Keswick, England (Apr. 1973) 4−48183
viscoelastic flow in curved annulus, streamline plotting 4−52347
water edge waves on beach of mild slope 4−57994
waterbag method for fluid simulation 4−66557
wedge entry into incompressible fluid 4−77396

fluid flow *see flow*

fluid mechanics
see also capillarity; cavitation; compressibility of gases; compressibility of liquids; fluid dynamics; hydrostatics; Mach number
Alder-Wainwright effect, shock tube test 4−72340
bibliography, resource letter for students 4−48185
digital techniques for, experimental techniques, computer applic. 4−48385
orientation and ang. vel. correl. functions of fluid of linear mols. 4−75437
Prandtl's mixing-length theory, origin 4−48212

fluid structure
see also classical theories of fluid structure; liquid structure; quantum theories of fluid structure
No entries

fluid valves *see valves*

fluidic devices
temperature sensor, with cooled signal tube 4−54850

fluidised beds
bed-wall heat transfer, up to 1000°C, bubble model 4−44110
bubble formation in gaseous beds, heat transfer obs. 4−52505
bubble radial distribution, wall effects in point probe meas. 4−48353
bubbles, stability investig., growth rates, wavelengths for disturbances predicted 4−44125
diamond powder epitaxial synthesis, intermixing influence 4−45866
drying of material in fluidized bed under oscillatory conditions, temp. calc. *(Russian)* 4−63615
fibrous bed, liq.-Liq. dispersion, coalescence of drops 4−60249
fluidisation, two-phase theory 4−48352
gas flow, press. drop calc., model *(German)* 4−60241
granular bed, elastoviscous fluid, flow resistance 4−60240
granular material, fixed and fluidised bed, porosity near wall 4−66675
heat transfer, conductive component 4−66649
heat transfer, fluid-particle type 4−52489
heat transfer between fluid bed and wall *(German)* 4−48345
heat transfer coeffs. for vertical cylinder 4−66650
heat transfer to immersed objects 4−44118
homogeneous gas-solid fluidization 4−48349
hydrodynamics, variational approach 4−66651
hydrodynamics of bed fluidised by dust-laden gas 4−66653
interphase heat transfer in fluidised beds with heat transfer 4−75177
large particle fluidisation bubble eruptions 4−60244
liquid fluidised beds, stepwise changes in flowrate, instability development 4−44109
local rheological properties, scale up effect 4−48343
low Reynolds number bubbles, fluidised beds 4−81959
mass transfer between bed phases and layer with cylindrical spiral filling 4−66652
multistage, stochastic model for gas residence time and contact time distribs. 4−52482
multistage inclined, heat transfer 4−48347
open channel flow behaviour 4−44117
packed bed, coupled heat and mass transfer, unsatisfied Lewis relation 4−60238
packed bed, heat transfer, axial dispersion 4−56439
packed bed, liq.-solid mass transfer in liq.-gas upward cocurrent flow 4−60239
packed beds, heat transfer, one- and two-phase models 4−52480
packed columns, flooding mechanism 4−52481
periodic pressure fluctuations 4−60237
pilot plant for fluid bed reactor, working results *(Spanish)* 4−45895
plastic-mineral composite powders, rheological props. affecting fluidisation and air transport 4−45864
pressure distribution around moving bubble 4−66657
semifluidised, interphase heat transfer 4−78688
Stokesian fluid flow through granular beds, pressure drop, Ergun eqn. 4−44111
three-phase, air bubble rising vel. 4−78690
three-phase, bubble break-up 4−52498
Al_2O_3, alumina, horizontal effective thermal cond. under steady-state conditions 4−53925

fluidised powders *see powders*

fluidity *see viscosity*

fluids
see also bubbles; discharges (electric); disperse systems; fluid mechanics; fluid structure; fluidised beds; gases; gravity waves; liquids; non-Newtonian fluids; plasma; quantum fluids
acoustic beam propagation, self-defocusing 4−80772
transport properties, projection operator techniques 4−81252

fluorescence
see also fluorescent lamps; fluorescent screens; nonradiative transitions; X-ray fluorescence
absolute quantum yields, energy transfer method determ., dyes in monomolecular layers 4−78477
accidine, absorpt. and fluoresc. spectra, pulsed tunable dye laser system 4−69515
acetones, halogenated, photochem., absorpt., emission spectra determ., radiative, nonradiative decay investig. 4−75008
acetones, halogenated, photochem., fluoresc., radiative, nonradiative decay rate consts. investig. 4−75009
3-acetylpyrene, dil. soln, fluorescence quantum yield, excitation wave length dependence *(German)* 4−49458
acridine, extinction of fluorescence, effect of acid-base interactions *(Russian)* 4−70364
alkali metal atom, meas. using pulsed dye laser 4−59459
alkaline earth monohalides, radiative lifetimes 4−56265
7-alkylamino coumarins, acid soln., fluorescence and excitation spectra, laser emission 4−48062
alkylphenols, stereochem. effects in fluorescence quenching 4−57634
alloxazine, glacial acetic acid soln., two-photon excitation 4−72216
4-aminophthalimide in n-propanol, luminesc. spectra, orientation relax. kinetics investig. 4−73174
4-aminophthalimide spectrum, comparison expt. and theory *(Russian)* 4−73166
Anderson excitation localisation, donor-donor energy transfer 4−76301

fluorescence continued
aniline, radiative and nonradiative transition probabilities for $^1B_2$ state, vap. phase obs. 4−78482
anthracene:1-(2-) aminoanthracene, fluoresc. and absorpt. spectra, effects of guest orientation, 4K 4−45334
anthracene:tetracene, triplet exciton interactions, magnetic field effects *(German)* 4−79778
anthracene, cryst., hot band $S_0 \rightarrow T_1$ transitions investig. 4−67639
anthracene, crystals, singlet exciton-charge carrier interaction, fluorescence meas. 4−82745
anthracene, Debye-Waller factor temp. depend. in impurity fluorescence spectrum 4−82250
anthracene, in soln., delayed fluoresc., radical ion quenching rel. to conc., mag. field 4−48065
anthracene, optically induced fission spectrum 4−80201
anthracene, single cryst., fluorescence reabsorption, lifetime variations 4−67631
anthracene and derivatives, excited state absorpt. and fluoresc. spectra and PPP-SCF calcs. 4−53505
anthracene crystal time resolved fluorescence spectra reabsorption and high density excitation effects 4−73173
anthracene crystals, dye sensitized, delayed fluoresc. of triplet excitons, mag. hyperfine modulation 4−61217
anthracene vapour, quasilinear fluorescence spectrum 4−66473
anthracene-perdeuteroanthracene, mixed cryst. system, fluoresc., mixed exciton band investig. 4−70341
anthracene-tetracyanobenzene charge transfer complex, e.s.r., triplet states in single cryst. 4−70212
anthracne, in Shpolskii matrices phosphoresc., fluoresc. investig., line widths, intersystems crossing 4−64431
anthraquinones, donor-acceptor interactions of excited molecules with solvent 4−61223
anti-Stokes fluorescence method for propag., visualisation in optical waveguides *(French)* 4−71492
apatite halophosphates, Sb^{3+}, Mn^{2+} activated, extrinsic absorption bands, 140 to 190 nm, obs. 4−57605
aromatic amines, absorpt., emission spectra, CNDO/2-CI calcs., electronic struct. rel. to mol. geometry 4−56261
aromatic hydrocarbons, fluorescence and absorpt. spectra, vibr. structures 4−69485
aromatic hydrocarbons, fluorescence decay time, sequence congestion and weak coupling effects 4−72214
aromatic hydrocarbons in soln., fluoresc. emission from π-singlet states, temp. depend. 4−54062
aromatic molecule + O_2(NO), radn. quenching 4−72239
aromatic vapours, lifetime dependence on vibrational energy, effect of foreign gas 4−72222
2-N-arylamino-6-naphthalenesulphonates, fast intersystem crossing from vibr. excited $S_{1,n\pi}$ states 4−66459
atom, collisional excitation and cascade repopulation, convolution into decay curve 4−47852
atom, radiation emission in external e.m. field *(Russian)* 4−69400
atom, radn. resonance scatt., excitation and decay probabilities for coupled excited states 4−51962
atom, spontaneous emission in intense field, rel. to noise in lasers 4−47855
atom or molecule, photomultiplier lifetime determ., He^+ afterpulse effect 4−80898
azobenzene, Raman spectra emission background, anti-Stokes fluoresc. 4−56231
barbituric acid, Raman spectra emission background, anti-Stokes fluoresc. 4−56231
1,2-benzanthracene, delayed fluoresc. from excited singlet state produced by triplet-triplet annihilation 4−66462
benzene, deuterobenzene, sym-$C_6H_3D_3$, $^1B_{1u} \leftarrow {}^1A_{1g}$ transition, low temp. spectral obs. 4−79743
benzene, emission speotrum from monomer and excimer 4−73207
benzene vapour, quenching of lowest triplet state by NO 4−63447
benzenes, substituted, quenching of first excited singlet state by mol. O_2 4−66523
benzophenone, diphenylpicrylhydrazyl solid soln., fluorescence, singlet-doublet and triplet-doublet energy transfer 4−49442
benzophenone, excited, emission lifetime temp. and press. effects 4−78479
p-benzoquinone(-h_4),(-d_4), vapour, fluoresc. spectra, assignment of $n\pi^*$ singlet states 4−48074
p-benzoquinone (-d_4), (-h_4), vibr. assignment 4−48019
o-benzoylbenzoate in ethanol-water soln., fluoresc. meas. of energy transfer to Eu(III) 4−57601
3-benzoylpyrene, dil. soln., fluorescence quantum yield, excitation wave length dependence *(German)* 4−49458
4H-benzo[def]carbazole, excimer fluoresc. quenching by pyridine *(German)* 4−56271
3,4-benzpyrene, vap. phase, 'anomalous' fluoresc. investig., vibr. redistribution 4−48066
benzyl and methylbenzyl radicals, electronic spectra 4−56262
biacetyl, emissions at 4200 Å, fluoresc. lifetime lengthening 4−72210
biological sample, laser beam applic. 4−42942
biphenyl-tetracyanobenzene charge transfer complex, e.s.r., triplet states in single crysts. 4−70212
brightened textiles, use of fluorescence spectrophotometer for colorimetry 4−54896
camphorquinone, circularly polarized luminesc., stereochem. 4−67637
carbazol, naphthalene-d_8, diphenylpicrylhydrazyl solid soln., fluorescence, singlet-doublet and triplet-doublet energy transfer 4−49442
cells, living, microspectrofluorometer with 32 msec scan 4−42801
chemical relaxation induced by temperature jump fluorescence spectrophotometry 4−55150
1-chloropentafluoroacetone, photochem., vibr. relax. investig., one- and two-step mechanisms 4−75010
chlorophyll, molecular fluorescence and photosynthesis 4−62270
chlorophyll a, fluoresc. quenching by radiationless singlet-triplet energy transfer, intramol. relax. meas. 4−48068
chlorophyll-a, solution absorpt. and fluoresc. spectra, monomers, dimers and polymers 4−52122
chlorophyll-a + β-carotene soln., fluoresc., energy migration processes 4−76933

fluorescence continued
colorimetry of fluorescent whitened samples, accuracy of spectrophotometric meas. 4−54897
coumarin derivatives, simple, effect of substituents *(Russian)* 4−48077
coumarine dye, pH sensitivity of fluoresc. in dye-lipid-electrolyte lamella 4−56263
cryptocyanine solns., laser-excited, red and blue fluorescence 4−61200
cuprous halide-pyridine compounds, fluorescence thermochromism *(German)* 4−57615
cyanine dye, monolayer sensitizer-acceptor assembly, singlet-triplet transition 4−72212
cyanine dye, pH sensitivity of fluoresc. in dye-lipid-electrolyte lamella 4−56263
cyanine dyes, fluoresc. lifetimes investig. 4−79780
1,3-dichlorotetrafluoroacetone, photochem., excited state quenching investig., correl. with ionisation pots. 4−75011
1,3-dichlorotetrafluoroacetone, photochem., vibr. relax. investig., one- and two-step mechanisms 4−75010
9,10-dicyanoanthracene-alkylnaphthalenes charge transfer complexes, fluoresc. and absorpt. spectra, exciplex fluoresc. 4−63446
3,3′-diethyloxadicarbocyanine iodide, picosecond flash photolysis, transition kinetics and photoisomerism 4−68017
p- and m-difluorobenzene, nonradiative, lifetimes, fluorescence quantum yields, vibronic levels 4−72218
dimethyl 1,4-bis[2(4-methyl-5-phenyl-oxazolyl)] benzene, nonradiative relax. in absence of collisions 4−72223
p-dimethylaminobenzonitrile, formation and decay of dual fluorescences 4−54056
2,3-dimethylindole, fluorescence spectra, dipole moment changes 4−60087
1,2-dinaphthylpropane, intramol. excimer excitation, time-resolved fluorescence 4−60088
1,6-diphenyl-1,3,5-hexatriene, fluorescence and absorption spectra 4−72217
diphenylene oxide, frozen n-paraffin matrix, absorption and fluorescence spectra 4−53480
all-trans-1,6-diphenylhexa-1,3,5-triene, time depend. fluoresc. polarisation obs. using liq. cryst. solvent 4−54060
1,3-diphenylisobenzofuran, self-sensitised photo-peroxidation, $O_2{}^1\Delta_g$-acceptor re-encounter probabilities 4−70611
dye, singlet and triplet energy transfer to Au and dye monolayers 4−72209
dye lasers, influence of radiative lifetime on action 4−51586
dye solution, intensity distrib. of laser beam, aberration effect 4−74516
erythrosin B, in soln., spontaneous fluoresc. meas., picosecond kinetics 4−67646
ethynlbenzene, cis-trans isomerism, fluorescence of single vibr. levels 4−75006
excitation transfer between fine structure levels, ang. depend. of sensitised fluoresc. 4−47851
excited dye molecules, deactivation, discrimination between different paths, mololayer techniques 4−78476
fluoranthene, delayed fluoresc. from excited singlet state produced by triplet-triplet annihilation 4−66462
fluorescence, absorpt. and fluoresc. spectra, pulsed tunable dye laser system 4−69515
fluorimetry, single photon phase, with nanosecond time resolution 4−55149
fluorometer response function inc. wavelength depend. of photomultiplier 4−42785
fly ash, pollution monitoring method 4−71134
free radicals, prod. in atom-mol. collision react., dissoc. energy limits determ. 4−48136
glyoxal, in glass matrix of 2-methyltetrahydrofuran, i.r. spectra, lower excited states 4−63424
hexamethylbenzene single cryst., phonon sidebands of localized excitons rel. to methyl torsions 4−56827
n-hexane:1,12-benzoperylene, temp. depend. of phononless lines in luminesc. spectra 4−73184
n-hexane:coronene, temp. depend. of phononless lines in luminesc. spectra 4−73184
immunofluorescent double labelling, haemoglobin detection, Xenopus laevis red cells 4−68828
indole, in glycol/H_2O glass, X-ray-, u.v.-induced luminesc., scavenger effects 4−76293
inert gas + H^+, outer s-shell ionisation, 125-1200 keV 4−59962
inorganic crystals, models of luminogene centres, validity *(French)* 4−70358
isoquinoline in frozen solns., quasilinear struct. of luminesc. spectra 4−49418
L-shell ionisation by heavy ions, binding and Coulomb effects 4−81733
leukocyte damage by radiation, obs. using fluorescent probes 4−46465
lifetime meas. by time-resolved spectrometer for chem. analysis *(Japanese)* 4−46946
lifetime meas. precision increase using two-freq. modulation process *(Russian)* 4−58815
liquid film thickness meas. by fluoresc. technique 4−73984
lumichrome, glacial acetic acid soln., two-photon excitation 4−72216
macromolecular chain, bond orientation correls., applic. to relax. phenomena *(French)* 4−48159
mesitil, molecular conformation, spectral analysis 4−74927
methane-air flame, rel. to u.v. laser determ. of ground-state population distrib. of OH 4−70599
3-methoxybenzanthrone containing solid solns., luminescent characts. *(Russian)* 4−53525
2-π-methoxyphenyl-5-phenyl-oxazole-1,3, excimeric fluoresc. investigation *(Russian)* 4−45364
methyl chloride, laser excited, i.r. fluoresc. risetimes meas., intermode vibr. energy transfer investig. 4−48071
2-methylindole, fluorescence spectra, dipole moment changes 4−60087
3-methylisoquinoline in frozen solns., quasilinear struct. of luminesc. spectra 4−49418

fluorescence continued
4-methylumbelliferone, exciplex formation, influence of water 4−76292
microspectrofluorometer for intracellular metabolism of NAD(P)H 4−68832
molecular system, nonexponential decays in single vibr. level fluoresc., kinetic and quantum mech. approaches, comparison 4−66466
molecule, excited by stationary light, fluorescence 4−52196
molecule, rot. Brownian motion rel. to fluorescence intensity fluctuations 4−63448
molecules displaying rotary Brownian motion, circularly polarised fluoresc. investig. 4−70346
naphthalene:diarylethylenes, phonon wing struct. in fluorescence spectra 4−73187
naphthalene, adsorbed on Al_2O_3 and MgO, excimer bands *(German)* 4−70361
naphthalene, radiationless singlet deactivation, internal conversion, intersystem crossing and vibr. relax. 4−66464
naphthalene, singlet excitons lifetime and diffusion 4−49436
naphthalene and nitrile-derivative, fluoresc. quenching by triethylamine in solid soln. *(Russian)* 4−61226
naphthalene vapour, emission spectra by controlled electron impact 4−63476
naphthalene-d_8, diphenylpicrylhydrazyl solid soln., fluorescence, singlet-doublet and triplet-doublet energy transfer 4−49442
2-naphthol-aliphatic amine in aprotic solvents, proton phototransfer reaction obs. *(Russian)* 4−54065
β-naphthylamine, radiationless singlet deactivation, internal conversion, intersystem crossing and vibr. relax. 4−66464
nonlinear absorpt. of weak e.m. field in intense field in reson. fluoresc. 4−72221
n-octane: porphin, cryst., fluoresc., mol. orientation 4−81795
organic compounds, fluoresc. extinction by excitation into higher singlet states *(Russian)* 4−53527
organic insulator, unipolar excess bulk charge density, voltage depend. 4−72784
organic systems, electrogenerated chemiluminesc. and delayed fluoresc., excimer and exciplex states 4−64710
3-oxybenzofuran-2-aldehyde, fluorescence, non-radiative transitions, absorption spectrum 4−49377
perylene, nonradiative relax. in absence of collisions 4−72223
phenanthrene:anthracene, in n-hexane frozen soln., fluoresc. centres investig. 4−76300
phenanthrene, excitation dependent mechanisms 4−69511
phenazines, donor-acceptor interactions of excited molecules with solvent 4−61223
phenol molecules in soln., fluoresc., energy depend. and solvent effects 4−66458
phenylisocyanide and deuteroderivative, 77K, in polycrystalline matrices 4−63450
1-phenylprop-1-ene, fluorescence quenching by ground state oxygen 4−57871
phthalimide derivatives, glycerine solution, fluoresc. mols. conc. effect of emission spectra polarisation *(Russian)* 4−43862
phthalimide solutions, substituted, induced singlet-singlet absorpt. in fluoresc. band region *(Russian)* 4−61228
PMMA-3,4 benzpyrene solid solution, two photon transitions 4−64416
poly(2-vinylnaphthalene), excimer formation, rigid soln. obs. 4−78545
poly(ethylene terephthalate) tapes, uniaxially oriented, fluorescent mols. orientation 4−64435
poly(N-vinylcarbazole) and poly(N-vinylcarbazole):trichloracetic acid, films, photogeneration processes investig. 4−82449
polymer, fluorescence polarisation, rotation operator anal. 4−76546
polymethine dyes, anomalous fluoresc. behaviour 4−81785
polystyrene, excimer formation, rigid soln. obs. 4−78545
polystyrol, triplet exciton existence, doping effect *(Russian)* 4−57595
pyrazine, benzene matrix, lowest singlet and triplet excited states 4−66421
pyrazine, electronic spectra and vibronic coupling 4−66422
pyrazine molecule, $S_1(n,\pi^*)$ excited state, luminesc. and radiationless transitions from single vibr. levels 4−66465
pyrazoline derivatives, glycerine solution, fluoresc. mols. conc. effect on emission spectra polarisation *(Russian)* 4−43862
pyrene, adsorbed on Al_2O_3 and MgO, excimer bands *(German)* 4−70361
pyrene, cryst., absorpt., fluoresc. props., harmonic approx. model 4−67632
pyrene, cryst., hot band $S_0 \rightarrow T_1$ transitions investig. 4−67639
pyrene, crysts., absorpt., fluoresc. props., vibr. relax. investig. 4−64422
pyrene, doped with perylene, fluorescence decay curves 4−73168
pyrene, isolated mols., fluoresc., effect of collisions with inert gas mols., vib. relax., intermediate strong coupling 4−78524
pyrene, solid soln. in PMMA, concentration 4−69514
pyrene, triplet-triplet exciton annihilation rate const. 4−45358
pyrene, vapour, fluoresc., sequence congestion and temp. effects investig. 4−69509
pyrene, vapour, relative S_2 emission yield investig., intermediate strong coupling considered 4−69510
pyrene in micellar water/detergent solns., fluorescence and excimer kinetics 4−61201
pyrene-3-aldehyde, dil. soln., fluorescence quantum yield, excitation wave length dependence *(German)* 4−49458
quantum efficiency determination, correction for losses of light from sides, rear of cell 4−42943
quantum efficiency increase by selective vibr. level population, optical excitation and chemilum. comparison 4−56264
quenching in solns., resonance migration of excitation energy *(Russian)* 4−61199
quinine bisulphate, absolute quantum yield meas. 4−69512
quinine sulphate, absorpt. and fluoresc. spectra, pulsed tunable dye laser system 4−69515
radiative decay of pair of atoms 4−47858
resonance, optically active continua 4−78483
resonance fluorescence, Green's functions 4−78484
resonance fluorescence, separable potentials 4−78485

fluorescence continued
rhodamine 6G in glycerol, spontaneous fluoresc. with picosecond resolution 4−49439
rhodamine 6G in polyacrylonitrile matrix, quantum efficiency 4−65934
rhodamine B, electronic absorpt. and emission spectra, effect of dimer form. 4−70345
rhodamine solutions, absorpt. and fluorescence spectra, soln. concen. and acidity effects 4−67580
ruby:Cr^{3+}, microwave optical expts., energy transport 4−49450
ruby, sharp resonant trapping of fluorescent light, mag. field depend., 4.2-77K 4−67653
silicate glasses, quantum efficiencies and transition probabilities of Eu^{3+} 4−64432
sodium fluorescein in water-glycerol, rotational relaxation meas. by single-photon counting method *(German)* 4−66535
spectra of resonance combinatorial scattering and fluorescence excited by powerful e.m. pulse *(Russian)* 4−78345
spectral emission analysis with glow discharge source and fluoresc. detection 4−62627
spectrofluorophotometers for fluorescent colours, industrial suitability 4−54898
spectrometry, correction for losses of light from sides, rear of cell 4−42943
spectrophotometric evaluation by two-mode method 4−54899
styrene, cis-trans isomerism, fluorescence of single vibr. levels 4−75006
styrenes, quenching by ground state oxygen 4−57871
styrol, triplet exciton existence, doping effect *(Russian)* 4−57595
substituted benzene, isolated molecule, radiative decay 4−75002
synchrotron radiation as pulsed light source, appls. to organic lifetime, fluoresc. studies 4−62455
terphenyl, diphenylpicrylhydrazyl solid soln., fluorescence, singlet-doublet and triplet-doublet energy transfer 4−49442
tetracene:pentacene crystals, fluorescence, heterofusion of triplet excitions 4−48938
tetracene, optically induced exciton fission, energy depend. 4−49430
tetraphene, oriented in helical struct., decay time depend. on environment 4−48061
sym-tetrazine, large mol. rot. struct. via single-mode laser resonance fluorescence 4−78488
tetrocyanoethylene charge transfer complexes, rigidity influence 4−82742
time resolved absorption spectra 4−66425
TPMB, excited state intramol. torsional relax., fluoresc. characts. depend. on viscosity, temp. and medium 4−78480
1,1,3-trichlorotrifluoroacetone, photochem., excited state quenching investig., correl. with ionisation pots. 4−75011
1,3,5-triphenylpyrazoline, fluorescence spectrum, comparison expt. and theory *(Russian)* 4−73166
tryptophan, in glycol/H_2O glass, X-ray-, u.v.-induced luminesc., scavenger effects 4−76293
uranine-type dyes, O_2 quenching investig., rate const. determ. 4−48067
vibroelectronic models, spectral distrib. of emission probability *(French)* 4−61218
vinyl polymer, excimer formation 4−78545
$[Cr\ urea_6]X_3$ complex single crysts., emission and absorpt. spectra. emission lifetimes, temp. depend. *(German)* 4−57631
$Al_xGa_{1-x}As$-GaAs, double heterojunction laser material, fluoresc. deterioration after microscopic damage 4−57591
AlN:O, luminesc. of O impurity centres 4−79776
α-$Al_2O_3:Ti^{3+}$, zero phonon transitions and interacting Jahn-Teller phonon energies determ. 4−49429
β-Al_2O_3-BaO(La_2O_3, K_2O):Eu, Mn, depreciation under u.v. irrad. 4−61213
9-aminoacridine, 4.2K fluoresc. spectral line narrowing by laser excitation 4−67630
Ar, electron impact excitation, photon emission, 3s3p^{6}nl excited states *(French)* 4−59944
Ar, solid, efficient fluoresc., 10 to 30 kV electron excitation 4−61198
Ar, vacuum u.v. emission, relativistic electron beam excitation 4−59955
Ar + P(S)(Cl)(Ar)(K), L X-ray prod. cross sections, fluoresc. yield 4−51985
Ar_2 metastable dimers, u.v. continuum decay, temp. depend. 4−75014
$Ba + LiCl \rightarrow BaCl + Li$, crossed beam react., internal stages investig., laser fluoresc. method 4−83020
BaO.6Al_2O_3:Eu, Mn, u.v. excitation, quenching temp. 4−61212
Be, fluorescence yield from $1s(^2s)^{22}S$ state, many body perturbation theory 4−63341
$Br^* + HBr(HCl)$, laser excitation, electronic-to-vibr. energy transfer, i.r. emission obs. 4−51979
CN radicals, prod. by flash photolysis, laser induced fluoresc. investig. 4−50185
CO, states of $v = 2$-9, vibration to vibration energy transfer collisions 4−63491
CO, vibr. energy transfer investig., laser fluoresc. method 4−60122
CO + methyl fluoride, vibr.-vibr. transfer, laser induced fluoresc. 4−63485
$CO + O(^1D)$, electronic to vibr. energy transfer efficiency investig. by resonance fluoresc. 4−48142
CO_2, (00°1) vibr. level relax. rates meas. diffusion, wall de-excitation investig. 4−52285
CO_2 laser stimulated emission cross-section meas. by sidelight fluorescence drop 4−65911
CO_2^+, excited in He^+ and H_2^+ collisions, vibr. energy distrib. investig. 4−69532
CO_2^+, revised rate constants for quenching reactions 4−52282
$CaF_2:Er^{3+}$, cubic sites, ion-defect clustering 4−79058
$CaF_2:Er^{3+}$, cubic sites, ion-defect clustering 4−79059
$CaF_2:Er^{3+}$, $^4S_{3/2} \rightarrow {}^4I_{15/2}$, symmetry assignment 4−82763
$CaF_2:Eu^{2+}$, vibronic fluorescence calc. at 4130 Å, Jahn-Teller problem 4−57621
$CaWO_4:Tb^{3+}$, magnetically induced polarisation of fluorescence lines, cross relaxation *(French)* 4−64433
Cd II He-Cd laser discharge, perturbation spectroscopy 4−59395

fluorescence continued
Cd_2 fluorescence in inert gas and NH_3 matrices 4−67629
CdF_2:Er^{3+}, Yb^{3+}, Tm^{3+}, Ho^{3+}, Tb^{3+} absorption and fluorescence spectra, obs. 4−57610
CdS, pure and Ag activated, positron annihilation and fluoresc. mechanisms *(French)* 4−56775
ClO_2, resonance Raman and fluorescence spectra in Ag, Kr, Xe, N_2 matrices 4−67574
Cln^+ + Ne collisions, n=5-15, fluorescence yield relative to X-ray cross-section 4−47905
CrO_2Cl_2, emission and absorption spectra, Ar matrix, 4K 4−66468
C_2radical, laser excited fluorescence in flames, radical conc. meas. 4−50169
Cs, $7^2P_{1/2}$-$7^2\pi_{3/2}$ mixing, induced by noble gas atom collisions, sensitized fluorescence 4−59924
Cs, excitation transfer between $7^2P_{1/2}$ and $7^2P_{3/2}$ states, collision-induced 4−78357
Cs + deuterated methane collisions, isotope effect in $6^2P_{1/2} \leftrightarrows 6^2P_{3/2}$ mixing in Cs 4−51977
Cs + $H_2(HD)(D_2)$ (ethane) (propane), $^2P_{1/2} \leftrightarrows {}^2P_{3/2}$ mixing cross section, temp. depend. 4−51978
$CuAlS_2$, synthesis, elec. and opt. props., doping effects 4−61210
DF, vibr. relax. meas. by shock wave-laser induced fluoresc. obs. 4−72224
DF, vibrational energy transfer, to diat. mols., shockwave-laser fluoresc. investig., relaxation processes 4−48141
Dy^{3+}, fluorescence in soln., energy transfer to C-H and C-N solvent mol. bonds 4−52197
Er^{3+}, in germanate and tellurite glass, transition probabilities 4−45333
Eu^{3+}, in dimethylsulphoxide, fluoresc. enhancement by Tb^{3+} 4−82741
Eu^{3+} complexes, chelates in fluoresc., quenching, ligand-ion energy transfer investig. 4−81786
Eu^{3+} in borosilicate glasses, excitation, emission and absorption spectra obs. 4−49432
Eu^{3+} in $x(Na_2O.P_2O_5)yWO_3$ glass, obs. 4−49433
Eu(III) complexes with decafluorodibenzoylmethane, fluorescent props., quantum yields *(Russian)* 4−79799
Fe I fluorescence in T Tauri stars 4−70982
Fe^{+24}, radiative decay of 2^3S_1 and 2^3P_2 states, cascading effects 4−78339
Gd-Ga garnet, crystal defect mapping 4−44547
H, inelastic electron scatt., Gauber approx. calcs. 4−81730
H_2, excited electronic states investig. by microwave mag. res. induced by electrons 4−52201
HF, DF, HF-CO_2, DF-CO_2, vib. relax. temp. depend. 4−52287
HF, vib.-vib. exchange rate for excited vib. levels, meas. 4−52290
HF vibrational relaxation measurements by combined shock tube-laser induced fluorescence technique 4−72224
HF + DF mixtures, vib. relax. obs. 4−56313
HF($v=1$), deactivation by F. O and H laser induced fluoresc. investig. 4−75045
HF($v=1$) + polyatomic molecule, vibr. relaxation times, laser induced fluorescence meas. 4−75049
H(2p), excited in H + He collision, Lyman α radn. 4−66321
He, dye laser induced fluorescence, decay rate meas. 4−51964
He, electron impact excitation cross-sections at low press., 4^3S, 3^3P, 4^3D levels 4−51991
He, triplet state excitation on electron impact, secondary electron contrib. 4−72081
Hg, $6^3P_{0,2}$ state decay in afterglow, diffusion coeff. 4−69552
Hg, excited level population in Hg + Hg collisions 4−69419
Hg + Zn(Cd), excited atom collisions, sensitized fluorescence 4−51987
I_2, 5017 Å excited fluoresc., main doublet intensity meas. *(French)* 4−48075
I_2, $B^3\pi_{ou}{}^+$ state, laser excited, Zeeman quantum beats in fluorescence 4−56269
I_2, discrete-state resonant fluorescence, dissociative-state continuum resonant Raman scatt. 4−72198
I_2, u.v. resonance spectrum, ground state dissociation energy 4−78486
ICl, vapour, two step laser excitation scheme 4−66457
In, excitation by electron impact *(Russian)* 4−43749
K II ion, level radiation lifetimes 4−51967
K + $Hg(N_2)(O_2)(CO_2)(NO_2)$, 2-50 eV collision, population of K fine struct. states 4−66320
K + $N_2(H_2)(O_2)(H_2O)$, 4^2P-doublet quenching and mixing cross sections 4−72073
KBr:Sm^{2+}, Zeeman anisotropy fluoresc. investig. of site symmetry 4−53501
KH molecule 4−52199
KI, photodissociation, fluorescence from $K^*(4^2P)$ and $K^*(5^2P)$, collisional quenching 4−66491
KI:Tl, emission band, fast component 4−73167
$K_2O.11Al_2O_3$:Eu, Mn, u.v. excitation, quenching temp. 4−61212
$KTaO_3$, vibr. props. at Brillouin zone crit. points, differential Raman and fluoresc. meas. 4−61161
Kr, solid, efficient fluoresc., 10 to 30 kV electron excitation 4−61198
$LaAlO_3$:Pr^{3+}, fluoresc. line narrowing by laser excitation *(French)* 4−49440
$LaCl_3$:Pr^{3+}, Nd^{3+}, photon upconversion processes 4−51635
$LaCl_3$:Pr^{3+}, nd^{3+} sequential two-photon excitation and energy transfer up-conversion obs. 4−57611
$LaCl_3$:U^{3+}, relaxation processes detected by resonant self-absorption of fluorescence 4−57369
$La_2O_3.11Al_2O_3$:Eu, Mn, u.v. excitation, quenching temp. 4−61212
LiF, excitation and absorption spectra, 450 nm band, γ-irrad. 4−64417
Mg-phthalocyanine complexes, changes in fluorescent spectra on transformation to adsorbed state 4−43859
MnF_2:Er, energy transfer $Mn^{2+} \rightarrow Er^{3+}$, temp. depend. 4−45354
Mn(II) complex, fluoresc. and reflectance spectra struct. depend. 4−57593
N_2, electron beam excitation method, rot. states 4−48135
$N_2 + O(^1D)$, electronic to vibr. energy transfer efficiency investig. by resonance fluoresc. 4−48142

fluorescence continued
$N_2{}^+$, emission cross section for $N_2{}^+$ (3914 Å) in ion + N_2 collisions 4−48150
$N_2{}^+$, isotope effect in decay of $C^2\Sigma_u{}^+$ state investig., predissoc./fluoresc. mechanism 4−48107
$N_2{}^+$, revised rate constants for quenching reactions 4−52282
NH_2-radicals, electron impact form., e.s.r., ion cyclotron resonance, emission spectroscopy investig. 4−52267
NH_4Cl:Tl, absorpt., excitation and fluoresc. spectra 4−73178
NO + methyl fluoride, vibr.-vibr. transfer, laser induced fluoresc. 4−63485
NO + NO(He, No_2, CO) vibr. relax., fluoresc. rate consts. obs. 100 to 300K 4−66518
NO_2, photoexcited, fluoresc., lifetime investig. near predissoc. limit 4−52194
NO_2, resonance fluorescence spectrum excited by laser lines 4−47998
N_2O, (00°1) vibr. level relax. rates meas., diffusion, wall de-excitation investig. 4−52285
N_2O^+, revised rate constants for quenching reactions 4−52282
NS, $C^2\Sigma^+$ state, fluorescence and zero-field level crossing 4−78487
Na, very low vapour density, optical reson. fluoresc. meas. 4−48173
Na atom, laser beam excitation, h.f.s. of $5^2S_{1/2}$ level by two step excitation 4−66307
Na_2, induced atomic fluorescence determ. of electronic transition moment internuclear separation depend. 4−43860
Na_2, supersonic nozzle beam, fluoresc. polarisation mol. alignment obs. *(A)* 4−73445
NaBr, photodissociation, fluorescence from $Na^*(3^2P)$, collisional quenching 4−66491
NaI, photodissociation, fluorescence from $Na^*(3^2P)$, collisional quenching 4−66491
$NaPO_3$-ZnO melts, annealing effect *(Russian)* 4−57594
^{23}Na hyperfine structure of $3^2P_{3/2}$ level, time-resolved level-crossing spectroscopy 4−59926
β-naphthol, radiationless singlet deactivation, internal conversion, intersystem crossing and vibr. relax. 4−66464
Nd^{3+} in rare-earth phosphates, concentration quenching obs. 4−49434
Nd^{3+}:YAG laser, continuous two-photon-fluoresc. monitoring during alignment 4−46709
$Nd_xLa_{1-x}P_5O_{14}$, growth for laser action, characterization 4−49555
$NdNa_5(WO_4)_4$, crystal structure and fluorescence lifetime, laser material 4−63815
NdP_5O_{14}:Nd^{3+}, laser emission cross-section and fluoresc. efficiency 4−51595
Ne, multiply ionised, K-shell fluorescence yields meas. 4−59928
Ne, optically pumped, saturation reson. obs. 4−59927
Ne I, meas. lifetime $2p_8$, $2p_9$ excited states, correl. photons in cascade transitions method 4−81718
Ne^+ to Ne^{8+}, K X-ray emission following $O^{5,6,7,8}$ bombardment, mean fluoresc. yield 4−78373
O_2, extreme U.V. photodissociative excitation 4−56290
O_2, gas and in freon 113 soln., laser excitation, singlet emission 4−75001
$O_2(^1\Delta_g)$ and $[O_2(^1\Delta_g)]_2$, fluoresc. and quenching in liq. O_2, O_2/N_2 and O_2/Ar mixtures 4−66467
OH radicals, prod., fluoresc. investig. using tunable freq. doubled dye laser 4−52195
OH $X^2\Pi$ and $A^2\Sigma^+$ kinetic behaviour using mol. reson. fluoresc. obs. 4−54061
$OH(^2\Sigma^+)$, laser excitation, natural lifetime, quenching by H, H_2, Ar 4−48063
O^5S^0 metastable state, lifetime meas. 4−47823
P_2O_5-Al_2O_3-MgO:MnO, glass, fluoresc. and thermoluminesc., depend. on Mn conc. and temp. 4−70338
Pr^{3+}, in aprotic solvents, fluoresc. and absorpt. spectra 4−53491
Rb, 4^2D state hyperfine Hamiltonian, cascade anticrossing spectroscopy 4−56017
Rb, excitation transfer between 6 $^2P_{3/2}$ and 6 $^2P_{1/2}$, collision-induced 4−78356
Rb-inert gas complexes, fluoresc. spectra meas., mol. pots. determ. 4−60089
RbI:Tl, emission band, fast component 4−73167
RbXe*, form. by terat. recombination, rate determ. from fluoresc. meas. 4−61582
SO_2, time-resolved fluoresc. kinetics and vibronic struct. in u.v. laser excited vapour 4−78481
sulforhodamine B, electronic absorpt. and emission spectra, effect of dimer form. 4−70345
Tb chelates, fluoresc. quantum efficiency, solvent quenching 4−76306
V^{+21}, radiative decay of 2^3S_1 and 2^3P_2 states, h.f.s. and relativistic effects 4−78339
$VO_4{}^{3-}$ ion, excited in dielec. cryst., energy transfer 4−49437
Xe, solid, efficient fluoresc., 10 to 30 kV electron excitation 4−61198
Xe, vacuum u.v. emission, relativistic electron beam excitation 4−59955
$Xe_2{}^*$, u.v. continuum radn. in pulsed discharge afterglow 4−47871
YAG:Nd laser, $^4F_{3/2} \rightarrow {}^4I_{15/2}$, fluoresc. quenching by multiphonon relax. 4−74503
$YAlO_3$:Cr^{3+}, 77-300K 4−53495
$YAlO_3$:$Er^{3+}(Eu^{3+})(Ho^{3+})(Pr^{3+})$, f→f and d→f radiationless relax., coupling strength and band gap depend. 4−53499
$YAlO_3$:Nd,Fe, laser cryst., fluoresc. quenching by impurities 4−77675
$Y_3Al_5O_{12}$:$Er^{3+}(Eu^{3+})(Ho^{3+})(Pr^{3+})$, f→f and d→f radiationless relax., coupling strength and band gap depend. 4−53499
$Y_3Al_5O_{12}$:Nd^{3+}, absorption and fluorescence spectra 4−53473
Y_2BSbO_7:Eu^{3+}, B=Ga, Lu, Y, obs. at 77K *(French)* 4−61214

fluorescent lamps
chromaticity measurement 4−51014
halogen incandescent lamps, thermodiffusion influence on bulb-blackening *(German)* 4−50168
Hg-Ar discharge, a.c. fluoresc. lamp, Hg 2537Å radiation intensity. electron de-excitation effect 4−78835

fluorescent lamps continued
  Hg-Ne(-Ar) discharge, l.p., electrical characts., radiation efficiency 4−66781
fluorescent screens
  see also display systems; electroluminescence
  X-ray intensifying screen resolution and speed relationship 4−46913
  $SrGa_2S_4:Ce^{3+}$, Pb^{2+} white emitting phosphor for flying spot scanner tube 4−57637
  $SrGa_2S_4:Sn^{2+}$, Pb^{2+} red emitting phosphors for flying spot scanner tube 4−57637
fluorimetry *see chemical analysis*
fluorine
  atom, autoionising states, collisional excitation method 4−66317
  atom, beam-foil meas. of lifetime of $2S_{1/2}$ state 4−63343
  atom, configuration interaction method, correlation energies, wave functions 4−47827
  atom, configuration interaction method, electron affinity 4−47828
  atom, double quantum transition in e.p.r. 4−63340
  atom, highly ionised, new lines in x.u.v. spectra, beam-foil method 4−47857
  atom, imaging ideal transmission electron microscope calcs. 4−71239
  atom, photoelectric cross section of valence level 4−72058
  atomic calculations by expansion method using Gaussian basic functions 4−59899
  atomic F, react. with unsat. hydrocarbons, using crossed mol. beams, radical decomp. investig. 4−50127
  F VII, F VIII, emission lines obs. in grazing-incidence region, ionisation potentials 4−66284
  intermolecular potentials determ., from second virial coeff., polarisabilities, quadrupole moment 4−66526
  ion, Stark beats obs. in H-like K X-rays 4−43740
  laser-plasma X-ray spectra of highly ionized F atoms 4−43735
  in meteoritic and lunar samples 4−62083
  molecule, dissociation, utilization of high energy pulsed electron beams 4−43876
  molecule, Hartree-Fock polarisability and quadrupole moment estimation, vibr. spectra interpretation 4−63415
  molecule, ionisation potential assignment, explanation of Koopmans' theorem breakdown 4−48103
  molecule, potential energy curve, correlation energy correction, Hartree-Fock density 4−52075
  plasma, laser heated, conversion efficiency to X-ray energy 4−56494
  Raman diffusion by liquid F_2, bandshape anal. rel. to temp. investig. 4−49337
  vibrational relaxation in Ar investig., shock-tube schlieren method 4−66544
  CaF_2, relaxation of ^{17}F into single nuclear-spin temperature 4−49215
  F atoms + monosubstituted ethylene reactions i.r. chemiluminesc. meas., product vibr. energy distrib. investig. 4−76583
  F II, radiative lifetime meas. using doubly differentially pumped gas target 4−74919
  F VII, laser produced plasma, forbidden transitions 4−78330
  $F + CH_2D_2$, intramolecular kinetic isotope effect 4−53974
  $F + D_2 \rightarrow DF + D$, Monte Carlo calcs. of reaction rates and energy distribs. of products 4−61604
  $F + GeH_4$ reaction, energy partitioning and $D(H\text{-}GeH_3)$, i.r. chemiluminescence of HF 4−45899
  $F + H_2$ collisions, electronic to vibr. energy transfer, quantum reson. effects 4−81807
  $F + H_2(D_2) + C_3F_6$, kinetic, isotope effects, 303-475K, nuclear recoil techniques 4−73443
  $F + H_2(D_2) \rightarrow HF(DF) + H(D)$, rate consts. from stimulated emission 4−70602
  $F + H_2(alkane) \rightarrow HF +$ products, continuous chem. laser, kinetics investig. *(French)* 4−57839
  $F + H_2 \rightarrow HF + H$, collinear reactive scatt., integral eq. approach, scatt. matrices calc. 4−83015
  $F + H_2 \rightarrow HF + H$, mol. rot. excitation effect on react. rate investig. 4−83021
  F + HF(DF), vibr. relax. rate coeff. calc. 4−48147
  F + HF(DF). vibr. relax. rate coeff. calc., comment 4−48148
  $F + HF(v = 1)$, HF deactivation investig. by laser induced fluoresc. method 4−75045
  $F + HF \rightarrow FH + F$ exchange reaction, barrier height calc. 4−54008
  $F + HR \rightarrow FH + R$, R = sustituted methanes, trajectory calcs. using LEPS pot. surfaces 4−52293
  F + NO, matrix isolated, reaction product characterisation, i.r. spectra 4−50188
  $F + Xe(H^+)$, collision induced fine struct. transitions in F, semiclassical theory 4−74867
  F^-, autodetaching state, collisonal excitation method 4−66317
  F^-, photodetachment, many-body perturbation theory 4−72062
  F^-, proton affinity calc. 4−56064
  F^+ bombardment of H_2, N_2, He, Ne, Ar, 14-100 keV, charge exchange cross-section meas. 4−60127
  $F^+ + H_2(D_2)$ reaction cross section, isotope effect 4−76589
  $F^+ + N_2$, emission cross section for N_2^+(3914 Å) 4−48150
  $F^+ + Ne(N_2)(NH_3)$, K-vacancy production, inelastic energy loss 4−72098
  F_2, F_2^+, F_2^{++}, Hartree-Fock-Roothaan wavefunctions 4−74951
  F_2 and F_2-Cl_2 in (He and He-Ar) inert gas shields, spectral lines investig., anal. 4−68837
  F_2-H_2 chemical laser, electron beam initiated, 0.2 GW pulses 4−62831
  $F_2 + H \rightarrow HF + F$ saddle point, geometry, barrier height, SCF-CI calcs. 4−61590
  F_2^+, F_2^{2+}, low-lying states, pot. energy curves, valence config. interaction wavefunctions 4−66410
  F^{q+} + chlorotrifluoromethane, K X-ray prod., projectile charge-state depend. 4−59964
  F^{q+} + dichlorodifluoromethane, K X-ray prod., projectile charge-state depend. 4−59964
  $F^{7+}(F^{8+})(F^{9+}) + He(Ne)$, K X-ray transitions 4−72047
  $F(^2P_{1/2}) + H_2$, collision kinetics 4−57830
  ^{18}F atoms, thermal, react. with π-bonded species, radical form., decomp., detection 4−53957
  ^{19}F in CaF_2, adiabatic demagnetization in rotating frame by non-resonant oscill. field 4−80855
fluorine continued
  H_2-F_2-He mixtures, population inversion behind blast waves 4−69041
  $H_2 + F = H + HF$, transition state and quantum mechanical reaction probabilities, comparison 4−54001
fluorine compounds
  fluorides, binary, dielec. behaviour *(French)* 4−61094
  molten salts, single and binary, conductance, density, viscosity and surface tension data, summary 4−70019
  ClF, dissoc. energies from chemiluminesc. obs. of $F + Cl_2$ 4−78505
  FCN, ESE MO formalism, comparison with ab initio results 4−52028
  $FClO_3$, vapour phase Raman spectra, Coriolis, force consts., thermodynamic functions determ. 4−63433
  FH, ESE MO formalism, comparison with ab initio results 4−52028
  FH, hydrogen bonding interaction using molecules in molecules theory 4−52052
  FH_2^+, SCF LCGO MO calcs. and hydrogen bonding interaction with FH 4−56066
  FH_2^+ struct. and protonation path of HF *(French)* 4−59985
  $F^-(H_2O)_n$, configuration, Hartree-Fock pot., pairwise additivity approx. 4−74928
  $FH...NCCH_3$, $FD...NCCH_3$, hydrogen-bonded complexes, i.r., Raman ν(XH) stretching band, profile investig. 4−43858
  F_3NO, gas, Raman spectrum polarisation meas., vibr. assignment 4−52151
  F_3NO, i.r. obs. of photolysis in Ar isolation matrix 4−50189
  F_2O, vert. ionisation pots., perturbation calcs. using double-zeta basis sets 4−78512
  F_2POPF_2, conformational anal. and electronic struct., CNDO/2 calcs. 4−56049
  HOF, vertical ionisation pot., perturbation corrections to Koopmans' theorem 4−48104
flux (magnetic) *see magnetic flux*
flux (neutron) *see neutron flux*
fluxmeters
  see also magnetic field measurement; magnetic flux
  highly sensitive, interfering currents in supercond. applic. 4−74095
  ionospheric plasma drift determ. by rocket-borne electrostatic flux meter 4−73564
  resonance-ballistic instrument, for small fluxes meas., accuracy improvement 4−51118
foams
  see also bubbles
  bubbly flow modifications on antifoam addition 4−52495
  cavity masonry walls, direct and flanking sound transmission foam filling effect 4−68573
  cellulose triacetate foam for α-particle track recording 4−81004
  plastic, tensile stress/strain behaviour 4−45853
  polystyrene, pure tension and compression tests 4−50043
  polystyrene foam/paper composite packing materials, test methods *(German)* 4−45885
  polyurethane, insulation on large metallic structs., pulsed laser interferometric holographic inspection 4−47391
  polyurethane, with cylindrical cavities, elasticity and strength 4−50044
  polyurethane foam, sorption of water vapour 4−53848
  C, thermal conductivity meas. technique, 1400-2000K *(German)* 4−50986
focused collision sequences *see sputtering*
focusing
  accelerator with asymmetric variable-phase focusing, transverse Coulomb repulsion of particles 4−58881
  alternate gradient focus for molecular beam accelerator 4−43887
  astigmatic beam, by doublet and symmetric triplet of quadrupole lenses 4−74540
  atomic beam polarising mirrors 4−51137
  automatic focusing system, sensitivity and stability, objective chromatic aberration effect 4−68718
  axially symmetric systems comprising electron lenses 4−69103
  charged particles, tubular beam formation during emission into electric field *(Russian)* 4−47406
  coherent imaging systems, defocusing effects 4−51007
  collimator transfer function calc. for single bore and multichannel focusing collimators 4−65263
  cylindrical-mirror electrostatic analyzer, fabrication errors effect 4−58948
  cylindrical-mirror electrostatic analyzer, image line characts. 4−58947
  DT plasma, focusing expt. and n flux meas. 4−55926
  electron beam, relativistic, pressure gradient focusing in neutral gas 4−43379
  electron microscope image quality, focusing and longitudinal spherical aberration effects *(Russian)* 4−71243
  electron microscope image reconstruction, focal series method *(Russian)* 4−71244
  electron microscopes, scanning and emission, depth of focus comparison *(German)* 4−81033
  electron relativistic ring, H_φ focusing 4−51131
  electrostatic field focusing of small particles of variable mass 4−59463
  fibreglass, geophysical apparatus applications, mechanical properties obs. *(Russian)* 4−50390
  frequency content of e.m. field seen by atom passing through focus 4−74455
  Fresnel zone plates with various central phases, focusing behaviour 4−59352
  glass plates with CO_2 laser induced residual stresses, focusing of He-Ne laser beams 4−51649
  image tube streak camera improvements for subpicosecond time meas. 4−65371
  ion-optical accelerator, straight, aberrations 4−77148
  laser beam, by optical system *(Czech)* 4−51548
  laser emission, hypersonic generation threshold *(Russian)* 4−51653
  laser produced e.m. field near focus as seen by moving electron 4−77693
  laser system, lens design 4−42821
  lens holographic technique for analysing symmetrical aberrations of camera system 4−68708

- **focusing** continued
  - light pulse, by zone plate, diffr. range *(Russian)* 4−65873
  - mass spectrometer, double focusing, second order image aberration correction 4−51173
  - mass spectrometer with crossed electric and magnetic fields *(Japanese)* 4−65536
  - MBBA, nematic liquid crystal layer, c.w. thermal lens effect 4−81354
  - Moire technique, obs. of focusing errors in collimating lens or mirror 4−59345
  - molecular beams, electrostatic space, methods and applics. 4−60130
  - neutron beam focusing with Soller slit for low angle diffractometer 4−68764
  - parabolic axicon, possible appl. 4−58776
  - particle beam by axisymmetric mag. field, arbitrary mass range 4−55541
  - proton extraction system of 70 GeV accelerator for Ludmila liquid hydrogen system 4−74106
  - quadrupole lens, energy dispersion 4−59462
  - sound, curved surface properties *(Russian)* 4−54750
  - spot wander after propag. through turbulent atm., centroid-sync. technique 4−46640
  - time-of-flight mass spectrometer, 1-dimens., space and velocity focusing 4−51172
  - weak focusing storage devices, corrections to g-2 frequency due to betatron oscillations 4−46779
  - X-ray tubes, current and voltage influence on effective focal spot size 4−77255
- **focusing, particle** *see focusing; particle optics*
- **fog**
  - holographic particle sizing technique, appl. 4−74073
  - monochromatic rain or fog bow obs. 4−61820
  - morning fog, effect of cooling towers from local weather records 4−70692
  - sea mists, cellular structure, atmospheric vortices due to radiative cooling *(French)* 4−54199
- **Fokker-Planck equation** *see transport processes*
- **Foldy-Wouthuysen transformation** *see quantum field theory*
- **food processing industry**
  - product colorimetry, dualistic conceptual model 4−54924
- **forbidden gap** *see energy gap*
- **Forbush decreases** *see cosmic ray variations*
- **force**
  - *see also atomic forces; coercive force; Coriolis force; force control; force measurement; molecular force constants; nuclear forces*
  - stability of motion of systems, influence of force structure *(Russian)* 4−51406
- **force constants** *see lattice dynamics; molecular vibration*
- **force control**
  - impulse control, for minimisation of integral estimate of kinetic energy of harmonic oscillator *(Russian)* 4−74265
- **force measurement**
  - *see also dynamometers*
  - accurate instrument testing *(German)* 4−46575
  - dynamometer, two-dimensional, cutting process of peripheral milling application 4−71158
  - dynamometer, using mechanical linkages *(French)* 4−50961
  - friction forces, surface and shape effects 4−46580
  - fundamental, rel. to Newton's first and second laws of motion 4−50945
  - lift and drag forces on sphere and transverse cylinder in shear flow 4−69578
  - magnetic pendulum, automatic, with wide range sensitivity *(Japanese)* 4−68747
  - multiaxial force/moment transducer design and crosstalk problems 4−73992
- **force meters** *see force measurement*
- **forecasting, technological** *see technological forecasting*
- **form factors**
  - asymptotic behaviour in multiparticle prod. 4−71688
  - asymptotically free gauge theories for deep inelastic lepton-hadron scatt., struct. functions and sum rules 4−59494
  - Bjorken, in light cone algebra for currents transforming as (8,8), (1,8), (8,1) of $SU(3)'' \otimes SU(3)'$ 4−66057
  - Blankenbecker Gunion reln. to ^{2}H e.m. structure anal. 4−71781
  - Callan-Symanzik eqn. and asymptotic behaviour in field theory 4−47435
  - complex, use in microscopic anal. of (α,α^1) and $(^3He,^3He^1)$ reactions 4−81505
  - compound systems at high momentum transfers *(Russian)* 4−47497
  - crossing-symmetric formalism for strong decays of baryons in $SU(6) \times O(3)$ quark model 4−59664
  - current algebra approach, quarks and regeons 4−74583
  - deep inelastic scatt., light cone approach to strange structure functions 4−47523
  - dual-two-pomeron graph, asymptotic behaviour in missing mass resonance region 4−59588
  - eikonal perturbation theory, renormalized, on- and off-shell form factors 4−71598
  - elastic, in lepton physics, general review 4−77805
  - electric ^{3}H and ^{3}He, for realistic potentials 4−55749
  - electron gas scattering form factors determ. using density functional formalism 4−74415
  - electroproduction, deep inelastic, diffractive behaviour in resonance excitation model 4−62961
  - electroproduction of higher spin resonances within generalized Joos-Weinberg formalism 4−59547
  - electroproduction of nucleon resonances, spin depend. struct. functions, SU_6 quark model 4−81408
  - e.m., asymptotic behaviour in scale-invariant parton model 4−55633
  - e.m., Drell-Yan relation in bound state model, breakdown due to spin complications 4−55561
  - e.m., invariant Feynman formalism, connection with time-ordered perturbation theory in infinite-momentum frame 4−47456
  - e.m. current, covariant parametrisation arbitrary spin, Breit reference frame *(Russian)* 4−77812
  - Gamow states, in DWBA calcs. for ^{54}Fe(d,n) to proton resonances in ^{55}Co 4−43506
- **form factors** continued
  - hadron, in quantum field theory on seven-dimensional homogeneous space of Poincare group 4−65962
  - hadrons, weak and e.m., review of expts. and theory 4−81409
  - high energy scattering at large momentum transfer, relations for form factors and structure functions 4−63012
  - microscopic, calc. for (d, ^{6}Li) reaction in f-p shell at 27.25 MeV 4−71917
  - muon capture, effect of exchange currents 4−78010
  - nuclear, inelastic, application of sum rules 4−78024
  - nuclear charge, calc. from (e,e) scatt. on ^{12}C, ^{16}O, ^{24}Ne, ^{24}Mg, ^{28}Si and ^{32}S *(Russian)* 4−71797
  - nuclear charge dynamic correlations of nucleons, electron scatt. by nuclei, high energies *(Russian)* 4−66184
  - nuclear excitations, contribs. to isovector form factors 4−63121
  - nuclear separable potentials, coordinate representation 4−59685
  - nuclear stripping form factors, perturbation theory calcs. 4−74743
  - nuclei, rel. to peak consts. *(Russian)* 4−81452
  - nucleon, high-q^2 behaviour, in asymptotically free field theories 4−51680
  - nucleon axial vector, in ^{2}H electrodisintegration 4−71877
  - nucleon axial vector, test of PCAC 4−77814
  - nucleon e.m. in timelike region, information from $\pi^- p \rightarrow e^+ e^- n$ interaction 4−69192
  - photon, effect on decay to lowest order in gravitational coupling constant 4−55343
  - photon structure function $\nu W_2^{\gamma}(\nu, q^2)$ in generalised vector-meson dominance model 4−62947
  - pion, time like momentum transfer, electroprod. at threshold 4−62931
  - properties, non-negative imaginary parts, satisfying unsubtracted dispersion relation 4−43409
  - stripping reactions, resonant final state, form and spectroscopic factor calc. 4−59730
  - structure functions for ep scatt. and e^+e^- annihilation, parton model and perturbation theory *(Russian)* 4−66040
  - transfer reactions, one-nucleon, config. mixing effects *(Russian)* 4−78029
  - tri-nucleon system, meson exchange effects on charge form factors 4−51767
  - weak axial-vector vertex in nuclei, PCAC and renormalisation 4−77968
  - Yamaguchi type, for nucleon-nucleon interactions 4−47565
  - d, Glauber theory 4−63053
  - (e, e) scattering on ^{88}Sr and ^{89}Y 4−59741
  - (e,e') reactions, form factor sum rule for giant multiple states 4−66178
  - ed elastic scattering, deuteron polarisation, form factor depend. 4−69160
  - γ-ray elastic scattering, 145 keV to 750 keV, differential cross-sections determ. 4−47683
  - K, zero parameter model, t^{-2} behaviour 4−62932
  - $K \rightarrow \pi\mu(e)\nu$, application of on-mass-shell current algebra 4−81403
  - $K \rightarrow \pi\mu(e)\nu$, exact bounds for form factor 4−55593
  - $K \rightarrow \pi\mu(e)\nu$, resolution of phase shift ambiguities in $K\pi$ scattering 4−43434
  - $K^0 \rightarrow \pi\mu\nu$, vector and scalar form factors 4−59536
  - $K^+ \rightarrow \pi^0 e^+ \nu$ and $K^+ \rightarrow \pi^0 \mu^+ \nu$ decay modes, combined analysis 4−77794
  - $K^+ \rightarrow \pi^0 \mu^+ \nu$, decay correlation and muon polarization meas., form factor determ. 4−47480
  - $K^+ \rightarrow \pi\mu\nu$, slopes of vector and scalar form factors 4−59535
  - $K_l^0 \rightarrow \pi e \nu$, energy depend., wide-gap spark chamber study 4−55597
  - K_{l3}, chiral $SU_2 \times SU_2$ hidden symm. strong interactions 4−77775
  - K_{l3}, unitarized hard-meson calc. 4−74595
  - n, calc. using more than one vector-meson propagator 4−47495
  - N axial vector form factor from threshold electroproduction expts. 4−55609
  - N e.m. elastic, in relativistic quark model 4−62929
  - N e.m. form factor, behaviour in neighbourhood of light cone 4−74600
  - ν quasi-elastic reactions, $\nu n \rightarrow \mu^- p$, $\nu p \rightarrow \mu^+ \Lambda$, $\nu p \rightarrow \mu^- \Delta^{++}$ 4−77803
  - ν_e, electromagnetic, in theory of attenuation *(Russian)* 4−81410
  - νN interactions, baryon resonance production cross section, form factors, quark model calcs. 4−59545
  - νN structure functions from three-quark-boson nucleon model 4−55602
  - (p,n) charge-exchange reaction, 22-40 MeV, macroscopic and microscopic form factors 4−71913
  - p, Brodsky and Farrar scheme in softened field theory 4−77905
  - p, calc. using more than one vector-meson propagator 4−47495
  - p, e.m. form factor and influence of heavy hypothetical particles *(Russian)* 4−71670
  - p, in time-like region, information from ep elastic scatt. in space-like region *(Russian)* 4−69158
  - p e.m. structure functions, scaling functions in inelastic e.p. scatt. 4−59566
  - p magnetic form factor behaviour and asymptotically free field theories 4−51679
  - p-n structure function differences, from gauge theories with computable large momenta behaviour 4−59489
  - pd elastic scatt., small angle, $\geqslant 1$ GeV *(Russian)* 4−81440
  - π, Brodsky and Farrar scheme in softened field theory 4−77905
  - π, data analysis, asymptotic behaviour 4−74598
  - π, electromag., calc., superpropagator method 4−77807
  - π, from vector meson dominance and bound state structure in relativistic quark model 4−62930
  - π, in gauge model for ρ' meson 4−63005
  - π, meas. in $e^- p \rightarrow e^- \pi^+ n$ reaction at large K^2 4−59567
  - π, simple core model, threshold relations and large angle elastic scatt. 4−77806
  - π, test of PCAC 4−77814
  - π, zero parameter model, t^{-2} behaviour 4−62932
  - π e.m. form factor representation in spacelike and timelike regions 4−66028
  - π e.m. radius, integral representation in terms of form factor 4−74601
  - πN scattering amplitude in Chew Low theory 4−77898
  - $\pi^+ p$ elastic scatt. Coulomb corrections to phase shifts below 300 MeV 4−69190

form factors continued
- $\Sigma^- \to ne^-\nu$, meas. of ratio $|g_a/g_V|$ 4−62916
- ^{9}Be(e,e′), form factors of excited states meas. L-S coupling anal. 4−63142
- ^{12}C(^{6}Li, ^{6}Li), elastic and inelastic, optical model and DWBA anal. 4−66229
- ^{12}C(d,p) stripping partial amplitudes, effects of nuclear form factors *(Russian)* 4−81502
- ^{12}C(e,e$^{(1)}$), charge form factors using α-cluster projection model *(Russian)* 4−47691
- ^{12}C(π,π'), 100 to 300 MeV, DWIA anal. 4−63210
- ^{12}C(t,p)^{14}C, coupled-channels anal. of form factors *(Russian)* 4−71925
- ^{1}H(e,e), 57 to 130 MeV, p form factor meas. 4−66179
- ^{3}H e.m. form factor calc. with hard-core two-nucleon potentials using unitary pole approx. 4−71806
- ^{3}He, magnetic form factor calc. in impulse approx., S-D matrix element and convection current effects 4−51750
- ^{3}He, simple structure model 4−77982
- ^{3}He e.m. form factor calc. with hard-core two-nucleon potentials using unitary pole approx. 4−71806
- ^{4}He, simple structure model 4−77982
- (^{6}Li, ^{6}He), quasielastic, microscopic form factor calcs. 4−78108
- ^{26}Mg(e,e^{1}), study of excited states below 11 MeV 4−47688
- ^{14}N(e,e′) form factors of excited states meas. L-S coupling anal. 4−63142
- ^{20}Ne, structure of 6.72 MeV and 7.20 MeV 0^+ levels, monopole electron scatt. form factors 4−43468
- ^{16}O, electroexcitation of giant resonance, strength and transition probability determ. from form factors 4−74746
- ^{16}O(d,p), stripping partial amplitudes, effects of nuclear form factors *(Russian)* 4−81502
- Sn(e, e′), even isotopes, plane wave Born approx. anal. 4−55821

formal languages
- *see also programming languages*
- dynamics and language in biology 4−80681

formation, heat of *see heat of formation*

forming processes
- *see also rolling*
- constructional alloys, temporary superplasticity during metal-forming 4−53756
- glass, viscoelastic response 4−45797
- hydrostatic extrusion and allied processes, theoretical aspects 4−49864
- nonisothermal extrusion under continuous shear of liqs. with anomalous viscosity characts. 4−52456
- sheet metal formability test with coupon and circular specimens 4−53932
- steel, quenched, with 1.8% C, hydrostatic extrusion influence on cryst. struct. *(Russian)* 4−53651
- theory, basic concepts, forces and methods *(Russian)* 4−53788
- Al, fibre texture formation process rel. to drawing wire *(Japanese)* 4−45726
- Nb_3Sb, superconducting, effect of impurities on growth *(Japanese)* 4−79980
- W rod sintering in Coolidge drawing process, impurity behaviour obs. *(German)* 4−49873
- Zn-Al alloy, superplastic, stretch forming *(Japanese)* 4−45727

forward biased p-n light emitters *see light emitting diodes*

Foucault currents *see eddy currents*

fountain effect *see liquid helium-4; superfluidity*

Fourier analysis
- *see also Fourier transforms; harmonic analysis; waveform analysis*
- acoustic nonlinear sound wave, boundary reflection coeffs., N-wave Fourier anal. 4−68567
- education, time dependent signal, instantaneous freq., rel. to Fourier components 4−73947
- Galerkin Fourier method, for diffusive systems 4−59069
- holographic high resolution imaging, microwave 4−58842
- i.r. thermal thin film detector, basic equations and Fourier analysis 4−58755
- nuclear reactor FFTF mockup, digital Fourier noise analysis system for subcriticality meas. 4−51862
- nuclear reactors, finite series approximation of discontinuities 4−81585
- optics, ambiguity function 4−74468
- plasma, weak turbulence instabilities, elec. field spectral density Fourier anal. 4−63655
- radiography, Fourier reconstruction of head section 4−71111
- short internal wave records, problems in spectral anal. due to end point jump 4−73586
- signal analyser, semi-automatic, multi-channel, for visual evoked potentials 4−55124
- stacking fault probability determ., h.c.p. metals and alloys 4−69820
- thermographic prints, optical props., Fourier analysis and Wiener spectra 4−58849
- vision contrast threshold, sine wave patterns 4−62297
- Na, liquid, triplet correlation function from struct. factor, press. depend. 4−52679

Fourier series *see series (mathematics)*

Fourier-transform spectroscopy *see Fourier transforms; spectroscopy*

Fourier transforms
- *see also fast Fourier transforms; Fourier analysis*
- acoustic radiation, high and low frequency approaches 4−73925
- aerodynamic kernel functions derivation 4−48261
- Alfven waves, long cylindrical satellites 4−52477
- alkali halides, deform. coupling of X-ray scatt. factors, fitted shell model 4−82228
- analogue computer generation, educational paper 4−54780
- annular piston, in infinite planar rigid baffle, impulse response, radiation impedance 4−80779
- coherent optical Fourier transform of curves 4−51536
- coherent optical processing 4−71505
- complex, anal. of elastic plate strips internal stress state *(German)* 4−65692
- computer simulation by density matrix method of repetitively pulsed Fourier transform n.m.r. 4−67420
- convolution integral notation 4−74472

Fourier transforms continued
- cubic crystals, anisotropic, displacement field of a dislocation loop 4−63832
- cyanopropyne, nematic phase oriented, Fourier p.m.r. of ^{13}C satellites, mol. geometry 4−57386
- d.c. magnetic field in conductor, computation, Bessel and Fourier transforms *(German)* 4−43229
- dielectric relaxation, linear response theory, numerical evaluation 4−53368
- elastic wave scattering, by movable rigid sphere in infinite elastic solid 4−43108
- elastic-isotropic layered medium, asymmetric load *(German)* 4−51356
- electron microscope image, bright field case 4−65542
- far i.r. Fourier spectroscopy, mathematical and physical basis *(German)* 4−46657
- finite, coded table, non-routine applications for students 4−58686
- forward-backward, for restoration of hum-contaminated correlation functions 4−55081
- Fourier-Laplace, of generalized functions, appl. to unrenormalizable and nonlocalizable field theories 4−59057
- gamma-ray collimators, system function computation 4−68517
- gamma-ray spectra, on-line computer anal. 4−62568
- Gaussian beam scattering, Fourier series expansion approach *(Japanese)* 4−74466
- graphite microstrains and paracryst. distortions, X-ray-Fourier transform anal. *(German)* 4−69698
- helical particles, computer-generated Fourier transforms 4−71503
- holographic multiple storage, spatial division in Fourier plane 4−51065
- holography, in optical deconvolution of seismic traces *(French)* 4−61892
- holography, optical recording and reconstructing systems design 4−58836
- integro-differential equations, asymptotic solution, Cauchy problem *(Russian)* 4−51279
- i.r. spectroscopy, instrument design *(French)* 4−51029
- i.r. spectroscopy, variable waveretarders as multiplex spectropolarimeters 4−65432
- Laplace theorem generalization using nonlinear Fourier transform, causality and local analyticity 4−55190
- lens, for optical Fourier transforms 4−46628
- lensless Fourier transform holography, plane objects synthesis 4−58833
- light diffraction suppression, use of sunburst aperture, Fourier transform solns. 4−77613
- lossy dielectrics, dispersive Fourier transform spectrometry at submillimetric wavelengths 4−65444
- magnetic systems, rel. to soln. of Luttinger-Tisza problem 4−49135
- matrix multiplication, incoherent electrooptical analogue techniques 4−69016
- methyl bromide, Fourier transformed i.r. spectra of $2\nu_5$ band, assignment 4−56228
- methyl bromide, Fourier transformed i.r. spectra of ν_4 band, assignment 4−56227
- methyl bromide, rovibrational anal. of $\nu_4+\nu_6$ band, Fourier transform spectra *(French)* 4−60054
- methyl ions, cyclotron reson. spectra, freq. sweep Fourier transform method 4−63462
- multinuclear c.w. or Fourier transform n.m.r. 4−65503
- nitroethane, far i.r. absorpt. spectrum meas., internal rot. investig. 4−63428
- n.m.r., additivity theorem applic., resolution enhancement in beat-modulated free induction decays 4−51127
- n.m.r., high resolution, rapid registering of couplings *(French)* 4−56274
- n.m.r., method of elimination of signals due to most abundant isotopic species *(French)* 4−75016
- n.m.r., quadrature technique, data routeing 4−57349
- n.m.r. Fourier spectroscopy, diffusion and field-gradient effects 4−57394
- n.m.r. spectroscopy, comparison of quadrature and single-phase 4−67421
- n.m.r. spectroscopy, rapid scan, theory and practical considerations 4−67419
- n.m.r. spectroscopy of nonequilibrium states, application of techniques 4−57396
- on-line Fourier analyzer for nuclear systems anal. 4−81580
- optical filtering of aeromagnetic maps 4−54279
- optical image, periodic object, spatial coherence effect 4−77628
- optical information, sinc function definition 4−69017
- optical instruments, diagnostic X-ray focal spots, performance evaluation, applic. 4−46424
- optics, $(\sin x)/x$ versus $(\sin\pi x)/\pi x$ definition of sinc function 4−47311
- optics, diffr. pattern of simple aperture 4−71494
- photographic image restoration and enhancement, digital techniques 4−68717
- Poisson equation, discrete, direct soln. on surface of sphere 4−59047
- polybutene I, microstrains and paracryst. distortions, X-ray-Fourier transform anal. *(German)* 4−69698
- polyethylene, microstrains and paracryst. distortions, X-ray-Fourier transform anal. *(German)* 4−69698
- radio interferometry, Fourier transform supersynthesis 4−62239
- radioisotope scans, computer and optical processing, using Fourier and other transformations 4−50877
- rectangular sandwich plate, oscillation 4−43106
- refractive index profile reconstruction by Fourier transform method 4−71471
- rotation collimator camera, appl. nuclear medicine, numerical processing of data 4−83327
- Schwarzschild black holes, analysis of exterior scalar waves 4−68429
- seismic response spectra, characterisation through statistics of oscillator response 4−61662
- semiconductor, impurity-atom distrib., slit in masking film 4−67737
- SL(2,R), Fourier transforms of positive type distribs. *(French)* 4−43008

Fourier transforms continued
- sound radiation, cylinder, immersed in acoustic fluid, bounded by elastic half-space 4−80783
- spectrometry, Fourier transform versus Hadamard transform 4−58803
- spectrophotometer, astronomical, 700-10000 cm^{-1} 4−62264
- spectroscopic detection, long path i.r., of atm. pollutants 4−62579
- spectroscopy, chirped interferograms for nonlinearities compensation 4−46667
- spectroscopy, effects of source noise 4−77076
- spectroscopy, Hadamard transform comparison 4−68682
- spectroscopy, photon noise, S/N ratio, gain 4−68688
- spectroscopy, radiation source fluctuations, spectrum quality 4−80899
- spectroscopy, random multiplicative noise attenuation, correlation method 4−51061
- spectroscopy of impurities in high-purity Ge samples 4−53609
- spectroscopy. synthetic aperture radar analogy 4−43262
- surface kinetic data, evaluation by transform anal. of modulated mol. beam meas. 4−63974
- transform. function of external ear, in response to impulsive stimulation 4−80708
- two-centre overlap integrals involving Slater-gaussian mixed orbitals, Fourier convolution method 4−56073
- viscoelastic wave anal. 4−59204
- Voigt profile component determ., use of Fourier transforms 4−47314
- Westerbork Synthesis Radio Telescope, data handling facilities 4−62224
- InSb, multiphonon absorption, far i.r. obs. using Fourier transform spectrometer 4−53445
- PD_3, Fourier transform n.m.r. studies in nematic solvent 4−67462
- P_4S_3, nematic phase, Fourier transform n.m.r. of ^{31}P, chem. shielding anisotropy 4−57387
- Rb, liq., density fluctuations, neutron scatt. obs. 4−66814

fractionation *see distillation*

fracture
- *see also cracks; mechanical strength*
- accelerated fatigue testing, determ. of critical stresses and number of cycles *(Russian)* 4−80153
- acetal copolymer, uniaxial and rot. bending fatigue tests 4−80158
- adhesive, and cohesive, Griffiths energy balance analysis 4−67978
- alloy, fracture viscosity at high temp., optimum method selection 4−61452
- alloy, stress corrosion cracking, fracture mechanics role 4−45615
- alloy AMg5, electron fractography, impact strength 4−82922
- alloys, for aircraft microfractographic features and failure analysis *(German)* 4−80167
- anisotropic fracture test specimens, stress intensity factors 4−80078
- anisotropic media, phenomenological theory construction 4−45816
- artificial carbons and graphites, mech. behaviour, structure depend. C materials, mechanism, struct. depend. *(French)* 4−76540
- b.c.c. polycrystal, microcrack propag., stat. criteria 4−49852
- biaxial stress measurement, high-speed testing machine 4−68622
- bony tissue, tensile fracture resistance 4−50813
- Borsic/Al composite, dynamic fracture behaviour 4−49961
- α-brass, cyclic stress/strain relation and fatigue strength, grain size depend. *(Japanese)* 4−82889
- brass, machinability, aqueous copper-ammonium complex solns. influence *(Russian)* 4−45601
- α-brass, stress corrosion cracking in aliphatic amine solns. 4−49746
- brass bands, thin, mech. props., estimation method *(Polish)* 4−64569
- brittle anisotropic materials, cubic equation, biaxial and triaxial normal stress interaction 4−63852
- brittle bars under impact bending 4−52812
- brittle crack propagation, Japanese studies review 4−48692
- brittle cylindrical solids, failure under thermal loading 4−64675
- brittle damage mechanics, boundary-value problem 4−60547
- brittle fracture dynamics, wave fractographic investigs. 4−48677
- brittle fracture statistics, inverse formulation 4−60542
- brittle materials, failure prediction using fracture mechanics and acoustic emission 4−73394
- brittle materials, Griffith criterion for reversible and irreversible fracture 4−73360
- brittle materials, origin and use of fracture mechanics 4−64618
- brittle materials characterization 4−61432
- brittle materials seminar, USA (Oct. 1973) 4−61431
- brittle solid, Hertzian ring cracks initiation and propag., fracture toughness eval. 4−64698
- brittle solid, in homogeneous stress state 4−48675
- brittle solids, torsional strength under hydrostatic press., stat. approach *(Japanese)* 4−79094
- ceramic, brittle fracture statistics 4−64692
- ceramic, crack extension and arrest in residual localised stress fields assoc. with second phase particles 4−73352
- ceramic, crack propagation by diffusion 4−73354
- ceramic, crack propagation rel. to acoustic emission monitoring 4−64697
- ceramic, dense and porous, shock fracture mechanisms comparison with single crysts. *(German)* 4−61503
- ceramic, failure prediction using acoustic emission 4−45882
- ceramic, fatigue failure probability rel. to engineering design 4−73366
- ceramic, fractographic identification of strength-controlling flaws and microstruct. 4−67918
- ceramic, fracture mechanics, conf., University Park, USA (July 1973) 4−64617
- ceramic, fracture mechanics applic. and role of elastic consts. 4−64620
- ceramic, fracture mechanics parameters eval. procedures 4−64619
- ceramic, fracture mirror meas. 4−67917
- ceramic, fracture surface examination by Auger spectroscopy 4−67921
- ceramic, fracture surfaces, quantitative SEM and raster profilometer analysis 4−67923
- ceramic, K_{Ic} factors determ. with diamond saw cuts 4−73349
- ceramic, metal-infiltrated, porous, fracture resistance 4−73363
- ceramic, microstruct. considerations for applic. of fracture mechanics techniques 4−73350

fracture continued
- ceramic, slow crack growth rel. to microstruct. 4−73355
- ceramic, static strength testing, error sources 4−64691
- ceramic, subcritical crack growth, component lifetime prediction after proof testing 4−73353
- ceramic, thermal shock resistance 4−73361
- ceramic fracture energy determ. using notched-beam test 4−73340
- ceramic materials, role of inclusions 4−70547
- ceramics and composites, elastic interaction between inclusions and cracks 4−64621
- chemical stress applied to creep and fracture theories, Griffith crack problem 4−60640
- chemical stress applied to creep and fracture theories 4−60639
- cohesive, and adhesive Griffiths energy balance analysis 4−67978
- complex stress, angled crack problem, exact soln. 4−67983
- composite, brittle matrix type, with metal inclusions, thermal shock and wear resist. *(German)* 4−53839
- composite, debonding of rigid curvilinear inclusions in longit. shear deform. 4−67925
- composite, fibre reinforced, fracture energy 4−53837
- composite, fibre reinforced, fracture mechanics approach to failure 4−64633
- composite, fibre reinforced, interaction of elements under cyclic loads 4−49950
- composite, fibre reinforced, notched unidirectional, approx. analysis method 4−67924
- composite, filamentary, dynamic fracture at high strain rates 4−49960
- composite, particulate type, brittle fracture and failure criteria 4−49959
- composite, polymer matrix, interfacial bonding and environmental stability 4−64630
- composite, three phase glass reinforced epoxy resin, fracture surface energy 4−80070
- composite, two-phase, finite element analysis of cracks in interfacial region 4−64631
- composite, unidirectionally reinforced, AMMRC status report on fracture behaviour 4−45762
- constructional materials, corrosion cracking susceptibility determ. method *(Russian)* 4−53728
- continuum mechanics approach, review 4−48674
- crack development process in uniaxially compressed synthetic materials 4−66970
- crack propagation under variable amplitude loading, Willenborg retardation model 4−50107
- crack tip, range of applicability of small scale yielding approach 4−67834
- cracked plates, general criterion of fracture, modification of Griffith theory 4−65667
- cyclic creep-type, in const. load low cycle fatigue tests, theory 4−74319
- dislocation dynamics influence on crack stability and motion 4−48681
- dislocation pile-up behaviour in nonuniform stress field *(Russian)* 4−60498
- double cantilever beam specimens, crack propag. dynamics 4−48683
- double cantilever beam test specimen, fast fracture and arrest meas. 4−50120
- Dresser basalt, dynamic strength and fracture properties 4−70635
- ductile materials, fracture model for surface flaws and weld defects 4−45592
- dynamic cleavage, mech. model 4−48684
- dynamic crack propagation, conf., Bethlehem, USA (July 1972) 4−48676
- dynamic strength theory 4−63854
- elastic solid under general loading, plane crack motion analysis 4−48691
- elastic-plastic media, dynamic crack propag., model 4−48686
- electron channelling patterns applic. to embrittlement studies 4−80012
- electron fractography, oxidation protection of fracture surfaces 4−64547
- epoxide resin, relax. technique to obtain stress versus crack velocity diagrams 4−80097
- epoxy resin, thermal crazing 4−67953
- epoxy resins, filled, strength and fracture toughness 4−61529
- epoxy resins, work of fracture, room temp. and 4.2K 4−64637
- explosion induced fracture of solids, theory 4−48678
- failure prediction based on fracture mechanics, initial flaw size distribs. and crack detection probabilities 4−50112
- fatigue crack growth, stress ratio influence, test procedure 4−57798
- fatigue crack growth of surface flaws from holes in thick plates, stress intensity factor 4−50111
- fatigue crack growth retardation under aircraft spectrum loads 4−45877
- fatigue crack propagation model based on inverse hyperbolic tangent function 4−50106
- fatigue crack propagation under cyclic loading, elastic-plastic analysis 4−50105
- fatigue-type, in const. load low cycle fatigue tests, theory 4−74319
- fibre reinforced plastic, unidirectional, viscoelastic behaviour, constitutive eqns. 4−49931
- foil, unstable phase of crack propag. 4−49854
- glass, crack front curvature and fracture surface markings in transitional fracture vel. region *(German)* 4−76545
- glass, fracture mirror meas. 4−67917
- glass, mechanics and crack propagation 4−61547
- glass, microflaw origin and detection 4−64694
- glass, quenched, delayed fracture induced by water vapour, gas adsorption effect *(German)* 4−53795
- glass, stressed, dicing, calorimetric technique for strain energy release meas. 4−61479
- glass, thermally toughened, NiS induced cracking *(German)* 4−76544
- glass, viscoelastic response during forming, fracture failure 4−45797
- glass and glass-ceramics, prestressed, fracture and strain energy release 4−73364
- glass fibre, tensile fragmentation 4−67956
- glass reinforced epoxy resin, deform. characts. 4−49932

fracture continued
- glass reinforced plastic, damage accumulation under cyclic tension/compression 4−45781
- glass reinforced plastic, failure caused by stress concentrations 4−61530
- glass reinforced plastic, fracture toughness 4−61531
- glass reinforced plastic, stress and strain conc. around circular hole 4−80085
- glass reinforced plastic, SVAM-type, anisotropy effect on cyclic deform. and heating 4−45782
- glass reinforced plastic rings, climatic loading effect on residual stresses and carrying capacity 4−53844
- glass reinforced plastic rings operating under press., carrying capacity 4−53843
- glass reinforced polyester resin laminates, macroscopic fracture mechanics 4−76532
- glass-ceramic, residual glass phase behaviour 4−64598
- graphite, fracture mechanics applic. to failure pressures determ. under complex stress conditions 4−73365
- graphite, isotropic, fatigue, notch sensitivity and work of fracture obs. 4−78268
- graphite, polycrystalline, fracture mechanism 4−73346
- graphite under different test conditions, theory and experiment 4−71991
- graphite/epoxy composite, fibre/matrix interactions 4−64632
- graphite/epoxy prepreg., prestressing effects on laminate strength props. 4−49955
- graphitic materials, under complex stressed state conditions 4−49913
- hard rock, thermal fracturing using convective heat source 4−50235
- Hastelloy X, base and weld metals, elevated temp. fracture and fracture surfaces *(Japanese)* 4−70503
- Hertzian cone crack growth 4−65661
- heterogeneous solids, crack tip stress singularity problem soln. 4−64622
- ice, shear strength of polycryst. and single cryst. *(Japanese)* 4−66978
- Incolloy 901, fatigue crack propagation, secondary microcracks 4−45593
- Inconel, X-750, creep fracture at 700°C 4−64584
- ionic crystals, supersonic crack propag. induced by strong laser pulses 4−48693
- Kapron, γ-irrad. effect on cracking and mech. props. 4−45826
- Kapron, oriented at elevated temps., breakage of polymer chains, i.r. spectra 4−45818
- Kapron, oriented monofilament, fractographic obs. of macrocrack propag. 4−45817
- kinetic theory *(Russian)* 4−69851
- limiting state curves, effect of preliminary plastic deform., changes in shape 4−82946
- longitudinal shear crack propag. and cohesive force 4−48682
- macroscopic dynamic theory of stability and instability under impulsive loading 4−48680
- mechanics, conference, Cadarache, France, November (1973) 4−67861
- mechanics, generalized theory 4−60544
- mechanics, three nonlinear problems *(French)* 4−65672
- mechanoluminescent strength determ. 4−61552
- metal, AMMRC status report on fracture behaviour 4−45762
- metal, b.c.c., cleavage fracture due to twin passing through free surface, dislocation model 4−76499
- metal, brittle, static eval. of strength, effect of temp. 4−61461
- metal, brutal cracking, micro- and macroscopic aspects *(French)* 4−76455
- metal, cavitational surface failure *(Russian)* 4−53718
- metal, ductile fracture strength, Griffith-Irwin-Orowan theory extension 4−50110
- metal, fatigue crack growth mechanisms 4−67823
- metal, fatigue fracture under harmonic and complex loads at low temps., apparatus construction 4−53953
- metal, wear sheet formation by delamination, SEM obs. 4−53777
- metal sheet, reinforcements effect on slow stable tear and catastrophic failure 4−49839
- metal strips, symmetrically notched, yield pt. loads 4−45881
- metallic glasses, fracture topography 4−61420
- metallic glasses, free volume model approach 4−53769
- metallic glasses, mech. characts. 4−76453
- metallic glasses, strength and fracture characts., temp. depend. 4−61400
- metallic materials, grain boundaries influence on deform. and fracture at high temps. *(Japanese)* 4−70509
- metallic materials, grain boundaries influence on deform. and fracture at high temps. *(Japanese)* 4−70510
- metallic thick structures, stress intensity factors calcs., linear fracture mechanics theory *(French)* 4−67862
- mica glass-ceramics, fracture energy and thermal shock resist. rel. to microstruct. 4−73345
- Nimonic 80A, prestrain, cavitation, creep ductility 4−82933
- nuclear reactor design standards modernization, procedures for use of plane strain d elastic-plastic fracture mechanics 4−47766
- nuclear reactor fuel, thermally stressed, crack propag. analysis 4−72001
- oblique or inclined, ductility during plane strain flow under plane stress 4−67840
- penny-shaped crack lying on bimaterial interface, torsional wave scatt. 4−48688
- plane fracture waves, crack growth in borehole detonation *(Russian)* 4−52811
- plastic, fatigue crack growth and local overheating effects *(Russian)* 4−73373
- plastic zone size, for a plate and a cylindrical shell 4−65664
- plates and shells, cracked, fracture criterion *(French)* 4−65671
- PMMA, behaviour in hostile organic solvents, quasistatic cracking 4−67943
- PMMA, crack growth kinetics in static tension regimes 4−49997
- PMMA, dynamic crack propag. 4−50031
- PMMA, dynamic deform. at high rates of strain, fracture mechanics analysis 4−50032
- PMMA, dynamic fracture toughness meas. by high-speed photography 4−67935

fracture continued
- PMMA, fatigue crack growth and local overheating effects *(Russian)* 4−73373
- PMMA, fixed boundary fracture model, vel. characts. 4−50034
- PMMA, long crazes fracture mechanics 4−50033
- PMMA, plane bending fatigue *(Japanese)* 4−70574
- PMMA, relax. effects and damage accumulation under static loads 4−45819
- PMMA, stress crazing behaviour obs. 4−82976
- PMMA blocks, supersonic crack propag. due to giant laser pulses 4−50001
- PMMA sheet, notch length effects on mech. props. 4−45824
- polyacrylonitrile fibres, carbonized, SEM obs. of structure 4−53888
- polyaxial stress states, Weibull statistics 4−49899
- polycarbonate, BPA type, short silicon blocks effect on shear plasticity and low temp. toughness 4−80113
- polycarbonate, plane bending fatigue *(Japanese)* 4−70574
- polycarbonate, thermally aged, changes in strength, fracture and supermol. struct. 4−45833
- polycarbonate plate, fracture mode transition during fatigue crack propag. *(Japanese)* 4−80112
- polyester resin/chopped strand-mat laminate, fracture toughness meas. 4−82962
- polyethylene, failure mode, liq. media influence *(Russian)* 4−53859
- polyethylene, linear, spherulite size effects on mech. props. 4−70580
- polyformaldehyde fibres, structural changes effect on sorptivity and mech. props. 4−50005
- polymer, amorphous, lifetime under intermittent loading 4−45831
- polymer, atomic mechanism, i.r. spectra 4−57775
- polymer, cross-linked, surface formed by tensile fracture, energy considerations 4−67945
- polymer, cyclically loaded, local heating at ends of cracks, fractographic method 4−49995
- polymer, dynamic toughness testing, crack vel. meas. 4−50119
- polymer, environmental delayed fracture *(Japanese)* 4−70576
- polymer, failure phenomena, structure depend., deform. *(French)* 4−76539
- polymer, fatigue crack growth mechanisms 4−67823
- polymer, fracture energy in shock bending, temp. depend., relax. processes influence *(Russian)* 4−53861
- polymer, impact strength estimation method 4−53884
- polymer, lens formation, uniform impact loading, shape and Poisson's ratio relationship 4−80095
- polymer, safe stress determination 4−74000
- polymer, vitreous, relax. theory of fracture *(German)* 4−82979
- polymer containing spherical rubber particles, failure mechanism *(Russian)* 4−53903
- polymer film, laser radiation damage 4−53882
- polymer shell, thin-walled, fatigue props. and susceptibility to damage 4−50000
- polymer-liquid systems, phenylene groups in main chain, critical stress cracking meas. 4−80091
- polymers, oriented, submicrocrack form., hydrostatic press. effect 4−45832
- polypropylene, cryst. isotactic, cryogenic crazing obs. 4−67947
- polystyrene, dynamic crack propag. 4−50031
- polystyrene, high-impact, fracture under fatigue loading, electron micrographs 4−45809
- polysulphone, plane strain fracture 4−67937
- polyurethane foam, rigid, fracture toughness 4−67942
- porcelain ceramics, multiphase electrical, fracture mechanics technology applicability 4−73393
- prediction, observations on Sih's strain energy density approach 4−66976
- prediction observations on Sih's strain energy density approach 4−66974
- pressure vessel, cylindrical, with initial surface crack, fracture initiation and propagation 4−47762
- propagation and arrest, machine and initial crack length influence 4−50122
- PVC, rigid, ductile fracture 4−50006
- PVC, thermal fracture, necking rupture 4−45807
- PVC film, edge yielding phenomena 4−67951
- quartz glass, high strength, hydrolytic mechanism of fracture under load 4−75565
- quasistatic and dynamic fracture, interaction of inertia effects 4−48689
- quasistatic crack propag. for const. strain energy release rate, stability conditions 4−50100
- quasistatic cracking materials with high fracture toughness, low yield stress 4−70512
- random model of one-dimens. breakage 4−45863
- rapid crack propag., accompanying average fracture energy 4−67986
- Rice parameter J evaluation test method 4−67967
- rock, brittle crack growth under uniaxial compression 4−50248
- rock, crack growth control and failure testing system 4−50250
- rock, crack propag. and fracture of compression loaded specimens 4−50249
- rock fracture experiments and probability of earthquake occurrence 4−76646
- rock fracture networks, steady state flow 4−68100
- rocks, developing fracture, slip area form, wave field 4−64787
- shape factor of specimen rel. to time depend. of brittle strength 4−80133
- shell, crit. COD and plastic instability concepts applic. 4−50109
- small-scale test in fracture propag. problems 4−50118
- spheres and discs, due to point explosive impulse on surface 4−52816
- spinal materials, deform. and failure characts. 4−54670
- spinel and periclase-spinel ceramics, thermal shock resist. increase 4−49905
- stability of cracking criteria 4−66969
- steel, 35 NCD 16, C.T. 15 specimen, stress and displacement fields, integral eqn. soln. *(French)* 4−67863
- steel, austenitic, crack form. mechanisms *(Czech)* 4−80002
- steel, austenitic, low-cycle failure resist. in chlorides at high temps. and press. *(Russian)* 4−45599

fracture continued
steel, austenitic Cr-Ni and Cr-Mn, low temp. strength and ductility 4−80030
steel, austenitic Mn-Cr type, stress corrosion cracking resist. in conc. chloride solns. *(Czech)* 4−79999
steel, austenitic stainless, eval. tests for detection of intergranular corrosion susceptibility 4−49755
steel, austeno-ferritic Cr-Ni-Mo type, hot embrittlement, coated electrode tests *(French)* 4−49801
steel, bainitic, warm rolling influence on fracture toughness, substruct. obs. 4−45653
steel, brittle-ductile transition, temp. depend. of fracture energy and microfractography applic. limits *(Russian)* 4−53715
steel, by intergranular microvoid coalescence, comp. and heat treatment depend. 4−45680
steel, carburized, fatigue fracture, high cycle, fractographic obs. 4−64581
steel, cast structural, cold resistance after heat treatment 4−61436
steel, cavitated creep-fracture surface, smoothing by surface self-diffusion 4−45686
steel, cold shortness threshold and impact strength *(Russian)* 4−76461
steel, constructional, crack resist. in short-term loading, water and water vapour influence *(Russian)* 4−45597
steel, Cr-Si-Mn type, breaking resist., alloying and heat treatment effects 4−67881
steel, crack propagation resistance decrease by embrittlement, stress wave attenuation test 4−49857
steel, crack-branching meas. applics. 4−49859
steel, critical defect size, prediction from plastic fracture mechanics *(French)* 4−67866
steel, embrittlement and recovery, boron effects *(French)* 4−45690
steel, embrittlement during plastic deform. *(Russian)* 4−53745
steel, failure in impact bending, cooling effect 4−61459
steel, fatigue and brittle failure at low temp. 4−61451
steel, fatigue fracture, low and high loading frequencies 4−82939
steel, ferritic, stabiliser influence on heat-affected zone props. *(French)* 4−49800
steel, ferritic and austenitic, deformed, potentiodynamic curves, heat treatment influence *(French)* 4−45695
steel, fine-grained high-temp., welding-simulation heat-treated specimens, stress-relieving effects *(German)* 4−64571
steel, fracture and flow stress in partial scale yielding range *(German)* 4−45873
steel, fracture toughness meas., effect of tip crack radius *(French)* 4−67864
steel, furnace type, rare earth additions for sulphide shape control, notch toughness 4−61426
steel, hardenability and notch toughness, optimum boron range 4−45667
steel, hardened, fatigue failure duration, struct. and contamination influence *(Russian)* 4−45605
steel, heat treatment effect on mech. props. 4−82923
steel, high-strength, cooperative relation between temper and hydrogen embrittlement 4−82908
steel, high-strength, P and S effect on hydrogen absorpt. and corrosion cracking susceptibility 4−82929
steel, high-strength, rapid crack propag. 4−82904
steel, high-strength crack growth rate during corrosion cracking, cathodic polarisation effect *(Russian)* 4−73316
steel, high-strength structural, toughness behaviour rel. to struct. *(German)* 4−49741
steel, high-strength structural, with martensitic struct., complex eval. of mech. and metallurgical characts. *(Czech)* 4−49777
steel, hot rolled rings, toughness and ductility increase 4−80028
steel, hot workability assessment by hot torsion tests, temp. behaviour influence *(German)* 4−82881
steel, impact fatigue strength, effect of retained austenite 4−80032
steel, initial crack nucleating condition in delayed fracture *(Japanese)* 4−82890
steel, low-alloy, cold brittleness, effect of microheterogeneities 4−82928
steel, low-alloy, intercryst. stress corrosion cracking *(German)* 4−45579
steel, low-alloy, stress corrosion cracking in acetate solns. 4−45589
steel, low-C, accelerated testing and hydrogen sulphide cracking susceptibility *(Russian)* 4−53731
steel, low-C, quenched and tempered, hydrostatic press. effect on ductility *(Japanese)* 4−67850
steel, maraging, heat treatment conditions effect on microstruct. and mech. props. 4−80027
steel, maraging, produced by powder metallurgy, tensile props. and grain size refinement 4−67891
steel, maraging, sustained load subcritical flaw growth characts. 4−50116
steel, maraging and AISI grade, plastic fracture mechanisms 4−80011
steel, maraging and martensitic stainless, endurance in air and water comparison *(French)* 4−49798
steel, martensite, fracture surfaces, micromechanisms 4−61470
steel, medium-C, fracture surfaces and brittle fracture resist., B influence *(Russian)* 4−53714
steel, medium-C, torsional prestrain effect on tensile and low-cycle fatigue props. 4−57742
steel, mild, deform. processes during cracking due to static and pulsating tensile stresses *(German)* 4−53705
steel, mild, dynamically loaded plate, fracture toughness 4−67817
steel, mild, flat fracture propag., plastic deform. processes role 4−49853
steel, mild, impact fatigue testing 4−50053
steel, mild, plastic yielding and fracture props., specimen thickness and temp. effect 4−61468
steel, mild, sulphide cracking obs. by const. strain rate method 4−67845
steel, mild and high-strength, fatigue fracture of clad plate *(Japanese)* 4−79996
steel, milk, sulphide cracking, fractographic obs. 4−67846
steel, neutron irrad., tolerable embrittlement, crack arrest temp. and stress wave attenuation 4−49856

fracture continued
steel, Ni-Cr-Mo-V type, temp. influence on corrosion fatigue crack propag. 4−76475
steel, Ni-Mo-Cr type, temp. and holding time at stress relieving effects on internal stresses and mech. props. *(German)* 4−67812
steel, notched specimens, stress wave emission and plastic work 4−61421
steel, pearlitic 1080, cold worked, deform. struct. and tensile fracture characts. 4−45675
steel, plate and submerged arc weld, irrad. strengthening and fracture embrittlement 4−45716
steel, powder-forged and wrought, comparison of mech. props. 4−70515
steel, quasi-brittle fracture, specimen vol. effect on elongation, fracture probability *(German)* 4−49739
steel, rail type, mean stress effects on fatigue crack growth and failure 4−67822
steel, spring Mn-Cr-B type, ausforming effect on fatigue strength *(Japanese)* 4−82892
steel, stainless, 18 Cr ferritic, impurity effects on stress corrosion cracking 4−67847
steel, stainless, austenitic, caustic stress corrosion cracking 4−64573
steel, stainless, austenitic, durability on low-cycle torsion in hot chloride and alkali solns. 4−61462
steel, stainless, Cr-Ni-Nb stabilized, freq. and strain range effect on environmental fatigue cracking 4−53758
steel, stainless, intercryst. corrosion and impact strength, precip. of carbides 4−79950
steel, stainless, kinetic deform. criteria of fatigue fracture, 650°C 4−53952
steel, stainless, martensitic-ageing, stress type effect on mech. props. and struct. 4−61463
steel, stainless, stress corrosion cracking 4−45616
steel, stainless, thin rolled foils, mech. behaviour in tension and fracture characts. 4−49855
steel, stainless, Type 316, irrad. effect on microstruct. and creep rupture props. 4−43671
steel, stainless, Type 348, thin-section type, irrad., fatigue life at 288°C 4−43676
steel, stainless, Types 304 and 316, neutron irrad. effect on fatigue crack propag. at high temp. 4−43679
steel, stainless austenitic, weld overlays, stress corrosion cracking in high temp. water *(Japanese)* 4−45631
steel, stainless ferritic 18 Cr, impurity effects on stress corrosion cracking *(Japanese)* 4−67851
steel, stainless ferritic-austenitic, heat treatment 4−80029
steel, stainless type 304, review of high-fluence duct swelling and mechanical props. in EBR-II 4−81572
steel, stress behaviour in partial scale yielding range, dislocation theory applic. *(German)* 4−61405
steel, structural, phosphorus effect on mech. props. 4−82926
steel, structural, radiation-induced changes in fracture extension resist. 4−45717
steel, structural, twinning and slipping shear stresses eval., grain size depend. 4−53695
steel, surface plastic deform. effect on fatigue failure kinetics 4−80031
steel, tempered martensite, orientation of cleavage facets, single surface trace analysis 4−45553
steel, tempering under stress influence on resist. to dynamic loads and stress corrosion *(Russian)* 4−76462
steel, tubular anisotropic specimen, low cycle strength, repeated elastoplastic deformation, plane stress 4−82940
steel, tubular specimens, stresses involved in tearing *(German)* 4−45875
steel, tufftrided, fatigue limit prediction for smoothed specimens *(Japanese)* 4−82893
steel, type 304, stress corrosion cracking 4−49752
steel, yielding as localized successive stochastic processes 4−49808
steel foil, unstable phase of crack propag. 4−49854
steel plate, impacted by blunt cylinders, spallation 4−82884
steel pressure vessel, high-strength monobloc cylinder type, failure 4−73392
steel reactor pressure vessel, stress and deformation anal. at critical locations, review 4−43599
steel sheet, brittle crack formation, grain size effect 4−64589
steel St 52-3, low sulphur contents influence *(German)* 4−45578
stochastic theory approach combining microscopic and macroscopic variables 4−53761
strain rate crack speed relation, steady state processes 4−67979
stress behaviour in partial scale yielding range, dislocation theory applic. *(German)* 4−61405
stress corrosion cracking, fluid flow in propagating crack analysis 4−82911
stress corrosion cracking, hydrogen pump model 4−53764
stress pulses relation to brittle fracture, review of recent work 4−49858
styrene-acrylonitrile copolymers, fractography, microcracks and banded struct. 4−61537
surface analysis by combined X-ray photoelectron and Auger electron spectra 4−42960
tensile strips, singly-notched pin-loaded, yield pt. loads 4−45880
thermal fracture, insulated penny shaped crack 4−65663
thermally activated, statistical kinetics, crack development 4−72522
thermoplastics, crazing and fracture, review 4−61542
thick-walled structural elements, internal stresses and brittle fracture under tensile load *(German)* 4−45583
three point bend fracture, finite element techniques appl. to post yield analysis 4−67977
toughness theory development, K_{Ic} prediction from tensile data 4−67815
transparent dielectric, by laser light, spectral emission meas. 4−74518
two-dimensional problems, assumed displacement hybrid finite element procedure 4−50108
two-phase materials, image effects on screw dislocation pile-up near circular interface 4−67793
two-phase system, locked screw dislocation effect on pile-up, applic. to fracture 4−49702

fracture continued
Udimet 700, air environment effect on creep and rupture at 1200K 4−82910
ultramafic rocks, dilatant behaviour during fracture 4−70636
viscoelastic rocket grain fracture analysis 4−67981
viscoelastic solid subject to subcrit. stress intensity, accelerating crack kinetics 4−48679
viscoelastic tensile failure, multiaxial loading, temp. depend. 4−57812
wedged double cantilever beams, crack propag. 4−48672
welded parts, high-strength, with initial cracks 4−49831
work hardening model, appl. to post yield fracture mechanics 4−67836
wustite, fracture properties enhancement by precipitation 4−70548
X-ray microbeam diffraction technique for local plastic strain meas. *(Japanese)* 4−79932
Zircaloy cladding from Pickering-type fuel bundles, burst testing 4−43674
AgMg alloys, internally oxidized, oxide phase conc. depend. *(Russian)* 4−49780
Ag_3Sn-Hg amalgamation process, SEM obs. of cryst. growth and mass transport, fracture surfaces 4−67803
Al, plastic deform. and failure during rotary rolling *(Russian)* 4−79986
Al, spall fracture of monocrysts., void growth 4−49851
Al alloy, AU2GN, fatigue crack propagation related to fracture mode *(French)* 4−53762
Al alloy, age hardened plates, projectile geom. influence on adiabatic shear and target failure 4−45643
Al alloy, fracture toughness 4−82942
Al alloy, precipitation hardened, neutron irrad. damage 4−43661
Al alloy 1201, crack propagation resistance, preloading and environment influence *(Russian)* 4−53716
Al alloy 2024-T850, sustained load subcritical flaw growth characts. 4−50116
Al alloy 2219-T87, fracture and cyclic flaw growth, effect of combined modes loading 4−50117
Al alloy 7050-T73, fatigue crack growth, compressive overload effects 4−50104
Al alloy 7075, prealloyed powder, extrusion-consolidation variables effect on integrity and strength 4−70530
Al alloy 7075-T6, crack tip plasticity, specimen geom. effect 4−45590
Al alloy 7075-T6, fatigue crack growth rates, effect of specimen polarisation 4−45677
Al alloy 7075-T6, fretting fatigue damage, metallographic analysis 4−49843
Al alloys, fracture toughness and stress corrosion cracking behaviour 4−49742
Al alloys 2024 and 2618, fatigue crack propagation, secondary microcracks 4−45593
Al high resistance alloy, fracture toughness meas. under hydrostatic pressure *(French)* 4−67865
Al/steel strip composite, metallographic investigs. of deform. behaviour *(German, English)* 4−82967
Al-Al_3Ni, composite material, fracture microrelief examination 4−49929
Al-Al_3Ni composite, impact strength, crystn. rate depend. 4−61523
Al-Al_3Ni eutectic, directionally solidified, tensile failure 4−49779
Al-Al_3Ni eutectic composites, stress partitioning between fibre and matrix during tensile deform. 4−45767
Al-Al_3Ni fibrous composite, mechanism of rupture in tension *(Russian)* 4−53827
Al-Cu alloy with duplex dendritic struct., casting effect on mech. behaviour 4−49790
Al-Cu alloys, fatigue cracks of precipitates *(German)* 4−61471
Al-Mg alloys, extension rate and temp. influence 4−67882
Al-Zn-Mg alloy, SCC vel. and grain boundary precipitates 4−80007
Al-Zn-Mg alloy, stress corrosion susceptibility, heat treatment influence 4−45648
Al-Zn-Mg alloys, stress corrosion of normal and welded specimens *(Russian)* 4−73317
Al-Zn-Mg alloys, stretched zone size correl. with fracture toughness 4−67821
Al_2O_3, alumina, acoustic emission meas. during crack propag. 4−67912
β-Al_2O_3, alumina, strength and fracture mechanisms 4−61499
Al_2O_3, alumina, with NiO and ZnO additives, high temp. mech. props., conc. and grain size depend. *(German)* 4−49878
Al_2O_3, corundum, fibrous mullite single crystal incorporation, thermal shock resist. 4−49906
Al_2O_3, fatigue fracture under static and cyclic loading, 25-359°C 4−73357
Al_2O_3, fracture energy, grain size depend. meas. discrepancy 4−45752
Al_2O_3, Lucalox, SEM fractographic obs. rel. to testing temp. and grain size 4−67922
Al_2O_3, sapphire filaments, room temp. fracture strength depend. on strain rate 4−80068
Al_2O_3, sapphire filaments, room temp. fracture strength, strain rate depend. 4−80069
Al_2O_3, whisker, tensile fragmentation obs. 4−60715
Al_2O_3 alumina, hot pressed, annealing effect 4−49891
3BaO.5SiO_2 glass-ceramics, mech. props. w.r.t. microstruct. 4−49894
Be, textured and spall damaged, residual mech. props. 4−50114
BeO, hot isostatic pressing, microstruct. and fracture characts. 4−45759
C fibre, cryst. shear limit 4−76542
C fibre composite, notched, deformation obs. 4−64627
C fibre laminates, fracture mechanics 4−76533
C materials, research methods *(French)* 4−76556
CaF_2, rel. to elec. struct. and crystn. process 4−57157
CaO-Na_2O-SiO_2, etched glass, tensile strength meas., thickness depend. 4−57777
CaO.ZrO_2-ZrO_2 eutectic, directionally solidified, fracture behaviour and microstruct. effects 4−73370
Cd, embrittlement in presence of Hg, twinning influence *(Russian)* 4−53732

fracture continued
Co alloys, eutectic, with TaC fibres, struct. and mech. props. 4−45641
Co superalloy, directional solidification struct. and mech. characts. 4−61409
Co-Cr-TaC eutectic, directionally solidified, strengths and failure mechanisms 4−80009
Co-Fe-Ni-Al-Ti alloys, annealed, titanium effect on β and β_2 phase props. 4−61441
Cr, recrystallised, rare earth metals effect on struct. and mech. characts. 4−80025
Cu, cyclic stress/strain relation and fatigue strength, grain size depend. *(Japanese)* 4−82889
Cu, film, creep and lifetime investigation under load 4−72656
Cu, fracture stress, temperature dependence, ultra-high purity *(German)* 4−69853
Cu, high cycle fatigue crack propag. rates 4−76565
Cu alloys, stress corrosion cracking 4−45617
Cu films, electrolytically deposited, ductility, strength, low temp. *(Russian)* 4−67827
Cu:B(Sb), loss of ductility, intercryst. fracture, elevated temp. *(Russian)* 4−67825
Cu/W fibre composites, fracture surfaces *(Czech)* 4−53838
Cu-Ni-Sn alloy, spinodal decomp. and effects 4−64525
Cu-Zn solid solns., primary, high temp. creep and creep rupture *(Czech)* 4−80001
Fe, Armco, fatigue failure characts. in vacuum 4−61455
Fe, cast, spheroidal graphite, fatigue fracture *(Japanese)* 4−82891
Fe, cast, with small nitrogen additions, grain size influence on hydrogen embrittlement *(French)* 4−49750
Fe, cast grey, graphite inclusions effect on fracture 4−82918
Fe, intergranular fracture obs. by Auger spectroscopy 4−45672
Fe, sheet, temp. and loading rate influence on fracture characts. 4−61457
Fe-C alloy, austenite grain size effect on microcracking of martensite 4−82903
Fe-Co-V alloys, mag. and mech. props. correl. with microstruct. 4−80014
Fe-Cr-Mo alloys, pitting resistant, development 4−61410
Fe-Cr-Ni alloys, high-purity, stress corrosion, additive effects *(French)* 4−45693
Fe-Cr-Ni alloys, stress corrosion cracking 4−45616
Fe-Ni-Al alloy, tensile fracture rel. to microstruct. 4−45571
Fe-Ni-C alloys, hydrogen charged, premature fracture in martensite *(French)* 4−80023
Fe-Ni-C alloys, martensite fractography *(French)* 4−45696
Fe-Si bicrystals, crack growth resist. at boundary *(Russian)* 4−53717
Fe-Si-Ti alloys, precip. hardened, strength and ductility characts. 4−49802
Fe_2B tetragonal single crysts., plastic props., 20-800°C 4−82956
FeO, wustite and wustite-Fe_2O_3-Fe, grain size depend. of fracture parameters 4−73347
$HfTiO_4$, fracture toughness, effect of microstruct. factors 4−61502
LiF, rel. to elec. struct. and crystn. process 4−57157
Mg-Al alloy, stress role in stress corrosion cracking 4−49754
Mg-Mn(Zr) alloys, fatigue crack growth characts. 4−45591
MgO, machined crysts., residual stresses 4−49893
MgO, pressurization effects on microstruct. and mech. props. 4−61498
MgO, rel. to elec. struct. and crystn. process 4−57157
MgO, stress corrosion cracking, four-point bend and static fatigue tests 4−73358
MgO.3.5 Al_2O_3 spinel, nonstoichiometric, precip. strengthening and effects 4−73356
Mo, ductile fracture due to fragmentation of structure *(Russian)* 4−49763
Mo, single cryst., fracture surface exam., plasticity 4−70492
Mo-Re (15at.%) alloys, brittle fracture surface exam., plasticity 4−70492
Mo-V alloys with microadditions of vandium, recrystallized, physicomech. characts. 4−49829
Na_2O-SiO_2 binary glasses, fracture mechanics 4−73367
Ni, intergranular embrittlement by hydrogen, grain boundary segregation 4−82905
Ni alloys, EI437B and EI826, fatigue fracture, low and high loading frequencies 4−82939
Ni superalloy, high temp. fatigue fracture *(Japanese)* 4−70507
Ni-Cr lamellar eutectic composite, low-cycle fatigue behaviour, 300-760°C 4−82966
Ni-Cr(20 wt.%) single-phase and precip. hardened alloys, high temp. ductility 4−80033
Ni-Ni_3Ta eutectic, unidirectionally solidified, struct. and mech. characts. 4−53660
Si wafer, technique for selected-area obs. by TEM 4−60387
SiC, dense hot pressed, microstructural and strength characts. 4−73351
SiC, reaction-bonded, irrad. damage 4−59842
Si_3N_4, hot pressed, high temp. strength, subcrit. crack growth 4−64606
Si_3N_4, hot pressed, inclusion effects on room temp. strength 4−67920
Si_3N_4, laser thermal shocking, surface eval. using acoustic emission 4−64696
Si_3N_4, reaction sintered, characteriz. for high temp. radome applics. 4−61483
Si_3N_4, work-of-fracture, yield correlation 4−73342
Ta-W-Hf alloy, internally oxidized, struct. and mech. props. 4−45644
Ti and alloys, effect of oxygen 4−76487
Ti and alloys, subcritical cracking, river markings form. 4−45584
Ti-Al alloys, hydrogen embrittlement role in stress corrosion cracking 4−49753
Ti-Al-Mo-V alloy, stress corrosion cracking in chloride containing liq. environment 4−61422
Ti-Al-V alloy, fatigue crack propagation, secondary microcracks 4−45593
Ti-Al-V alloy, fatigue crack growth, compressive overload effects 4−50104

fracture continued
- Ti-Al-V alloy, fatigue crack growth rates in air and vacuum environments 4—82909
- Ti-Al-V alloy, fatigue strength improvement by microstruct. control 4—61424
- Ti-Al-V alloy, fretting fatigue damage, metallographic analysis 4—49843
- Ti-Al-V alloy plate, heat treatment and microstruct. effects 4—49849
- Ti-Al-V alloys, fracture and cyclic flaw growth, effect of combined modes loading 4—50117
- Ti-Al-V alloys, sustained load subcritical flaw growth characts. 4—50116
- Ti-Al-V-Sn alloy TA6V6E2, microstruct. influence on mech. props. *(French)* 4—49796
- Ti-Al(8 wt.%) alloy, surface slip topography rel. to stress corrosion cracking 4—61411
- Ti-Cu(2.5 wt.%) sheet, fatigue crack propag., environment and freq. effects, room temp. 4—49756
- Ti-Mo alloys, hardened by ω-particle precip., microscopic deform. behaviour 4—79977
- TiC, TiC-Co, TiC-Ni and TiC-NiCr, fracture mechanics, statistical analysis and fractography 4—67919
- TiC-Co(Ni) cemented carbides, stat. analysis of behaviour under high press. 4—70553
- TiC-Mo-Ni hard alloys, carbon content and sintering temp. effect on struct. form. and mech. props. 4—70527
- UO_2, thermally shocked, crack healing 4—51893
- V and V-Cr-Ti alloys, He implantation effects on ductility and void swelling, obs. 4—55941
- W, coated wire, brittleness 4—82944
- W-C alloys, struct., fracture type and ductile-brittle transition temp. 4—76489
- WC and WC-Co, fracture mechanics, statistical analysis and fractography 4—67919
- WC-Co, fracture toughness parameters determ. 4—73362
- WC-Co, refractory material, fracture mechanics *(French)* 4—67913
- WC-Co alloy, strength increase by vibr. and thermo-vibr. treatment *(Russian)* 4—53733
- WC-Co alloys, sintered, WB effect on phys. and mech. props. 4—70528
- WC-Co cemented carbides, stat. analysis of behaviour under high press. 4—70553
- Zn, embrittlement in presence of Hg, twinning influence *(Russian)* 4—53732
- Zr, ductility of polycrysts., hydrostatic press. effect 4—67884
- Zr alloys, stressed, effect of I vapour at 300°C and neutron irradiation 4—69302
- ZrB_2-ZrO_2-W system cermets, mech. and elastic props. 4—61505
- ZrO_2, partially stabilized with CaO, thermal shock structures 4—49896
- ZrO_2, partially stabilized with CaO, fracture toughness 4—53802
- ZrO_2, partially stabilized with CaO, microstruct. development and fracture toughness 4—73348
- ZrO_2 based fired and unfired refractories, thermal shock resist. 4—53819
- ZrO_2 partially stabilized by CaO, work-of-fracture correl. with fracture toughness 4—64608

francium
- No entries

francium compounds
- No entries

Franck-Condon factors
- alkali halides, Tl^+-like ions, B-band, optical absorpt. line shape 4—82717
- anthracene, intersystem crossing from S_1 state, effect of Franck Condon factors 4—67602
- ESCA vibr. and lifetime line broadenings 4—78511
- ethane, excited state barrier height, determ. using Franck-Condon principle 4—47990
- formaldehyde, and deuterate, predissociation model, Franck-Condon weighted summation 4—48116
- ion-molecule collisions at 2-7 10^7 cm/sec test of validity 4—63493
- scattering theory of one and two-photon processes 4—78438
- SO_2, $^3B_1$-$^1A_1$ transition, absorpt., emission spectra, Franck-Condon treatment, transition moments 4—52153
- trimethylene sulphide, 226 nm band, vibr. modes, Franck-Condon distrib. 4—56194
- AsP, $^1\pi$-$X^1\Sigma^+$ system, r-centroids, Morse potential 4—56167
- BaF, violet and u.v. spectra, Franck-Condon factors, r-centroids calcs. 4—56186
- BeCl, $A^2\pi$-$X^2\Sigma^+$ band, Franck-Condon factors, r-centroids 4—60048
- Br_2, $^3B_{0u+}$ state 4—60038
- $^{79}Br^{35}Cl$, $^{81}Br^{35}Cl$, $B^3\Pi(0^+) \leftarrow X^1\Sigma^+$ band system, rot. vibr. anal. 4—47995
- H_2, vibr. struct. anal. of electronic transitions involving $E,F^1\Sigma_g{}^+$ state with double minimum 4—74956
- HXD type molecule, two-dimens. free-bound Franck-Condon factors, appl. to intramolecular isotope effect in predissoc. 4—66451
- LaO, electronic transitions, Franck-Condon factors, R-centroids 4—60049
- MgH, $A^2\pi - X^2\Sigma$ system, Franck-Condon factors, r-centroids evaluated 4—81758
- MgO, $B^1\Sigma$-$X^1\Sigma$ band system anal. 4—47985
- N_2, and r-centroids for $H^3\varphi_u$-$G^3\Delta_g$ green band 4—81774
- NF, $b^1\Sigma^+ - X^3\Sigma^-$ band system, Franck-Condon factors, r-centroids calc. 4—81757
- NH, calc. for bands of $d^1\Sigma^+$-$b^1\Sigma^+$ system 4—47988
- SeO_2, rotational analysis and Franck-Condon calculations 4—66424
- ZrO electronic transitions, triplet systems rel. to S-star atmospheres 4—80563

Frank-Read sources *see dislocations*

Fraunhofer lines *see solar spectra*

free field rooms *see anechoic chambers*

free radicals
- acetaldehyde, photolysis, gas phase photochemical reactions 4—68016
- acetonitrile dimer radical anion, proton h.f.s. in e.s.r. spectrum 4—61029

free radicals continued
- acetophenone, α-halogenated, radical mol. ions, kinetic energy release during unimol. decomp., predissoc. investig. 4—48106
- acyl radicals, form. in soln., e.s.r. investig. of electron spin relaxation 4—52202
- adamantane:benzyl radical, excitation and emission spectra 4—57559
- aldehyde radical, microwave spectra, rot. transitions, mol. geometry 4—52184
- alkyl iodides, radiolysis mechanism, e.s.r. spectrum interpretation 4—54051
- alkyl radicals, form. in n-decane doped n-decane-d_{22}, energy transfer investig. 4—76609
- alkyl radicals in γ-irrad. inclusion cpds. of urea with alkyl halides, hindered internal motion, e.s.r. determ. 4—67429
- allyl, open-shell and radical ions electronic absorpt. spectra 4—78420
- amino radical, excited state props. from HF calcs. 4—60025
- anilino, ab initio mol. orbital calcs. total energies, coupling consts. 4—74936
- anthracene radical in dil. soln., electron spin echo decay, mol. motion 4—76137
- aromatic nitroxide radicals, trapped in matrix with Ag atoms, ENDOR investig. of intramol. interactions 4—49263
- aza-aromatic radical anions, unrestricted Hartree-Fock spin density calcs. 4—52054
- benzyl, ab initio mol. orbital calcs. total energies, coupling consts. 4—74936
- benzyl, open-shell and radical ions electronic absorpt. spectra 4—78420
- benzyl, orbital analysis of ab initio electron and spin populations of atoms 4—56092
- benzyl radical, fluoresc. lifetime 4—56262
- benzyl radicals, monosubsituted, prod. from fluorobenzyl phenyl ketones, CIDNP investig. of F hyperfine coupling consts. 4—45927
- 1,2-bis-diphenylene-1-phenylallyl radical, nuclear dynamic polarization, spin-spin interaction reservoir 4—70201
- bond angle determination using point charge model 4—63383
- cis-butadiene diradical, singlet instability, closed shell H-F calcs. 4—52077
- N-butyl radical in Ar matrix at 4.2K, anisotropic proton hyperfine interaction, e.p.r. obs. 4—52214
- t-butyl radicals, in soln., mutual termination rate const. meas. by e.s.r., cis-azoisobutane interference 4—50186
- carbonyl radicals, theory of electron spin g-values, SCF calc. 4—47949
- chemical reactions, react. surfaces calc. using SCF and CI methods 4—50126
- CIDNP studies of carbonyl free radical pairs, reacts. in aq. soln. investig. 4—50184
- conference, Berchtesgaden-Konigsee, Germany, (Sep 1973) 4—50124
- conjugated radicals and radical ions, e.s.r hyperfine structure, pi-electronic SCF MO LCAO CI calc. 4—78493
- cyclic ketones, photolysis, biradical form. investig. by CIDNP in ^{13}C n.m.r. spectra 4—50187
- cyclohexenyl radical, absorpt. spectra, pulse radiolysis, comparison to cyclopentenyl radical 4—72169
- cyclohexyl radical, absorpt. spectra, pulse radiolysis, comparison to cyclopentyl radical 4—72169
- cyclopentyl radical, CTDEP from cyclopentane radiolysis 4—52211
- n- decane(-d_{22}), γ-irrad., radical pair formation, pair trapping, e.s.r. obs. 4—79573
- dibromomethylene radical, struct., electron diffr. obs. 4—56056
- α,α'-diphenyl-β-picryl hydrazyl radical, hyperfine coupling, e.s.r., ENDOR investig., spin densities meas. 4—53339
- diphenylphosphino radical, e.s.r. isotropic ^{31}P coupling constants, g-tensor 4—69523
- dissociation energy limits, determ., in atom-mol. collision react., from prod. fluoresc. investig. 4—48136
- duroquinol cation radical, e.s.r. spectra, activation parameter for restricted rot. of OH group investig. 4—66478
- electron affinity, determ. using ion equilib. meas. technique, involving radical neg. ion 4—48100
- ethyl, hyperfine coupling consts., ab initio UHF calculations 4—69455
- ethyl iodide, radiolysis mechanism, e.s.r. spectrum interpretation 4—54051
- ethyl radical, prod. by Hg photosensitized reacts., optical absorpt. spectrum 4—47971
- ethyl radicals, α-substituted, hindered rot, of methyl group 4—56276
- 5-ethylbarbituric acid and K salt, free radical prod. by X-irradiation, e.s.r. spectra, mechanism investig. 4—53286
- ethynyl radical, e.s.r., optical spectra, extended INDO calcs. and band assignments 4—61017
- ethynyl radical, Kr-isolated e.s.r., ^1H and ^{13}C hyperfine interaction 4—80202
- exotherm radical reactions, at.-diat. mol. collisions, prediction of vibr. inversion among prods., model 4—50129
- fluoroethyl radicals, $CH_2{}^{18}FCH_2$ and $CD_2{}^{18}FCD_2$, chem. activated, deactivating collisions, isotope effects investig. 4—78533
- formation by laser flash photolysis, e.s.r. investig. of electron spin polarisation 4—54052
- formation by thermal ^{18}F atom reacts. with π-bonded species, decomp., detection 4—53957
- formation in F atoms with unsat. hydrocarbon react. using mol. beams, decomp. investig. 4—50127
- formation of interstellar radicals and molecules, react. mechanism investig. 4—50696
- galvinoxyl, in sec-butyl benzene and in toluene, saturation recovery of electron spin-lattice relax. 4—52215
- gaseous, e.p.r. spectrometer in 3 mm wavelength region 4—68752
- histidine hydrochloride, cryst., X-irradiated, free radical form., mechanism investig. using ENDOR spectroscopy 4—60514
- histidine hydrochloride monohydrate, X-irrad., radical formation, e.s.r. and INDO calcs. 4—61627
- hydrocarbon π radical, ^1H and ^{13}C n.m.r. shift 4—43868
- hydronaphthyl radicals, isomeric forms, photochromic, luminesc. props. 4—80200
- 4-hydroxy-2,2,6,6-tetramethylpiperidene-I-oxyl, effect on ^{205}Tl nuclear mag. relax. 4—53327

free radicals continued
hydroxycyclohexadienyl radicals, form., e.s.r., spectra, ^{13}C splittings investig., structs., g-factors determ. 4−60094
hydroxyurea, X-irrad., radical pair decay, H-D isotope effects 4−53976
imidazobenzoquinone anion radicals, e.s.r., dianionic structure 4−48097
iminoxyl radicals in viscous media, shape of e.s.r. line 4−61024
interstellar CH formation by H_2 reactions with CH^+ and H_2 4−50690
isotropic hyperfine coupling consts., MO calc. by different methods 4−60101
$M + X_2 \rightarrow MX + X$ reaction, mechanism investig., e.s.r. investig. of radicals trapped in solid Ar matrix 4−50131
magnesium diethyl phosphate, γ-irrad., $CH_3CHOP(O)_2OC_2H_3^-$ radical obs. 4−45168
Mars, atmosphere, CO_2 atm. photochem. investig., CO, O, O_2, O_3 free radicals obs. 4−50479
methanol radical, CIDEP and isotropic g-factor 4−67992
methoxy radical and methoxide ion, ab initio calcs. of geom. 4−56052
methyl, phenyl and pentafluorophenyl substituted, h.f. coupling consts. and angles of twist 4−66484
methyl, substituted, temp. depend. of ^{13}C anisotropic tensors 4−48096
methyl cytosine, irrad., free radical obs. 4−57860
methyl group, non-isolated in solids, limited spin diffusion 4−73041
methyl radical ion, react. with H_2, D_2 using crossed beams, prod. investig. rel. to collision energy 4−50128
methyl radicals, combination, rate const. determ. by flash photolysis-kinetic spectroscopy error anal. 4−50133
1-methyl uracil, long range spin interactions and radical struct. ENDOR obs. 4−80691
methylbenzyl radical, fluoresc. lifetime 4−56262
methylene, ab initio calcs. inc. electron correl. 4−56140
methylene diphosphonic acid, X-irrad., e.s.r., C-centred radicals 4−80196
microwave spectroscopy techniques and results, book 4−63444
naphthalene anion radical, i.r., Raman spectral investig., band assignment, comparison with parent mol. 4−45287
nitroaromatic radical, solvated, SCF-INDO-MO calc. of H bonding and conformation 4−43782
nitroaromatic radical anions, unrestricted Hartree-Fock spin density calcs. 4−52054
nitroxide, in single crysts., e.s.r. rel. to cryst. struct. determ. 4−57355
nitroxide stable polyradicals, magnetic interactions rel. to multicentre exchange reactions in organic cpds. 4−68031
one-open-shell type, electronic struct. and force field calc. rel. to σ-core deform. 4−52083
open-shell radicals, SAMO calcs. in spin unrestricted formalism 4−52046
organic, catalytic conversion of p-H_2 4−69521
organic nitroxyl radical, in soln., anisotropic rotation, 'additional broadening' method 4−60093
pentafluorobenzenes, substituted, free radical dynamic nuclear polarisation *(German)* 4−63460
peroxylamine disulphate radical in dil. soln., electron spin-echo decay, mol. motion 4−76137
phenoxyl, ab initio mol. orbital calcs. total energies, coupling consts. 4−74936
phosphabenzene radical anion, e.s.r., ^{31}P hyperfine anisotropy 4−69520
2,2,6,6-piperidine N-oxide nitroxide radical, cryst. struct. of tetragonal disordered phase investig., transitions *(French)* 4−75514
2,2,6,6-piperidine N-oxide nitroxide radical, polymorphism and phase transitions investig. *(French)* 4−75513
PMMA:naphthalene (phenanthrene), aromatic triplet state e.s.r., guest-host interactions, zero field splitting 4−67424
PMMA, irrad., free radical decay 4−54049
n-propyl radical in Ar matrix at 4.2K, anisotropic proton hyperfine interactions, e.p.r. obs. 4−52214
pyrazine, in soln., laser flash photolysis, triplet quenching by H-atom donors 4−73440
pyrene-diethylaniline solution in methanol, photochemically produced ion pairs, geminate recombination 4−61630
reactions, insertion and abstraction, selection rule, Heisenberg model 4−80171
recombination rate, effect of high frequency mag. fields 4−80169
semidione radical, SCF calc. of g-values 4−47949
short-lived intermediates, prod. by active N_2 reacts., e.s.r. investig. 4−50130
spin-restricted Hartree Fock calcs. 4−81751
spiro[cyclohexane-1,2'-(4',4'-dimethyloxazolidine)], cryst. struct. determ., e.p.r. meas., g tensor determ. *(French)* 4−75510
succinic acid radical, prod. by γ-irradiation, e.s.r. ^{13}C hyperfine splitting investig. of struct. 4−53285
sucrose, radiation induced decomposition, radical form., e.s.r. studies 4−80197
tetralin peroxyl radical, ^{17}O-enriched, e.p.r. of X-irradiated single crystal 4−67426
2,2,6,6-tetramethyl-4-hydroxypiperidine-1-oxyl radical in dil. soln., electron spin-echo decay, mol. motion 4−76137
thionine, stable, spectral investigation and role in electrochem. processes *(Russian)* 4−45922
three-spin system, e.s.r. obs. 4−49214
thymidine, irradiated, free radical ENDOR obs. 4−76937
triatomic radical, CNDO calc., g-factor anisotropy, spin-orbit interaction 4−69457
trifluoromethane radical, effect on $I_{1/2} \rightarrow I_{3/2}$ laser emission in flash photolysis of CF_3I 4−80204
trifluoromethyl radical focusing after $F + CF_3I \rightarrow IF + CF_3$ reaction 4−80178
trimethylene diradical, singlet instability, closed shell H-F calcs. 4−52077
trimethylphosphite, γ-irrad., e.s.r. identification of dimer radical cation 4−80195
triphenylmethylperoxyl, rotating peroxy group, ^{17}O-enriched e.p.r. spectrum 4−67427
trisverdazyl radical, three-spin system, solid, fluid soln., liq. cryst. e.s.r. spectra investigs. 4−52203

free radicals continued
tropolonyl radical, e.s.r. 4−60096
Venus, atmosphere, presence of free radicals predicted by analogy with Mars atm. investigs. 4−50479
verdazyl biradicals, π-bridged, mag. susceptibilities meas. rel. to temp. triplet ground state investig. 4−82548
o-xylyl radical, 4683 Å emission band, rot. contour anal. using rigid rotor approx. 4−52141
$[MoO_6]^{7-}$, e.s.r. in γ-irradiated $(NH_4)_6.Mo_7O_{24}.4H_2O$ 4−53311
$AX_3(A=C, Si, P; X=H, F, Cl)$, trigonal radicals, SCF calcs. of struct. 4−43781
AsF, near i.r. emission spectrum, charact. of electronic ground and excited states 4−48007
BF_2 radical, excited state props. from HF calcs. 4−60025
B_2H_5 radical, cryst., e.s.r. spectal investig. of struct. 4−53282
C containing, tetra-atomic, equilib. geometries and spin densities, CNDO method 4−66402
CH, $A^2\Delta - X^2\Pi$ system analysis 4−47954
CH, high field Stark effects, dipole moment determ. 4−74972
CH interstellar ground state transition frequencies, radioastronomical determ. 4−83252
CH Λ-type doubling in lowest rotational level of $X^2\Pi_{1/2}$ state 4−81783
C_3H, produced in allene and methylacetylene u.v. photolysis, vibr. and electronic spectra 4−47981
C_3H_2, produced in allene and methylacetylene u.v. photolysis, vibr. and electronic spectra 4−47981
C_3H_3 radical, produced in allene and methylacetylene u.v. photolysis, vibr. and electronic spectra 4−47981
CN, vibr. and rot. excitation after vacuum u.v. photolysis of cyanogen halides 4−61633
CN radicals, prod. by flash photolysis, laser induced fluoresc. investig. 4−50185
CN_2, groundstate triplet spin dipole-dipole interaction, ab initio calc. 4−47942
CN*, form. from active N_2 and C_2N_2 in flame, mechanism, rate, investig. 4−53958
CO^+ on H−Y type zeolite, e.s.r., CNDO/SP calcs. 4−57361
CO_2^-, CNDO calc., g-factor anisotropy, spin-orbit interaction 4−69457
CO_3^-, radical, prep. in solid soln. in Ar, vibr. spectrum investig., struct. 4−48006
C_2O, groundstate triplet spin dipole-dipole interaction, ab initio calc. 4−47942
Cl_3, geometry, LCAO MO SCAF theory 4−72118
ClF_2, geometry, LCAO MO SCAF theory 4−72118
ClF_4, radical, SCF-MO calcs. of mol. symmetry 4−59999
C_2radical, laser excited fluorescence in flames, radical conc. meas. 4−50169
DO_2, near i.r. absorption spectrum, modulation kinetic spectroscopy 4−66433
$H_2/O_2/N_2$ flames, catalysis of H and OH radical recombination by iron investig. 4−61581
$H(D)O_2$ from $H(D) + O_2$ reaction, Ar matrix i.r. spectra and vib. analysis 4−53975
H_2F, excitation and ionisation energies using core analogies 4−63463
HO_2, detection by laser mag. resonance 4−56282
HO_2, near i.r. absorption spectrum, modulation kinetic spectroscopy 4−66433
HO_2, near i.r. emission spectrum, vibr. level scheme 4−66434
HO_2, reactions in H-O-N system using e.s.r. detection *(German)* 4−70603
$HO_2 + NO(NO_2)$ reactions, kinetics investig. 4−76596
H_2O^+, mol. orbital calcs., electronic struct. and geometry 4−47926
H_3O, excitation and ionisation energies using core analogies 4−63463
HOO, CNDO calc., g-factor anisotropy, spin-orbit interaction 4−69457
H_2S^+, mol. orbital calcs., electronic struct. and geometry 4−47926
$KBrO_3$, KNO_3:BrO_3, X-irrad., e.s.r., nature of Br containing species 4−57356
$(KSO_3)_2NOH$, cryst., X-irrad., radical form, e.s.r., absorpt. spectra determ., struct, investig. 4−70203
NCN, groundstate triplet spin dipole-dipole interaction, ab initio calc. 4−47942
ND radical, e.s.r. spectra, anal. of inertial effects in slow tumbling region 4−78499
NF_2 free radical, electronic spectrum, matrix-isolation study of NF_3 photolysis 4−73442
NH, high field Stark effects, dipole moment determ. 4−74972
NH radical, optimised valence config. calcs. of spectroscopic constants 4−78416
NH_2-radicals, electron impact form., e.s.r., ion cyclotron resonance, emission spectroscopy investig. 4−52267
NH_4, excitation and ionisation energies using core analogies 4−63463
NO, NO_2, atm. pollutants, atm. conc. meas., problems, 'state of the art' 4−50900
NO radical, in soln., ELDOR investig., comparison with e.s.r., intermol. relax. processes investig. 4−49262
NO_2, CNDO calc., g-factor anisotropy, spin-orbit interaction 4−69457
O atom recombination, rate consts. calc. rel. to temp. by 3-d trajectory method 4−50132
O_3^-, CNDO calc., g-factor anisotropy, spin-orbit interaction 4−69457
OD, e.p.r. spectra, 13.66 GHz, Stark effect 4−43871
OH, e.p.r. spectra, 13.66 GHz, Stark effect 4−43871
OH, e.s.r. in irradiated Li acetate.$2H_2O$ single crystals 4−57357
OH, reactions in H-O-N system using e.s.r. detection *(German)* 4−70603
OH, valence state energies, ab initio calcs. 4−56150
OH, vibrationally excited, e.p.r., mol. constants 4−63457
OH and formaldehyde in SNR W44 and IC 1795 4−46307
OH i.r. airglow intensity variations at 1.65 and 2.15 μ 4−50325
OH intense i.r. airglow sky maps at 1.65 and 2.15 μ 4−50324
OH radicals, concs. in lower atm. estimated using trace constituent indicator as technique 4−50282

free radicals continued
- OH radicals, prod., fluoresc. investig. using tunable freq. doubled dye laser 4—52195
- OH reaction with methane, stratospheric destruction rates 4—83077
- OH $X^2\Pi$ and $A^2\Sigma^+$ kinetic behaviour using mol. reson. fluoresc. obs. 4—54061
- $OH + CO \rightarrow CO_2 + H$, $OH + CH_4 \rightarrow H_2O + CH_3$, kinetics investig., flash photolysis-reson. fluoresc. method 4—83016
- $OH + NH_3(HNO_3)$ reactions, rate consts. meas. rel. to temp. 4—50140
- $OH + OH = H_2O + O$, OH conc. profile investig. in $H_2 + O_2$ shock wave reacts., kinetics 4—76582
- $OH(^2\Sigma^+)$, fluorescence, laser excitation, natural lifetime, quenching by H, H_2, Ar 4—48063
- OSBr(Cl), e.p.r. spectra 4—70198
- OSeCl, e.p.r. spectrum 4—70198
- P containing, tetra-atomic, equilib. geometries and spin densities, CNDO method 4—66402
- P_2, rot. analysis of (1,1) band of $a^3\Sigma_u^- - X^1\Sigma_g^+$ transition *(French)* 4—47979
- PD, $A^3\Pi_i$-$X^3\Sigma^-$ band system, vibr. analysis 4—69486
- PF_2, liq., review of e.s.r. obs. 4—76140
- PH, $A^3\Pi_i$-$X^3\Sigma^-$ band system, vibr. analysis 4—69486
- SCl_2^+ radical cation, SCl_2 photoelectron spectra, radical states assigned 4—48121
- SF_3, liq., review of e.s.r. obs. 4—76140
- SO, gas, vibr. excited, e.p.r. meas. 4—81793
- SO radicals, vibr. excited, gas phase e.p.r. spectrum, g-factors for $v=0$, 1 determ. 4—48084
- $SO(^3\Sigma^-)$ radical, prod., vac. u.v. photoelectron spectra, ionic states investig. 4—48119
- SbF, near i.r. emission spectrum, charact. of electronic ground and excited states 4—48007
- Si containing, tetra-atomic, equilib. geometries and spin densities, CNDO method 4—66402

freezing
- *see also refrigeration*
- biological material, with labile chemical components, freeze grinder 4—65571
- biological materials, nonlinear heat conduction, estimation of thermophysical props. 4—62765
- clouds, drop freezing processes 4—76706
- Decorah Ice Cave State Preserve, Iowa 4—54165
- heat transfer problem, approx. soln. of phase front 4—56862
- ice, growth from droplet accretion, solidification process, struct. investig. 4—63777
- ice cube regelation as loaded wire passes through it, student experiment 4—54804
- ideal ternary solution of pseudobinary type 4—72560
- seawater freezing point at pressures up to 100 bars 4—50267
- soil freeze-thaw recording in S.Uplands of Scotland 4—76653
- soil freezing depth calc. function of air temp. and soil moisture *(Russian)* 4—83058
- Stefan problem, iteration scheme for soln. of nonlinear integro-differential eqn. 4—48743
- tissue, electron microscopy, arrested physiological processes 4—65565
- water, supercooled drops, optimal freezing size in atmosphere 4—54200
- Ga-Al-As, ideal ternary solution of pseudobinary type 4—72560
- NaCl, dendritic freezing of aqueous solns., mag. and elec. field effects 4—67027

Frenkel defects
- alkali metal halide filiform crystals, X-irrad. thermo-scintillation, vacancy form. *(Russian)* 4—82188
- excitation energy spectrum, low temp. 4—75819
- interaction in presence of quantum particle, potential energy 4—60493
- kinetics of accumulation at low temp. *(Russian)* 4—72463
- pair separation criteria, displacement cascade simulation 4—72483
- Ag halides, rel. to ionic transport processes 4—48795
- AgBr, AgCl, u.v. excited thermoluminesc., trap levels 4—82762
- Al, after electron irrad. 4—72491
- Mo, fission neutron damage, obs. of spontaneous recomb. vols. at LHT 4—52791
- Pt, light ion irradiation, initial rate of accumulation of Frenkel defects 4—79037
- V, fission neutron damage, obs. of spontaneous recomb. vols. at LHT 4—52791
- ZnSe, electron irradiated, e.p.r., close Frenkel pairs 4—66906

frequency changers *see frequency convertors*

frequency control
- *see also automatic frequency control*
- rotating electrode system, 600 to 11000 r.p.m., mech. and elec. design *(German)* 4—46744

frequency converters *see frequency convertors*

frequency convertors
- *see also frequency multipliers; mixers (circuits)*
- automatic heterodyne, extends freq. range of 5345A to 4GHz 4—77231
- i.r., tunable difference freq. generation in $LiIO_3$ 4—81353
- i.r., tunable generation, difference freq. mixing in InSb 4—77707
- optical, 28μ-visible, using bound excitons in CdS 4—65933
- optical, piezoelectric cryst., three photon processes, modulation 4—69086
- RL oscillator, frequency modulator, for processing borehole meas. *(Russian)* 4—54309
- Nb-Nb superconducting point contact, Josephson freq. conversion, oscillator-mixer 4—67314

frequency-domain analysis
- e.m. wave scatt. by rectangular cylinder with surface impedance 4—77609
- nuclear reactor fuel elements, vibr. assessment using freq. and time domain analysis techniques 4—47777

frequency doublers *see frequency multipliers*

frequency measurement
- analogue freq. analysis with cross correlation principle *(Japanese)* 4—77362

frequency measurement continued
- atomic beam frequency standards, second-order Doppler and cavity phase dependent frequency shifts, calc. 4—65349
- automatic sum and difference meas., addition of third channel to 5345A counter 4—77230
- clock frequency standards, deviation models 4—65358
- comparison of high stability generators, equipment for 4—74151
- electronic counter, wideband logic ccts., high-sensitivity d.c. amplifiers developed 4—77228
- laser absolute frequency meas. for light velocity determ. 4—65365
- microwave counter, with high sensitivity and f.m. tolerance, use of YIG technology 4—46746
- natural vibrations of systems of elastically connected Timoshenko beams 4—71340
- NBS primary frequency standards, accuracy and stability 4—65347
- optical method using coherent light *(Russian)* 4—42776
- primary time and frequency standard CS1 at PTB 4—65346
- standard, H_2 maser development 4—80827
- standard, Rb, light-weight, using 12 W 4—46554
- standards, clockface and mean rate estimation by normal regression theory 4—54818
- standards, reviews 4—65332
- test records *(Japanese)* 4—46529
- Ag beam atomic clock design and preliminary expts. 4—65351
- CO laser, determ. of absolute freq. of $^{12}C^{16}O$ and $^{13}C^{16}O$ lines, new method 4—43285
- CO_2 laser radiation wavelength meas. for light velocity determ. 4—65366
- $^{12}C^{16}O$ laser frequency, absolute meas. in 30-60 THz region 4—65932
- $^{13}C^{16}O$ laser frequency, absolute meas. in 30-60 THz region 4—65932
- Cs atomic beam frequency standards, second-order Doppler shift and cavity phase error corrections 4—65350
- Rb frequency standard, principle, construction and performance 4—46555
- ^{87}Rb pair quantum frequency standard, frequency characteristics *(Russian)* 4—68606

frequency meters
- microwave counter, with high sensitivity and f.m. tolerance, use of YIG technology 4—46746

frequency modulation
- laser rangefinder, microwave freq. modulation, freq. conversion in photodetector 4—68611
- LEED current detector, electron multiplier coupled to freq. modulator, input current 1×10^{-9}-3×10^{-7} A 4—46751
- mechanical displacement amplitude and phase, optical detection from freq. modulation 4—46567
- sound signal, f.m., probability density in reverberant enclosure 4—54743

frequency multipliers
- cyanine dyes, nonlinear susceptibility, freq. tripling 4—77708

frequency regulation *see frequency control*

frequency response
- analyser, 10^{-5} to 10^5 Hz, a.c. props. meas. computer control 4—62490
- atmospheric gust probe system, frequency response of input parameters 4—61931
- electroacoustic transducer, acoustic testing, digital processing applic. 4—42734
- loudspeaker vibration mode detection by holographic interferometry 4—50970

frequency stability
- *see also frequency control*
- atomic clock and time scale stability and accuracy 4—65373
- gas laser stabilisation, review of techniques 4—65904
- NBS primary frequency standards, accuracy and stability 4—65347
- passive frequency standards, noise performance analysis 4—65348
- r.f. receivers for radioastronomy *(Italian)* 4—80668
- single mode laser, frequency shifts, semiclassical equations analysis 4—74482
- Ar laser frequency stabilisation by saturated absorption or dispersion in I_2 4—65908
- CO_2 laser stabilisation using plasma impedance variation as error signal 4—65910
- Cs cell, optically pumped, frequency standard with magnetic filter 4—65360
- H_2 maser, freq. standard development 4—80827
- He-Ne laser freq. stabilisation at $\lambda = 0.63\mu$ w.r.t. generation freq. $\lambda = 3.39\mu$ 4—55470
- He-Ne laser stabilised by saturated absorption in I_2 4—65907
- He-Ne laser stabilised by saturated absorption in $^{127}I_2$, reproducibility 4—65909
- ^{87}Rb pair quantum frequency standard, frequency characteristics *(Russian)* 4—68606

frequency synthesizers
- *see also frequency convertors*
- H, atomic clock, magnetic freq. displacement, effect of linear transitions 4—73971

frequency synthetizers *see frequency synthesizers*

frequency triplers *see frequency multipliers*

friction
- *see also internal friction; lubrication*
- aerodynamical frictional resistance, longitudinal motion in thin films *(Russian)* 4—78607
- air-track experiment for undergraduates 4—54799
- anholonomic systems, extremal reaction values, real and possible movements *(Polish)* 4—68884
- brass, coeff. of external static friction, temp. depend. *(Russian)* 4—67830
- bronze, coeff. of external static friction, temp. depend. *(Russian)* 4—67830
- ceramic, sliding friction behaviour, chemomech. control 4—61489
- Coulomb, impact dampers 4—43029
- Coulomb reln. to indentation of elastic layer bonded to rigid cylinder 4—77414
- diffusion drag in slowly evaporating droplets 4—44130
- dissolution roughness, turbulent flow near soluble surface 4—81974

friction continued
  disulphide and diselenide lubricants with lamellar struct., antifriction props. 4−49911
  drag reduction, dilute polymer solns. rough and smooth rot. discs. 4−78655
  drag reduction, liquid with polymer additive in boundary layer, reduction of turbulent friction 4−78590
  drag reduction, pipe flow of dilute polymer solns. 4−78656
  drag reduction, polymer solution near rough surface, logarithmic vel. profile 4−78657
  drag reduction ability of polyacrylamide structures 4−63580
  drag reduction in turbulent pipe flow of polyox in glycerine + water soln. 4−66635
  dry system, alternating referred mass, harmonic linearization of non-linearities *(Russian)* 4−81139
  elastic bodies in contact with large spin and small slip velocities 4−81169
  elastomer, friction and wear behaviour 4−75569
  energy flow density, Umov's vector analysis *(Russian)* 4−60548
  fibre suspension, drag reduction in turbulent flow 4−69607
  flexible circular foundation, stresses and displacements in presence of friction or adhesion 4−77440
  flow, laminar and turbulent flow in tube with twisted tape 4−63525
  flow between eccentric rotating discs, drag evaluation 4−78601
  fluid, conducting, steady flow past disc at high Hartmann number, drag 4−48338
  force measurement, surface and shape effects 4−46580
  glass reinforced plastic ring with unidirectional struct., friction and bending effect on perimeter strain distrib. 4−45785
  heat loss, calcs. *(Russian)* 4−72523
  Hertzian contact, frictionally excited thermoelastic phenomena, effect of initial surface curvature 4−48696
  hydraulic drag of rough channel, MHD flow of conductivity fluid *(Russian)* 4−75164
  hydrodynamic films, effect of jumps *(French)* 4−44598
  hydrodynamic friction forces in starved point contact considering cavitation 4−75200
  layered system with dry friction, dynamic and damping properties 4−74359
  linear system frictional oscillation suppression 4−68885
  metalworking processes, friction model 4−49848
  MHD, skin friction on accelerated plates 4−81942
  multi-mass systems, time history calc. inc. non-linearities or dry friction, SWING-R computer code 4−81142
  Newtonian fluid flow through random array of rigid objects, drag 4−63553
  non-Newtonian fluid, frictional stress calc. in boundary layer 4−48204
  nuclear reactor materials in liquid sodium, testing device *(Czechoslovakian)* 4−43647
  plane-parallel channel, local friction in initial part 4−43921
  Poiseuille flow, bifurcating, in annulus, friction factors 4−81890
  polyethylene oxide soln., pipe flow, turbulent dispersion in drag-reducing fluid 4−78648
  polymer, material transfer process, i.r. spectra obs. 4−45825
  polymer, preliminary orientation effect on friction forces 4−45820
  polymer film formed on metal in sliding contact, Auger anal. 4−75567
  polymer monofilaments, friction coeff. determ. method 4−42727
  polymer solution, turbulent channel flow, drag reduction 4−69595
  polymer solution turbulent flow around enclosed disc, friction reduction 4−75156
  PTFE, sliding, pot. energy changes 4−53871
  quantised, determ. of non-linear, time-dependent Schrodinger eqn. 4−55327
  relaxation oscillations mechanism, temp. depend. 4−48695
  rubber, frictional props. in vacuum under high normal press., temp. influence 4−80128
  rubber, frictional resistance in region of crit. vel. for appearance of Schallamach waves *(French)* 4−45793
  rubber, shearing force variation during extended stationary contact under const. compression 4−45815
  rubber/metal system under h.p. 4−49962
  rubbery materials, actual contact area formation kinetics 4−50002
  self-vibration, existence of non-relaxation limit cycles *(German)* 4−77510
  skin friction of MHD unsteady boundary layer 4−44102
  sphere drag coefficient, subsonic speeds in continuum and free-mol. flows 4−75119
  spheroid/liquid, rot. friction coeffs. of spheroids in viscous fluid with slip 4−66554
  steel, mild, fretting wear, spherical particle obs. 4−53776
  steel, mild, slip amplitude effect on fretting 4−53775
  steel, scuffing surface transformations 4−67886
  steel, stainless, plate, intermittent motion of friction, SEM obs. 4−67885
  steel, static friction coefficients for mech. and struct. joints 4−49844
  steel, wear resistance of specimens in friction against grinding stone 4−61560
  stick-slip motion in mechanical systems, analogue computer simulation 4−58689
  Teflon-bronze antifriction material, temp. depend. of thermophys. props. 4−53881
  test apparatus for meas. at low temps. in vacuum 4−67965
  thermoplastics, friction and wear in contact with model physiological soln. 4−53886
  transition metal-refractory compound pairs 4−66983
  tube entry, non-thermality and gas injection effect on friction coeffs. *(Russian)* 4−52537
  turbulent helical flow in fine clearance, leakage and frictional characts. 4−48235
  water, turbulent flow, temp. depend. viscosity variation effect on skin friction *(French)* 4−63523
  wedge insertion into medium with holes 4−47109
  Al plate, intermittent motion of friction, SEM obs. 4−67885
  Cd, coeff. of external static friction, temp. depend. *(Russian)* 4−67830
  Cu, coeff. of external static friction, temp. depend. *(Russian)* 4−67830

friction continued
  Cu, frictional deformation, microstruct. and subgrain struct. changes *(Russian)* 4−49707
  Cu-Sn bronze contact with steel, wear particle effects 4−49847
  Fe-Mo(Ta)(W)(V)-S ternary alloy systems, friction and wear props. 4−67843
  He II, liquid, frictional forces are a rectilinear vortex 4−79207
friction, internal *see internal friction*
frictional electricity *see triboelectricity*
fuel
    see also coal; nuclear reactor fuel
  economic use in automobiles, US govt. agency report a topic for students 4−46537
  hydrocarbon exploration, contribution of physicists 4−76747
  production from fusion reactor plasma exhaust, electrolysis, radiolysis and photolysis 4−55959
  synthetic, production using heat from nuclear reactor 4−55903
fuel batteries *see fuel cells*
fuel cells
  thermionic, k_∞ calculations, comparison of cross sections data libraries 4−69273
  H_2-air, chem. and electrochem. processes, load-capacity *(German)* 4−50172
fugacity
    see also diffusion in gases; kinetic theory of gases
  fermion/boson mixture, one dimension, repulsive δ-function potential 4−65854
  liquid, low reduced temp., generalized f/P, Z_t and Z_p values 4−50212
  $Cu_{2-\delta}S$, cubic, homogeneity range, high temp. 4−72554
full wave rectification *see rectification*
full wave rectifiers *see rectifiers*
function approximation
    see also Chebyshev approximation; interpolation
  analytic functions approximation by rational function 4−65656
  elastic-plastic bodies, discrete approximations by variational methods 4−59197
  expansion of functions of distance between two points, generalization of Laplace's and Neumann's expansions 4−43014
  gas equation of state approx. by Germain-Liger transformations 4−66538
  Hartmann's flow, spline-blended approximation 4−63591
  mass flow parameter calculation, inverse solution 4−48273
  modified adiabatic approximation, atom + low energy electron in free or bound state *(Russian)* 4−74904
  operators, linear parabolic, finite element method applic. 4−59039
  Pade approximants, rel. to analyticity domains in coupling strength of partial wave scattering amplitude for Yukawa potential 4−47160
  Pade approximants and orthogonal polynomials, relations for Stieltjes series 4−43006
  Pade approximants of type II, applic. to partition technique 4−43141
  Pade approximants to Brillouin-Wigner perturbation expansion, self-adjoint operator least eigenvalue determ. 4−55321
  Stephan problem, single-phase stationary, for crystallisation of ingots, approx. calc. *(Russian)* 4−56634
function evaluation
  Bellman's, continuity for time-optimal problem 4−65636
  Bessel functions of complex argument, certification of algorithm 4−43018
  Bessel functions of complex argument and integer order, computer program for soln. by backward recursion 4−43015
  Bessel functions of real argument, certification of algorithm 4−43016
  Bessel functon of real argument and integer order, computer program for soln. by backward recursion 4−43017
  vectorial norms, connection with pseudometrics *(German)* 4−68870
function generators
    see also pulse generators; signal generators; square-wave generators; time bases
  programmable waveform generator, for voltammetric investigs. of organic electrode reactions 4−68839
functional analysis
    see also harmonic analysis
  analytic continuation to region out of N circles 4−59045
  boundary problem for system of differential equations with implicit terms in variable argument, approximate solution *(Russian)* 4−51284
  derivative along subspace used in function determ. *(Russian)* 4−62668
  Gurtin's variational principles, initial value problem 4−51263
  initial function method, appl. to plane elasticity theory for body with rectilinear orthotropy *(Russian)* 4−77419
  nonlinear quasi-geostrophic equation, solutions on a bounded domain 4−64892
  nuclear reactor theory, appl. to error estimation 4−78166
  Stephan problem two-phase stationary nonlinear, classical soln. *(Russian)* 4−56633
  Wightman axiomatic scheme, field as concentratable functional *(Russian)* 4−43395
functional block diagrams *see circuit diagrams*
functional equations
  bounds, existence and uniqueness for free boundary problems *(German)* 4−74229
  Cauchy problem for equations with functional derivatives *(Russian)* 4−51282
  Chapman-Kolmogorov, generalization of results in continuous-time Markov chain theory 4−43026
  class giving improved convergence with finite elements 4−59040
  conservation equations, numerical soln. *(German)* 4−74230
  differential, completeness and independence of exponential solns. 4−55223
  differential, of Peano-Baker type, numerical algorithm for approx. solns. 4−43020
  dual series equations involving Jacobi polynomials, soln. method 4−77370
  linear operator equations in Banach spaces, approx. solns. 4−81111
  operator equation solving, complementary variational principles 4−59038

functional equations continued
operators, linear parabolic, finite element method applic. 4−59039
stochastic differential, comparison theorem, stability 4−81123
stochastic differential eqns., stability and boundedness conditions from comparison principle 4−59048
functionals *see functional equations*
functions
see also Bessel functions; Boolean functions; Green's function methods; random functions; recursive functions; transfer functions
ρ-dilation theory, functions of contraction and numerical radii for operators 4−51248
Breit-Wigner amplitudes, expansion coeffs. for finite superposition, determ. using biorthogonal functions 4−55323
Brownian motion, local irregularity *(French)* 4−47223
Brownian motion, trajectory behaviour *(French)* 4−43174
continuously differentiable subject to auxiliary conditions, nature of stationary value, direct matrix criterion 4−51289
coordinate, use in variational-difference method *(Russian)* 4−51283
correlation, hum-contaminated, restoration 4−55081
dual vertex, connection between photon constituent and Neumann function forms 4−71707
elliptic, physical interpretation *(Hungarian)* 4−74218
elliptical normal integral, approx. of first and second degree *(German)* 4−51299
Emden's functions for polytropes with negative index 4−65146
even-order of two variables, determinant criterion of sign-specificity *(Russian)* 4−55213
functors between categories of Banach and Waelbroeck spaces *(German)* 4−77339
G-function, generalisation of Edelstein's addition theorem 4−51268
G-function of two variables, integrals eval. 4−55193
Gell-Mann-Low function in $\lambda\varphi^4$ theory, first three terms 4−47416
generalised spherical functions, calculation of Fourier coefficients 4−75681
generalized, asymptotic expansions 4−68867
generating, for classical orthogonal polynomials, rel. to continuous representations 4−47019
Gregory squaring procedure, determ. of remainder *(German)* 4−51300
H-functions of two variables used to evaluate double integrals H-function products 4−65632
Hamiltonian systems about critical point, normal forms 4−68317
Hankel and hypergeometric function operators, generalized, relations 4−55221
Herglotz, partial wave dispersion relation, new method for general solution 4−81397
holomorphic, class of deformations 4−51273
holomorphic belonging to Hilbert spaces carrying analytic representations of semisimple Lie groups, boundary values 4−51260
hypergeometric, generalised, associated products 4−47029
hypergeometric, generating function derivation using Lie theory 4−59051
hypergeometric, in infinite series, summation 4−43007
implicit function, successive derivatives *(French)* 4−43009
initial, one-dimensional, variational difference method *(Russian)* 4−51293
invariant functionals of nonlinear eqns. of evolution, book contrib. 4−71319
Koshi-Rieman conditions for hypercomplex potentials *(Russian)* 4−55184
Lagrangians, generalised, integrals of motion from Noether's theorem extension 4−55232
limit theorem, central, for independ. summands with infinite variances 4−47049
Mat'e, zones of stability and instability *(Russian)* 4−55207
nonlinear Mohr boundary conditions, represents. in high pot. regions *(German)* 4−55226
nonlinear operators, fixed point theorems, Banach and Hilbert spaces 4−81112
nonlinear system response, analytical procedures for autocorrelation and spectral density function determ. 4−74237
overlap, from multiperipheral model, Monte Carlo phase space calcs. 4−59597
$P(t)=(\theta D)^{-\alpha}[P_0-P(t)]$ equation generalization for dielec. relax. props. of polymers 4−49299
phase operators, spectral properties 4−55180
polyharmonic, three-dimensional, construction, recurrence relation *(Russian)* 4−55201
polynomial, differential, exceptional values 4−47022
quantum mechanical observables, characterization by properties of the expected values 4−51415
rectangular cable network, free vibr., analytical soln. using Galerkin's method 4−43127
recurrence relations for generalised H-function of two variables 4−43011
ring, sound source nearfield calc. *(Japanese)* 4−46510
stable probability density functions, tables and graphs 4−43025
subtracted Nielsen's, definition and use in SINAC program 4−47031
vertex function of T exponential function, integral eqn. system 4−55568
vertex functions, on- and off-mass shell asymptotic behaviour 4−71607
fundamental constants *see constants*
fundamental law tests
No entries
fundamental particles *see elementary particles*
fundamental physics concepts *see physics fundamentals*
fundamentals of physics *see physics fundamentals*
furnaces
see also electric furnaces; refractories
atomization aspects for atomic absorpt. analysis 4−65594
electron beam floating zone, very high vacuum 4−57690
glass production technique, for optical fibre communication system 4−49972
graphite furnace used in flameless atomic absorption spectroscopy, temp. meas. by thermocouples 4−77045
high-temp. for small angle X-ray studies 4−71172
noise control program 4−50924
furnaces continued
stack gas temperature meas., selective-absorption pyrometer 4−46596
H_2 gas, gas extractor for water aspirated dew-point meter 4−74020
Furry theorem *see quantum electrodynamics*
fuses, electric *see electric fuses*
fusion *see melting*
fusion, nuclear *see nuclear fusion*
fusion reactors
see also nuclear fusion
100 kG hybrid superconducting magnet test facility 4−59877
μgradB plasma accelerator, beam intensity and energy distrib. expt. *(Japanese)* 4−44409
blanket and shield, neutronics calc. using Monte Carlo program 4−78293
blanket conceptual design for fusion power reactor 4−55963
blanket cooling, boiling potassium heat removal system design 4−69342
blanket cooling, using flowing Li in conducting wall pipe in transverse mag. field, MHD pressure drop 4−69603
blanket design, comparative study of nuclear heating 4−78291
blanket design, use of SiC and C, neutronics calc. 4−69334
blanket design, use of Ta and liquid Pb 4−69333
blanket design verification neutronic analysis 4−55945
blanket first wall damage rel. to loading and exchangeability 4−63303
blanket neutronics, sensitivity of multigroup cross sections to fusion peak thermal broadening 4−74804
blanket neutronics, use of Fermi age in graphite as benchmark meas. 4−74775
blanket structural materials and Li coolant for θ pinch reactor, induced radioactivity calc. 4−63296
blanket-coupled MHD conversion at 2500K 4−55956
blankets, cross-section sensitivity of tritium breeding 4−74806
blankets, Li cooled, use of insulated walls to reduce MHD pressure effects 4−69341
blankets, neutronics and photonics study 4−69328
blankets, sensitivity of neutron heating to nuclear data 4−78292
CLEO stellarator/Tokamak exptl. machine design 4−59871
commercial, fuel and blanket management and supply 4−72007
conceptual θ-pinch power plant design 4−55955
containment magnet flat-topping power supply 4−59878
controlled nuclear fusion technology, conference San Diego, Calif., USA (April 1974) 4−69306
controlled thermonuclear reaction systems, failures prediction 4−55965
controlled thermonuclear reactor engineering problems and fast breeder reactor technology *(Japanese)* 4−43682
CTR, physical and material constraints on performance of toroidal magnets 4−69337
CTR containment materials, influence of nonmetallic impurity elements on Li compatibility 4−69338
CTR containment materials, liq. Li compatibility, impurities influence 4−63291
CTR energy systems, use of Ni and Co ferrous based alloys, neutron cross sections 4−74754
CTR equilibrium operation, optimum fuel composition 4−69384
CTR Li-blanket, ^3H removal by cold trapping Na, K and NaK 4−51913
CTR materials program, neutron and plasma source facilities development 4−69346
CTR plasma simulation using digital computers 4−81980
CTR plasma-wall interaction, simulation expt. 4−78284
CTR systems, corrosion product transport in Li cooled stainless steel primary circuits 4−51911
CTR systems, molten Li_2BeF_4 corrosion control 4−51912
CTR-related neutron sources, damage energy cross section and primary recoil spectra 4−69350
D-T reactor, cross-section sensitivity of T breeding in reactor blanket 4−51908
D-T reactor, effect of high-Z impurities on ignition and Lawson conds. 4−51909
demonstration, nuclear blanket and shielding problem 4−74808
design parameters, temperature coefficients and stabilisation 4−55950
direct collection unit h.v. breakdown expt. 4−55958
direct conversion systems, space charge limitations 4−43686
direct energy conversion test facility 4−55957
divertor efficiency for screening fusion plasma 4−43688
DT plasma, focusing expt. and n flux meas. 4−55926
duoPIGatron ion source engineering problems 4−55967
electron beam generators for plasma heating and gas laser excitation 4−59881
electrostatic direct energy convertors, surface requirements 4−78283
energy balance assessment formalism 4−55949
energy-transfer in hot plasma contact with cold wall 4−78287
engineering problems of fusion research, symposium, Princeton (1973) 4−55933
exploding Cu foil fuse package for Z-pinch inductive energy storage system 4−59865
first wall, divertor and collector materials, blister formation during H^+ irradiation 4−69317
first wall, irradiation swelling, creep, thermal shock and thermal cycling fatigue anal. 4−74798
first wall material, effect of large He concentration on stainless steel mechanical props. 4−69320
first wall materials, He and H isotope depth profiles and migration 4−69318
first-wall erosion by radiation blistering, temp. effect 4−63289
first-wall material Al_2O_3, high density damage by low-energy H^+ implantation 4−69316
first-wall shields for early machines, heat flux limitations 4−69339
first-wall surfaces, second phase form. at microvoids and gas atom entrap. in Fe and V 4−78244
fuel production from fusion reactor plasma exhaust 4−55959
fusion initiation, laser beam applic. *(German)* 4−47808
gas insulation reactor, feasibility studies 4−69390
graphite lifetime projections for 4 conceptual fusion reactor designs 4−55942

fusion reactors continued
heat exchanger, liquid metal, appl. of turbulence meas. in a magneto-fluid-mechanic channel 4—78683
high-β large aspect ratio stellarator cost characts. 4—43691
high-field linear, Theta-pinch anal. 4—69324
hybrid fusion-fission reactor design band on mirror CTR 4—69374
imploding-liner fusion devices 4—43687
inductive energy storage circuit analysis and choice of circuit-breaker 4—59864
inductive energy storage with capacitive or homopolar transfer to toroidal θ-pinch 4—59862
inertial confinement CTR fundamentals, laser-energized ablation of fuel pellet surface 4—69353
inertially confined fusion reactor design 4—55953
injection fuel energy, effect on plasma dynamics stability and feedback control 4—52564
Italian program on controlled thermonuclear fusion *(Italian)* 4—51906
laser application, high power Nd: glass system design 4—77674
laser controlled, neutronics aspects 4—69329
laser controlled thermonuclear reactor engineering design 4—55952
laser CTR design considerations 4—69322
laser CTR vehicle propulsion applications 4—69667
laser driven, feasibility studies 4—72005
laser fusion power plant system analysis 4—69321
laser optics radiation damage problems 4—81675
laser pulse unfocusing Li vapour density 4—72004
laser systems for compression and ignition of inertially confined TN pellets 4—69352
laser-compression, blanket design, operating frequency and pellet production 4—51907
laser-controlled thermonuclear reactor design using mag. fields for cavity-wall protection 4—69311
laser-controlled thermonuclear reactor materials requirements 4—63288
laser-controlled thermonuclear reactors, review of potential lasers 4—69351
laser-fusion power reactors, scientific and economic problems 4—63307
laser-heated-solenoid, energy yield charact., raw gain factor 4—69358
laser-induced, with suppressed oblation, conceptual design 4—69312
laser-pellet fusion, Rayleigh-Taylor instability, stabilisation mechanisms investig. 4—75265
limiters for plasma confinement and diagnostics, mech. design 4—59867
linear θ-pinch d.c. Joule losses, laser and mag. heating compared 4—63686
liquid He vacuum pumping system for Baseball II plasma machine 4—59866
long pulse Tokamak fusion reactor operating cycle 4—55944
magnet design for fusion engineering research facility 4—69349
materials for θ-pinch reactor, problem evaluation 4—63295
materials problems, in design of magnetically confined plasma reactor 4—55928
materials testing using intense neutron source facility 4—69348
MHD plasma instability, computer controlled feedback stabilization 4—69369
mirror, injection efficiency, direct energy conversion of ion beams 4—74802
mirror, small high power-density D-T design for materials test facility 4—69347
mirror containment magnet and associated equipment, electrical aspects 4—59879
mirror exptl. program at LLL, surface requirements 4—78281
mirror hybrid reactor, safety assessment 4—69381
mirror machine, wall bombardment due to charge exchange of injected neutrals with plasma 4—74799
mirror machine blanket thermal energy conversion system 4—63300
mirror-reactors and devices, theory 4—78280
mirror-type test reactor, design of neutral injection system 4—69359
neoclassical diffusion of fusion event generated α-particles 4—44185
neutral beam heaters, technological considerations 4—69645
neutron activation hazards and accessibility 4—63299
neutron excess, optimisation of usage reln. to hybrid, symbiotic and augean systems 4—69371
Oak Ridge Tokamak Feasibility and Burning Experiment facility 4—59870
open system reactor design with r.f. plugging 4—69363
ORMAK data acquisition and analysis by small computers 4—59868
ORMAK device, in cryogenic vacuum environment 4—55966
ORMAK toroidal pinch, wall conditions 4—78273
pellet, prospects for MHD and direct energy conversion 4—69356
pellet-refuelling, exptl. simulation problem 4—43693
plasma., synchrotron radiation due to electron gyration, energy balance upset 4—78724
plasma confinement in tetrahedrally symmetric magnetic well 4—69389
plasma confinement principles in large nuclear fusion expts. 4—78288
plasma heating, high power neutral particle beams, fusion research 4—82021
plasma heating using high-current relativistic electron beam accelerator 4—68761
plasma interactions with insulator and metal surfaces, chem. effects 4—78245
plasma simulation models 4—81981
plasma simulation using particle codes 4—81982
power for the 21st century 4—51905
power plant, development program definition 4—55964
power plant based on θ-pinch concept 4—55961
Princeton Reference Design fusion reactor superconducting coils 4—55948
Princeton Reference Design Model, 2000 MW(e), description 4—55943
Princeton Reference Design Model fusion reactor fuel handling system 4—55947
Princeton Reference Design Reactor heat transfer system and blanket design 4—55946
pulsed, tensile fatigue behaviour of Mo at 1153K 4—69335

fusion reactors continued
pulsed belt pinch reactor with normal cond. coils, energy balance 4—43689
pulsed D-Li reactor design 4—63285
pulsed power supply from homopolar motor-generator 4—59863
radiation blistering of structural materials 4—78235
radiation effects rel. to confinement system design 4—72003
reactor-torch complex design and operation 4—55960
reference theta-pinch reactor, ergodic optimisation and parameter study of burn cycle 4—69313
reference theta-pinch reactor, heat transfer calcs. through gaseous cooling layer 4—69343
reference theta-pinch reactor, modular design arrangement 4—69314
reflective lens arrays for laser-induced fusion 4—59880
research developments rel. to present and future of nuclear power *(Hungarian)* 4—43586
review of devices and problems 4—72002
review of research and development in Europe and USA 4—43683
rotating-plasma self purification anal. 4—69388
sputtering of Au inner wall by Kr and ^{4}He ions 4—78246
stability of burn, description of Tokamak, theta-pinch and open-ended confinement systems 4—74796
stainless steel blanket cell design 4—43685
steel, 316 stainless, fatigue and microstructure effects of He implantation and thermal ageing at 650°C, obs. 4—55940
steel blanket, induced activity and decay power calc. 4—69380
structural problems, finite element and finite difference stress anal. capabilities 4—69336
structure renewal and maintenance problems 4—55934
superconducting magnet, Nb-Ti wire characteriz. 4—59855
superconducting magnetic energy transfer and storage driven θ-pinch plasma physics reactor expt. 4—59861
superconducting magnetic mirror facility 4—59876
synthetic fuel production 4—69362
tapered diaphragm system for recuperation of reactor ion beams 4—55932
technological problems *(German)* 4—81673
TFR machine, plasma-wall interactions 4—78272
thermal instabilities for different fuel cycles 4—69367
thermonuclear power plant, laser controlled, conceptual design 4—69310
theta pinch feasability D-T expt. first wall fluxes 4—78277
Theta-pinch, parametric systems anal. 4—69325
theta-pinch blanket nucleonics, effect of Be(n,2n) multigroup treatment 4—74805
Theta-pinch fusion reactor, blanket design sensitivity calcs. 4—69331
Theta-pinch fusion reactor, comparative anal. of radioactivity and afterheat 4—69378
Theta-pinch fusion reactor, duty cycle effects 4—69326
Theta-pinch fusion reactor, transmutation and atomic displacement rates 4—69330
theta-pinch power breeder blanket anal. 4—69370
Theta-pinch reactor, dielectric breakdown of first-wall insulator materials 4—69303
Theta-pinch reactor, environmental impact anal. 4—69379
theta-pinch reactor, surface effects at first wall 4—78278
theta-pinch rel. reactor, Monte Carlo anal. of heat flow through neutral gas layer 4—78279
Tokamak, D-T, transmutations, radioactivity and afterheat 4—63290
Tokamak, D-T fuelled, blanket designs using Al structures 4—69377
Tokamak, extrapolated operating regimes and transport effects 4—55951
Tokamak, magnetic field anal. 4—69364
Tokamak, minimum size, conceptual design having technological feasibility 4—69307
Tokamak, non-circular cross-section, scaling 4—69323
Tokamak, reference design model, divertor operat. 4—78276
Tokamak, thermal stress problems 4—78286
Tokamak, with UWMAK-I conceptual design, technological aspects 4—69309
Tokamak based beam-plasma target thermonucl. system 4—43692
Tokamak design, poloidal divertor incorporation 4—78275
tokamak devices, evolution of temps. and densities 4—78271
Tokamak devices, surface related processes, fluxes of charged and neutral particles 4—81674
Tokamak reactor, particle loss and field ripple due to D-shaped coils 4—69387
Tokamak reactor, transport calcs. 4—69386
Tokamak reactor ignition by fast neutral injection and higher density build up, moving limiter 4—43690
Tokamak reactor torus, superconducting coil elastic stability analysis 4—59873
Tokamak reactor UWMAK-I, poloidal divertor design 4—74800
Tokamak UWMAK-I, low-β D-T reactor, conceptual design 4—69308
Tokamak-based low-power reactor 4—55931
torodial theta pinch, helical field and conducting shell feedback stabilization 4—69365
toroidal, compression-expansion cycles 4—74803
toroidal, energy cooling and afterheating effects in Li blanket 4—69382
toroidal, MHD blanket scaling 4—69345
toroidal, plasma wall interactions 4—72009
toroidal CTR device, neutron flux distrib. on wall 4—63294
toroidal devices, use of effusors to improve divertor performance 4—74801
toroidal reactor dynamics, impurity and injection energy effects 4—69366
toroidal reactors, plasma buildup by neutral injection 4—43694
toroidal superconducting magnet three-dimensional elastic stress analysis 4—59872
transmutant-vacancy interaction effects in CTRs 4—69315
tritium plasma, deuterium ion beam, toroidal, magnetic compression 4—47807
tritium release from Nb 4—63292
two ion component toroidal reactor magnetic compression to improve power amplification factor 4—47807
'venetian blind' direct energy convertor for fusion reactors 4—63287
water dielectric pulse generators, multiple channel switching without triggering 4—59882

fusion reactors continued
- Wisconsin Tokamak fusion reactor design 4–55954
- Yin Yang mirror reactor blanket performance rel. to geometry and heterogeneous effects 4–63301
- Yin-Yang confinement mirror reactor modular fission-fusion hybrid blanket design 4–69372
- D 200 A neutral beam source test facility 4–59859
- D neutral beam injectors for mirror machines 4–59860
- D neutral beam R & D at Lawrence Berkeley Lab. 4–59858
- D-T, thermal state calcs. for blanket of Nb/Li mixture 4–69340
- D-T breeders and test reactors, tritium demand 4–72006
- D-T cycle, nuclear design of magnet shield 4–69344
- D-T fuelled, distributional characteristics of tritium in structures and fuels 4–74809
- D-T fuelled, radiation damage limitations in design 4–55929
- D-T hybrid fusion-fission, fast fission blanket anal. using data libraries 4–69376
- D-T mirror reactor, low temp., modified Lawson criterion determ. 4–69385
- D-T mirror reactor with direct conversion, surface conditions 4–78282
- D-T plasma effluent processing 4–69361
- D-T plasma Tokamak reactor, effects of cold fuel injection 4–69368
- D-T plasmas, stabilizing feedback control of thermal instabilities 4–69383
- D-T reactor, relevance of various neutron sources in anal. of irradiation effects on Nb 4–55930
- D-T Tokamak, first wall surface problems 4–78274
- D-T toroidal plasma, impurity build-up due to sputtering 4–78285
- DT reactor, neutronics anal. of fast fission U blanket 4–69373
- H isotope permeation through fusion reactor materials, analysis and expt. 4–63298
- ^{2}H neutral beam injection efficiency, effect of component performance perturbations 4–63304
- ^{2}H-^{3}H Tokamak toroidal fusion reactor plasma balance and feasibility 4–59869
- ^{3}H, inventory in Li blankets 4–69360
- ^{3}H breeding blanket 4–55962
- ^{3}H breeding in ceramic-Li compound blanket 4–69327
- ^{3}H breeding potential of reference power plant 4–69332
- ^{3}H containment and recovery processes 4–72008
- ^{3}H distribution and leakage characteristics, analysis 4–63297
- ^{3}H migration in CTR, surface phenomena at fluid structure interfaces 4–81642
- ^{3}H multiampere ion source and beam transport system for Intense Neutron Source 4–63305
- He cooling parametric analysis 4–63302
- He-induced voids in cladding, theory 4–55938
- He^{+} and H^{+} implantation in V, Mo and stainless steel, meas. of re-emission 4–78236
- He^{+} blister formation and erosion rates of annealed 304 stainless steel first wall 4–55936
- Li-cooled Tokamak reactor blankets, thermal and mech. design 4–59857
- Li-metal assembly, integral neutronics expts. tritium breeding 4–74807
- Li-Na-stainless steel CTR blanket, heat transfer and radiation damage 4–55935
- Nb and Nb-Zr (1 wt.%) alloy, void swelling due to ^{58}Ni^{+} at 600 to 1000°C, obs. 4–55939
- Nb mechanical properties, He doping using ^{3}H radioactive decay 4–69319
- Nb surface particle release under 14 MeV neutron impact, obs. 4–55937
- Nb$_3$Sn superconductors, Al-clad, cryogenic stability 4–59874
- Nb$_3$Sn tape superconducting coil performance in He gas up to 17K, obs. 4–59875
- Th-containing blankets, neutronic and photonic analyses 4–59856
- U containing blankets, neutronic and photonic anal. 4–69375
- V and V-Cr-Ti alloys, He implantation effects on ductility and void swelling, obs. 4–55941

g-factor
- *see also gyromagnetic ratio; Zeeman effect*
- acceptor ground state in diamond type semiconductor 4–69989
- alkaline earth oxide:Dy^{3+}(Yb^{3+}), ion ground state determ., e.p.r. 4–57362
- borate glasses, X-irrad., e.p.r. of Cd^{+}, g-tensor distrib. and anisotropy *(French)* 4–61026
- carbonyl radicals, theory of electron spin g-values, SCF calc. 4–47949
- coated bulb technique for atomic r.f. spectroscopy, Zeeman shifts to contaminants 4–42803
- conduction e.s.r., g-tensors and tensor interactions 4–70217
- dimethyl disulfide, γ-irradiated, e.s.r. of radical ions 4–64254
- 1,1-diphenyl-2-picrylhydrazyl, solutions, e.s.r., hyperfine structure, g-factor and electron nuclear coupling 4–78492
- diphenylphosphino radical, e.s.r. isotropic ^{31}P coupling constants, g-tensor 4–69523
- e.s.r., g-tensors determ. from exptl. g-value differences, computer program 4–53279
- estimates and error distribution, e.p.r. g-factor, e.p.r. hyperfine coupling constants 4–67425
- hydroxycyclohexadienyl radicals, form., e.s.r., spectra, ^{13}C splittings investig., structs., g-factors determ. 4–60094
- methane thiol, γ-irradiated, e.s.r. of radical ions 4–64254
- methanol radical, CIDEP and isotropic g-factor 4–67992
- methyl cytosine, irrad., free radical obs. 4–57860
- methylammonium alum:Ti^{3+}, energy splittings of ^{2}T$_2$ vibronic state 4–49224
- molecule, diatomic, rot. g-value, nuclear motion correction 4–72165
- m.o.s. inversion layer, theory of oscillatory g-factor under strong mag. fields 4–79412
- nuclear, effect of finite time resolution on time differential directional correlation 4–46799
- orthodifluorobenzene, linear and quadratic rot. Zeeman effect *(German)* 4–48060
- protons, ratio bound to free, effect of relativistic corrections *(Russian)* 4–47447
- semiconductor, transverse optical orientation effect *(Russian)* 4–70381

g-factor continued
- spectral diffusion of spin packets for system with anisotropic g-factor 4–79577
- triatomic radical, CNDO calc., g-factor anisotropy, spin-orbit interaction 4–69457
- zeolite:Eu^{2+}, e.p.r., crystalline field strength, g-factor 4–45179
- zeolite:Gd^{3+}, e.p.r., crystalline field strength, g-factor 4–45179
- e, g-factor, sixth order, mass-operator approach, vertex diagrams 4–71665
- e g-factor, sixth order, mass-operator approach 4–71664
- ^{108}Ag, short lived isomeric states from (p,n) and (p,d) reactions, g-factor determ. 4–71772
- ^{110}Ag, short lived isomeric states from (p,n) and (p,d) reactions, g-factor determ. 4–71772
- Al:Er, dil., exchange and cryst. field parameters from transmission e.s.r. 4–79603
- α-Al$_2$O$_3$, e.p.r. and spin-lattice relaxation of Mo^{3+} ions, spectroscopic splitting factor calc. 4–82614
- Ar, excited levels from magnetic resonance measurements *(French)* 4–51961
- Ar:K, crystal, X-band e.s.r. spectra obs., existence of multiple trapping sites 4–61031
- ^{77}As 632 keV (5/2^{+}) level, g-factor meas. 4–77954
- CO$_2$$^{-}$, CNDO calc., g-factor anisotropy, spin-orbit interaction 4–69457
- CaF$_2$:Yb^{3+}(Dy^{3+}) e.p.r. meas. of stress-induced g-shifts of Γ_7 levels 4–76156
- ^{40}Ca 4.49 MeV (5^{-}) state, mag. mom. meas. using ^{40}Ca(p,p'γ) reaction 4–77955
- CdIn$_2$S$_4$:Er^{3+}, cryst. field symm., optical spectra, calc. of props. 4–57582
- CdTe, e.p.r. meas., shallow donors 4–76157
- CeO$_2$:^{239}Pu^{3+}, CeO$_2$^{243}:Am^{4+}, e.p.r. determ. of g-values 4–53297
- CeO$_2$:Er^{3+}, e.p.r. meas. of stress-induced g-shifts of Γ_7 levels 4–76156
- CeRu$_2$:Gd, superconducting, field depend. of e.s.r. g-shift 4–76016
- CsMgBr(I)$_3$:V^{2+}(Mn^{2+})(Ni^{22+}) e.s.r. determ. 4–53299
- Cs$_2$NaYCl$_6$:Ce^{3+}(Dy^{3+})(Yb^{3+}), e.s.r. spectra, ion sites 4–45174
- ^{133}Cs, 6^{2}P$_{1/2}$ state, g$_j$-factor and magnetic h.f.s. interaction const. 4–78336
- Cu complex, electronic and mag. props. investig., angular overlap model 4–78424
- Er isotopes, odd-mass, collective model anal. of decoupled bands 4–55755
- Fe$_{0.5}$Au$_{0.5}$ alloy, mag. hyperfine field at Au nuclei, Mossbauer spectra, 279 keV state g-factor 4–49266
- FeGe, ferromag. reson. obs., 77K-300K 4–67454
- ^{54}Fe, 2^{+} states, meas. by transient field implantation PAC technique 4–63067
- ^{56}Fe, 2^{+} states, meas. by transient field implantation PAC technique 4–63067
- HBS, Zeeman effect obs. 4–43855
- HOO, CNDO calc., g-factor anisotropy, spin-orbit interaction 4–69457
- ^{1}H, Zeeman transitions in hyperfine spectrum, ^{1}H/^{3}H g$_j$-factor ratio 4–63339
- ^{3}H, Zeeman transitions in hyperfine spectrum, ^{1}H/^{3}H g-factor ratio 4–63339
- InCl$_3$:Er^{3+}, cryst. field symm., optical spectra, calc. of props. 4–57582
- K$_2$Zn(SO$_4$)$_2$.6D$_2$O:^{63}Cu^{2+}, e.s.r. , ^{17}O superhyperfine tensors 4–76147
- K$_2$Zn(SO$_4$)$_2$.6H$_2$O:Cu^{2+}, e.s.r., ^{63}Cu and ^{17}O hyperfine tensors 4–76148
- MgO:Fe^{2+}, far i.r. absorption, spin-orbit levels 4–57583
- ^{24}Mg, transient field meas. g-factors using IMPAC technique 4–71765
- ^{26}Mg, transient field meas. of g-factor using IMPAC technique 4–71765
- ^{53}Mn populated in ^{53}Cr(p,n) reaction, meas. of magnetic rotation of levels 4–63156
- ^{95}Mo, 204 keV level g-factor meas. in (^{16}O,γ) reaction 4–63070
- NO$_2$, CNDO calc., g-factor anisotropy, spin-orbit interaction 4–69457
- NaNO$_3$:Mn^{2+}, e.p.r., g-factor and hyperfine coupling constant determ. 4–79590
- Na$_{0.33}$WO$_3$, of W^{5+} e.p.r. 4–53300
- Ni-Cr alloys, determ. by ferromag. reson. 4–61038
- ^{59}Ni, 339 keV level, nuclear g-factor 4–59673
- O$_3$$^{-}$, CNDO calc., g-factor anisotropy, spin-orbit interaction 4–69457
- ^{200}Pb, negative parity states, g-factor of 480 ns 9^{-} isomer 4–74718
- Pd isotopes, 2^{+} states, meas. by transient field implantation PAC technique 4–63067
- Pd-H-Mn alloys, e.p.r. study, exchange interaction information 4–53306
- Pd-Mn alloys, e.p.r. study, exchange interaction information 4–53306
- ^{142}Pr, mag. moments of ground and isomeric states, atomic beam mag. reson. meas., hyperfine struct. 4–43454
- Pt isotopes, excited state props. *(French)* 4–55784
- ^{237}Pu, g-factor meas. for 1.1 μsec isomeric state 4–43452
- ^{239}Pu, e.m. props. of excited states 4–59706
- Rb, g$_I$(^{87}Rb^{+})/g$_j$(^{87}Rb) ratio, charge-exchange optical pumping expt. 4–63338
- ^{99,101}Ru, hyperfine struct. meas. in ^{5}F ground states with atomic beam mag. reson. method 4–72019
- SO radicals, vibr. excited, g-factors for $v=0$, 1 levels determ. by e.s.r., microwave spectral data 4–48084
- ^{32}S$_2$, e.p.r., ^{34}S^{32}S isotope effect, fine struct., g-factors 4–72227
- Sb, liquid, at 1000°C *(Russian)* 4–70008
- Sc:Er^{3+}, single crystal, magnetisation and e.s.r. g-value meas. 4–82587
- ScCl$_3$:Er^{3+}, cryst. field symm., optical spectra, calc. of props. 4–57582
- Si:P,Fe, metallic, conduction e.s.r. 4–64255
- ^{151}Sm, g-factor of 91.5 keV state populated in ^{151}Pm beta decay 4–43451
- SnO$_2$, e.s.r., g-value anisotropy *(Japanese)* 4–82615

g-factor continued

SnO_2:Al(In)(Li), e.s.r., g-values *(Japanese)* 4−82615
So radical, gas, vibr. excited, e.p.r. meas. 4−81793
$SrCl_2:O_2^-$, e.s.r. spectra, g-tensor, crystal field splitting between orbitals 4−45187
^{127}Te, lifetime and magnetic moment of $^9/_2{}^-$ anomalous coupling state 4−51749
Th II, energy levels and classified lines in second spectrum 4−74827
$ThO_2:Er^{3+}$ e.p.r. meas. of stress-induced g-shifts of Γ_7 levels 4−76156
Ti_3O_5, multiplet structure from e.p.r. meas., rel. to anisotropic g-factor 4−79346
W, even isotopes, meas. of 2^+ states g-factors by recoil implantation 4−66120
Xe, excited levels from magnetic resonance measurements *(French)* 4−51961
$YCl_3:Er^{3+}$, cryst. field symm., optical spectra, calc. of props. 4−57582
Zn, liquid *(Russian)* 4−70008
Zn:Mn, e.p.r. g-factor anisotropy 4−57373
$ZnGeP_2$, e.p.r. obs. of new paramagnetic centre 4−76161

G-matrix *see molecular internal mechanics*

gadolinium

atom, laser produced X-ray spectrum 4−72045
cyclotron masses and mass enhancements determ. by de Haas-van Alphen effect 4−44828
elastic constants meas. by u.s. pulse-echo technique, 4.2-300K 4−48666
e.s.r., thin film microwave transmission meas. *(German)* 4−54999
flame emission analysis in water 4−77291
Gd:transition metal, d-electron mag. coupling, hyperfine fields 4−72962
hyperfine interaction for ^{155}Gd, 10-300K, DPAC meas. 4−57436
magnetic domain effects near Curie temp., a.c. susceptibility and coercive fields 4−45141
mass absorption coefficients for CK_α line *(Japanese)* 4−45382
zeolite:Gd^{3+}, e.p.r., crystalline field strength, g-factor 4−45179
$BaF_2:Gd^{3+}$, e.s.r. superhyperfine struct. for cubic centre 4−53301
$BaF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4−44880
$CaF_2:Gd^{3+}$, e.s.r. superhyperfine struct. for cubic centre 4−53301
$CaF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4−44880
$CaF_2:Gd^{3+}$, strain effect on e.s.r. parameters using u.s. modulation 4−53304
$CaMoO_4:Gd^{3+}$, e.p.r. meas., external elec. field influence 4−79595
$CaWO_4:Gd^{7/2}$, e.p.r., dipolar line broadening 4−79586
$CaWO_4:Gd^{7/2}$, spin lattice times 4−61027
$CeRu_2$:Gd, superconducting, field depend. of e.s.r. g-shift 4−76016
EuO:Gd, mag. semicond., optical props., band struct. investig. 4−64400
EuO:Gd exchange optics, absorpt. and Faraday rotation meas., 13 eV to 250 μ 4−57568
$Eu(OH)_3:Gd^{3+}$, e.p.r., exchange interactions 4−53309
Fe:^{151}Gd, Mossbauer spectra of ^{151}Eu, lattice location and hyperfine fields 4−73056
Gd^{3+}, analysis of the spin-lattice parameters in cubic crystals 4−67322
Gd^{3+}, aq. soln., dynamic nuclear polarisation, electronic spin-lattice relaxation 4−73021
Gd^{3+} in Gd_2O_3 resonance radiation effects in electron impact emission 4−61245
Gd^{3+} in $KMgF_3$, $KZnF_3$, many centre structure, e.p.r. spectra obs. 4−57376
LaSb:Gd, single crystal, resolved e.s.r. spectra, cubic crystalline field parameter meas. 4−82611
Mg:Gd, fine structure splitting of localised moment, diagrammatic anal. 4−76054
Nb:Y(Gd), fluxoid pinning by d.c. magnetisation meas. 4−82528
$SmB_6:Gd^{3+}$, e.s.r., negative g-shift, exchange interactions 4−53302
$SrF_2:Gd^{3+}$, e.s.r. superhyperfine struct. for cubic centre 4−53301
$SrF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4−44880
$SrTiO_3:Gd^{3+}$, electric field effect on e.s.r. 4−64256
$Y(OH)_3:Gd^{3+}$, e.p.r., exchange interactions 4−53309
$ZrO_2:Gd^{3+}$, e.p.r. spectra obs. in Q-band 4−45171

gadolinium alloys

Cr-Gd, dil., deformed, annealing, struct. changes *(Russian)* 4−67773
$(Cu_{0.83}Pd_{0.17})_{1-c}Gd_c$, dilute, paramag. Curie temp., influence of order-disorder transitions 4−45115
Dy-Gd, hyperfine interactions, ^{161}Dy Mossbauer obs., spin wave and single-ion anisotropy models 4−64316
Gd-Ca, amorphous film, static bubble domain props. 4−76113
Gd-Co alloy film, amorphous, for bubble domain and magneto-optical applic. 4−57338
Gd-Co compounds, thermal expansion anomalies, room temp. to 700°C 4−75637
Gd-La, exchange interactions, lattice parameters and Curie temp. meas. 4−57266
Gd-Sm, ferromag. Curie temp., nonlinear conc. depend. 4−64210
Gd-Th, h.c.p., magnetocrystalline anisotropy 4−49190
Gd-Y (6-64 at.% Gd), magnetisation and microwave reson., mag. struct. 4−45099
Gd-Y alloy, mag. props., electrical resistivity, thermal expsn. 4−57272
GdCo, amorphous bubble domain material anisotropy factor affected by local heating 4−64236
$GdCo_2$, Co hyperfine field, rel. to magnetic structure, temp. depend. 4−70164
$Gd_{1-x}Co_x$ film, amorphous, r.f. sputtered, perpendicular anisotropy 4−57330
Gd_5In_3, cryst. struct. 4−63792
$GdIn_3(Tl_3)(Sn_3)(Pb_3)$, mag. props. 4−70143
$GdMg_{1-x}Zn_x$, magnetic and n.m.r. studies 4−73036
$Gd(Ni,Cu)_2$, magnetic props. and indirect exchange 4−79520
$GdNi_2$, critical mag. susceptibility in presence of long-range forces 4−49176
GdSb, sp. ht. and resistivity above Neel temp. 4−67368

gadolinium alloys continued

$Gd_{0.9}Y_{0.1}$, coherent nucl. scatt. amplitude determ. by epithermal neutron diffr. 4−66860
$GdZn_5$, comments on suggested $CaCu_5(D2_d)$ struct. 4−69749
$GdZn_{1-x}In_x$, galvanomag. anomalies, $(0 \leqslant x \leqslant 0.15)$ 4−64102
$LaAl_2$:Gd, mag. glass system, sp. ht. meas. in temp. range 0.55 to 10K 4−53234
Pd-Gd, dil., low temp. sp.ht. 4−64202
PdGd, Mossbauer effect using ^{155}Eu source in Pd and 86.5 keV transition in ^{155}Gd 4−45220
Sc-Gd, dil., low temp. sp.ht. 4−64202

gadolinium compounds

see also gadolinium alloys
chalcogenides, optical constants analysis by Kramers-Kronig method *(German)* 4−79692
garnet, bubble domain, liq. phase epitaxial, neutron irrad. effcts on mag. props. 4−57309
$EuF_2:GdF_3$ system, new phases 4−72556
GaF_3-$SrF_2:Nd^{3+}$, as laser medium 4−47353
$Ga_3Gd_5O_{12}$, refractive index at 1.15 μm 4−49321
Gd-Ga garnet, crystal defect mapping, luminesc. obs. 4−44547
Gd^{3+} complex, e.s.r. spectra in soln., dynamic freq. shift 4−45175
GdB_4 prod., thermal expansion meas. 4−82282
$GdCoO_3$, spin state equil., localised vs. collective d-electron behaviour 4−61079
$GdCrO_3$, magnetic interactions 4−76079
$GdDy(MoO_4)_3$, loss tangent permittivity meas. from 8.78 to 12.26 GHz 4−61117
GdF_3, enthalpy and other thermodynamic props., 100-1600°C 4−52905
GdF_3, impurity-controlled solid-solid transition and melt growth 4−60614
GdF_3, polymorphism and cryst. struct. 4−48589
GdFe garnet, chem. transport with $GdCl_3$ *(German)* 4−49566
$Gd_3Fe_{5-x}Al_xO_{12}$, room temp. Mossbauer parameters 4−61068
$Gd_3Fe_5O_{12}$ film, magnetization processes involving planar compensation walls 4−60996
GdGa garnet, contrast of crystal defects under polarised light, calc. for isotropic material 4−56746
GdGa garnet, microwave phonon attenuation, temp. and freq. depends. 4−79102
GdGa garnet, ribbon shaped crystal growth for bubble memory substrates 4−57688
$Gd_3Ga_5O_{12}$, cryst. struct., oxygen coords. 4−44519
$Gd_3Ga_5O_{12}$, helical growth defects, X-ray topographic obs. 4−44498
$Gd_3Ga_5O_{12}$, magnetothermodynamics, obs. along [111] axis 4−79512
$Gd_3Ga_5O_{12}$:Nd laser, transition probability 4−81321
$Gd_5Ge_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases, cryst. struct. 4−63810
$Gd_{2.1}Lu_{0.9}Fe_{4.4}Al_{0.6}O_{12}$, garnet film, for bubble domain memories 4−73004
$Gd_2(MoO_4)_2$, domain boundaries, antiphase boundaries, dislocations 4−82678
$Gd_2(MoO_4)_3$, anomalous damping of acoustic phonons near phase transition, Brillouin linewidth meas. 4−67588
$Gd_2(MoO_4)_3$, electric field effect on ferroelectric transition temp., obs. by u.s. method *(French)* 4−61121
$Gd_2(MoO_4)_3$, light scatt. by acoustic waves 4−79701
Gd_2O_3, glass formation, laser spin melting 4−45802
$Gd_2O_3:Gd^{3+}$, atomic emission spectrum X-ray fluorescence and electron impact induced resonance effects 4−61245
Gd_2O_3-MoO_3 system, phase diag. and props. 4−48739
Gd_2O_3 + Li liquid reaction 4−83027
Gd_2O_2S, lattice contrib. to specific heat, 1.4-80K 4−48773
Gd_2O_2S:Tb X-ray screens, speed, resolution, quantum utilisation 4−54684
Gd_2S_3, transport props. and mechanism, single crysts. 4−48969
$Gd_3Sc_xGa_{5-x}O_{12}$, distrib. coeff. of Sc in Czochralski grown garnets 4−66874
Gd_3Si_5, mag. meas. in temp. range 6-630K 4−60943
$Gd_5Si_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases, cryst. struct. 4−63810
Gd_2SiO_5-$CaSiO_3(SrSiO_3)$ system, phase relations, i.r. spectra obs. *(Russian)* 4−61168
$GdTiNbO_6$, i.r. spectra, 30-1500 cm^{-1}, interpretation *(Russian)* 4−79737
$Gd_2Ti_2O_7$, quadrupole Mossbauer spectra, 89 keV, Goldanskii effect 4−70242
$GdVO_4$, mag. phase diagram, Neel temp., crit., exchange interaction fields *(German)* 4−82558
$GdVO_4$, magnetoelec. new materials 4−82539
$Gd_3X_5O_{12}:B^{3+}$, X=Fe, Ga, local vibr. modes obs., i.r. absorption spectra 4−69876
$Gd_yY_{3-y}Fe_{5-x}Ga_xO_{12}$, film, domain wall mass and mobility, in plane mag. fields 4−70186
$LuGd_2Al_{0.6}Fe_{4.4}O_{12}$ film, epitaxial, dynamic conversion effects 4−60999
$MoGd_2Pb_4O_{10}$ and $Mo_3Gd_6Pb_4O_{22}$, flux growth and powder patterns 4−79871
$Tb_pGd_{1-p}VO_4$, $0 \leqslant p \leqslant 1$, cooperative Jahn-Teller effect 4−79298
$(Y,Gd,La)_3(Fe,Al,Ga)_5O_{12}$ garnet magneto-optical memory based on compensation wall domains 4−49197
$(Y,Gd,Tm)_3(Fe,Ga)_5O_{12}$ film, mag. bubble translation, effect of const. in-plane mag. field 4−61002
$Y_{3(1-x)}Gd_{3x}Al_{5y}Fe_{5(1-y)}O_{12}$, lattice parameter, Curie temp., cluster component method *(Russian)* 4−67364
$(Y_xGd_yDy_{1-x-y})_3Fe_5O_{12}$, lattice parameter, Curie temp., cluster component method *(Russian)* 4−67364

gain (amplification) *see amplification*

gain control

see also automatic gain control
analogue seismic system, gain-ranging, rel. to digital system 4−61884
radioastronomy automation, telescope and receiver control, data processing 4−62221
radiotelescope and receiver control, Charlottesville, USA, conference 4−62219

gain measurement
CO_2-He-Ne gas dynamic laser, shock tube meas. of gain 4−59386
gain regulation *see gain control*
galactic cosmic rays
11 year variation energy spectrum, stratospheric spectrographic observations *(Russian)* 4−80427
alpha particle spectrometry meas. of ^{146}Sm/^{147}Sm ratio for former cosmic radiation intensity determ. *(French)* 4−54349
arrival direction isotropy of ultra high energy cosmic rays 4−61957
density distribution, annual var. 1958-1968, comparison with neutron monitor data *(Russian)* 4−83164
diffusion, energy depend. *(Russian)* 4−80426
electron component spectrum, effect of energy dependence of diffusion coeff. 4−70849
electron gradients, low energy implications 4−61966
empirical models of Galactic propagation 4−50417
expanding universe, ionisation losses effect on cosmic ray energy 4−70850
galactic centre model, neutron star cluster, to explain γ, i.r., radio, proton synchrotron radiation 4−73808
gamma ray distrib. SAS-2 data 4−80425
gamma-ray celestial distrib. 4−73592
high energy charged particles, angular distrib. 4−50418
leaky box model of cosmic ray confinement, effect of turbulent magnetic field 4−58156
massive star explosions, rel. to cosmic ray origin 4−68409
metagalactic protons, superhigh energy, transition from galactic cosmic rays *(Russian)* 4−83146
modulation, interplanetary space, solar activity influence *(Russian)* 4−83152
modulation coefficient, radial gradient, different periods of solar activity *(Russian)* 4−83160
Moon, intensity at surface from soil activity, tracks in minerals 4−80422
multiply charged particles, 1.4 GeV/nucleon, interaction with heavy emulsion nuclei anal. *(Russian)* 4−80447
nova envelopes, subcosmic ray generation by free-free radiation absorption 4−54348
origin, energy-dependent diffusion eqn. from L/M ratio 4−73591
positrons, interstellar equilibrium spectrum from propagation models 4−65010
production spectrum model 4−70852
pulsar origin, correlation of position with air shower arrival directions 4−70851
sidereal anisotropy in TeV region 4−80430
solar activity effects, automatic interplanetary station meas. *(Russian)* 4−80424
solar modulation of protons, He nuclei and electrons during 1965 to 1968 4−68302
structured acceleration on galactic scale, SAS-2 γ-ray line obs. 4−46137
upper limits to flux of cosmic rays and X-rays in interstellar clouds 4−70848
H I region ionization by low energy cosmic rays or soft X-rays using interstellar absorption line obs. 4−50701
galactic radio waves *see radiofrequency cosmic radiation*
galaxies
see also clusters of galaxies; h i regions; h ii regions; intergalactic matter; nebulae; the galaxy
Abel cluster A2052, association with X-ray source GX8+50, OSO-7 X-ray obs. 4−46262
Abell 1314, cluster of galaxies, radio obs. 4−62195
Abell clusters, radiosource detection at 1400 MHz 4−50667
absorption, models of three-dimensional variation *(German)* 4−46279
active nuclei, three models for radio variability 4−73765
Arp 295, tidal origin of intergalactic bridge of interacting galaxy pair 4−68450
barred collisionless stellar systems, self consistent dynamic model 4−54550
barred spirals, collisionless biaxial and triaxial ellipsoid models 4−76904
bright southern objects, morphological properties of 28 galaxies 4−80635
3C 120 Seyfert galaxy, X-ray ionization and He abundance 4−80621
3C 236, dimensions of radio galaxy at 49 cm. wavelength 4−71016
Cancer cluster, upper limits for 21 cm emission 4−50658
catalogue of peculiar galaxies, interacting pairs groups and clusters south of declination −43° 4−58417
catalogues of galaxies and clusters of galaxies, statistical analysis 4−73783
chemical evolution 4−76907
close encounters between galaxies of equal size 4−65209
cluster magnetic field and inverse Compton radiation 4−46270
clusters, comparison of radioemisson from clusters with and without bright members 4−58408
clusters of galaxies, non Doppler redshift hypothesis for mass discrepancy 4−50654
Coma cluster, magnitude-redshift bands 4−50659
Coma cluster, redshift-magnitude bands 4−46272
Coma cluster, upper limits for 21 cm emission 4−50658
compact blue galaxies, spectroscopic studies *(French)* 4−65205
compact groups of compact galaxies, four colour photometry 4−58407
compact groups of compact galaxies, second list 4−58406
compact radiogalaxies, ultrafine structure from lone baseline interferometry 4−65186
compact structures assoc. with 3 C 66, 264 and 315 radio galaxies 4−73816
contribution to microwave cosmic background, discrete source model 4−76861
correlation energy, n-body system of self-gravitating particles 4−58420
counts in seven distant clusters 4−46274
3 CR radiosources, optical identifications in 47 fields 4−73744
Cygnus A (2U 1957+40), X-ray spectrum of radiogalaxy 4−76860
DA 240, dimensions of radio galaxy at 49 cm. wavelength 4−71016
density waves, rate of growth in flat galaxies 4−76893
disc galaxy stability, numerical expts. 4−73782
distant clusters and nightsky brightness fluctuations 4−46266
galaxies continued
distribution in clusters, covariance function 4−54544
double object near Markarian 261 and 262, spectroscopy 4−58405
double water-bag model of one dimensional stellar systems, linear stability 4−50672
dwarf spheroidal galaxy, tidal effects of The Galaxy 4−54547
dwarfs, spiral and irregular 21 cm study 4−73791
elliptical, turnover radio spectra 4−80619
evolution, H I and total masses, colours and morphological type 4−65210
formation from nonlinear gravitational instability theory 4−73800
formation through separation from continuous matter background by density fluctuations, primordial turbulence theory 4−73829
gaseous ejections from active galaxies 4−58409
globular galaxy collisions, internal structure changes 4−73827
gravitational slingshot and binary galactic nuclei rel. to extragalactic radiosource structure 4−65181
gravitational-instability picture and galaxy distrib. in expanding universe 4−54546
gravitational-lens images of Seyfert nuclei, intensification shown to be inadequate for quasar models 4−50624
Hoag's object as distant compact galaxy, structure 4−71037
hot gas in galaxy clusters as source of background X-rays 4−54553
integrated X-ray background fluctuations rel. to galaxies 4−50650
BL Lacertae, distance from redshift and spectrophotometric obs. 4−50617
late stages of stellar evolution and integrated galactic light from ellipticals 4−65196
light polarization by interstellar dust 4−46282
LMC, 8 high-luminosity M-type supergiants 4−70992
LMC, BV photometry of OB stellar associations 4−76886
LMC, core He-burning in young open clusters 4−71039
LMC, Hα emission line stars, objective prism survey 4−76900
LMC, integrated UBV colours of 95 stellar clusters *(French)* 4−65206
LMC, JHKL photometry of 13 stars 4−73712
LMC, OB star detection, UBV photometry *(French)* 4−65202
LMC, stellar identifications for Hodge and Wright (1967) charts 4−73705
local cluster from peculiar velocities of field galaxies 4−54554
Lyapunov's stability of oscillations 4−58422
M31, mass from globular cluster motions 4−65197
M31, search for companion dwarf spheroidal galaxies 4−76885
M31, X-ray emission in 0.5-5 keV range 4−65198
M31 region, compact galaxy distrib. 4−54557
M33, gas density and star formation rate from star counts and high resolution radio obs. 4−80622
M33, mass determ. from H I velocities 4−62186
M33, spiral galaxy in local group BV photoelectric sequences 4−71038
M51, axisymmetric properties of spiral galaxy 4−71041
M51, digital analysis of colour structure 4−58429
M51, Hα obs. of kinematics and dynamics of spiral galaxy 4−71040
M51, spiral structure of spiral galaxy 4−71042
M82, H I absorption by radio inferometry 4−80626
M82 (3C 231), map at 5 GHz using 5 km radio telescope 4−76901
M87, relation to Virgo cluster extended X-ray source, 0.2-1.6 keV obs. rel. to M87 4−73770
M 31, dust distrib. and kinematics, photographic obs. 4−46283
M 31, radio continuum survey at 2695 MHz, 5 C 3 source positions 4−76892
M 31, synthetic models of stellar populations in central region 4−65208
M 33, 1415 MHz obs. of H II regions 4−62188
M 33, physical studies of emission regions in spiral galaxy 4−65207
M 33 and dynamics of nearby galaxies 4−73826
M 81, two faint dwarf galaxy companions 4−50673
Magellanic Clouds, abundances of A-type supergiants rel. to evolution 4−73733
Magellanic Clouds, observational data 4−73820
Magellanic Clouds, probable symbiotic and VV Cephei stars, spectra 4−76844
Magellanic Clouds, radial velocities and spectral type of non-supergiant stars *(French)* 4−65212
Magellanic Clouds, young massive star evolution colour magnitude obs. 4−58419
Markarian 348, type II Seyfert galaxy as variable radiosource 4−73793
Markarian 501, blue galactic nucleus with featureless spectrum 4−58418
Markarian 6, Seyfert galaxy, interferometer synthesis maps at 11.1 and 3.7 cm 4−80625
Markarian 7 and 8, UBVR surface photometry *(Russian)* 4−73780
Markarian 94 connection with galaxy III Zw 0834+51, spectroscopic obs. *(Russian)* 4−71034
mass distrib., dynamics of massive coronas 4−65215
mass-angular momentum diag. black hole limit 4−61984
mass/luminosity ratio and colour index for rotating galaxies 4−76903
models and stellar orbits 4−73810
multiple star encounters in systems with nonuniform mass stars 4−54561
narrow system of blue galaxies, BV colours and magnitudes *(Russian)* 4−73781
nearby galaxies, optical studies 4−73817
NGC 1023 group, dynamical stability 4−71045
NGC 1058, outlying SN 1961I obs., parent galaxy struct. 4−58363
NGC 1068, i.r. emission by dust in Seyfert galaxy, 5-27 μ obs. 4−65200
NGC 1068, Seyfert, 3.3 mm radio variability 4−80620
NGC 1068, Seyfert galaxy i.r. flux at 11 μ 4−46268
NGC 1275 in Perseus cluster, X-ray obs. in 0.5-3.1 keV range 4−50678
NGC 1566, Seyfert, spectrophotometry, photometry phtographs 4−50661
NGC 1569, extensive Hα filamentary system in irregular galaxy 4−73795
NGC 185, UBV photometry of globular clusters in elliptical galaxy 4−80638

galaxies continued
NGC 2403-M81 group bright star photometry rel. to Hubble const. 4−80623
NGC 2968/70, outlying SN 1970l, obs., parent galaxy struct. 4−58363
NGC 3256 (Henize 424=Wray 579), low dispersion spectra of peculiar interacting galaxy 4−73858
NGC 3351, complex hot nucleus, photometric structure 4−65216
NGC 3379, 3384, 3389, UBV photoelectric drift scans 4−76887
NGC 3783, Seyfert, spectrophotometry, photometry photographs 4−50661
NGC 4051, Seyfert, photometric structure 4−65216
NGC 4151, Seyfert, Balmer decrement, effect of inelastic electron-atom collisions 4−80452
NGC 4151, Seyfert, blue shifted absorption line spectrum 4−50662
NGC 4151, Seyfert galaxy i.r. flux at 11 μ 4−46268
NGC 4258, velocity field 4−80628
NGC 4278 and 4283, electronographic image analysis 4−73872
NGC 4303, galaxy bulge spectral investig. *(Russian)* 4−73796
NGC 4472, upper limit to HI content, 21 cm line obs. 4−62182
NGC 4618, peculiar pair of galaxies, photometric structure 4−65216
NGC 4676, peculiar double galaxy, spectroscopic obs. rel. to velocity difference and tidal model 4−46269
NGC 4826, dust layer, photometric structure 4−65216
NGC 5195, nucleus, stellar content and reddening 4−62180
NGC 520 quasar chain 4−83237
NGC 5360 irregular galaxy, redshift determ. *(Russian)* 4−71035
NGC 5408 (Henize 959), possible galaxy in local group 4−73858
NGC 5457, outlying SN 1909a obs., parent galaxy struct. 4−58363
NGC 646, interacting system, photography and spectroscopy 4−76895
NGC 7318B in Stephan's Quintet, distance limit, 21 cm obs. 4−50676
NGC 7319 in Stephan's quintet, distance determination anomalies rel. to supernova props. 4−58431
NGC 7343, discovery and photographic magnitude of supernova 4−80585
normal galaxies, reddening effect in central regions *(Russian)* 4−71047
normal spirals and ellipticals, polarization at 2695 and 8085 MHz 4−62177
nuclei, energy sources 4−73822
nuclei, review of violent activity 4−73821
nuclei energy source, magnetoid theory of accreting supermassive black holes 4−68441
observational abundance and theoretial yield agreement 4−70962
optical identifications of southern hemisphere Parkes radiosources 4−54512
optical structure of 3 C radio galaxies, electronographic obs. 4−73819
origin, irregularities in expanding universe, effect of lumpy matter distrib. 4−61985
Pegasus I cluster, upper limits for 21 cm emission 4−50658
Perseus cluster, high-energy X-rays and inverse Compton production 4−46271
Perseus cluster, upper limits for 21 cm emission 4−50658
Perseus cluster core, X-ray obs. in 0.5-3.1 keV range 4−50678
PKS 0521-36, N-type galaxy UBVRIJHKL photometry 4−73757
Population I Cepheids, amplitudes in the Galaxy and M 31 4−76833
protoclusters, radio emission and 21 cm line detection 4−46281
Puppis region, identification of 18 possible galaxies 4−46277
QSOs in directions of Abell galaxy clusters, radio obs. at 962 MHz 4−50628
radio flux density meas. of 240 bright galaxies 4−50682
radio obs. at 4850 MHz of normal objects 4−46276
radio obs. of nearby galaxies 4−73814
radio survey of interacting galaxies 4−50681
radiogalaxies in clusters, lifetime of radio emission 4−71055
radiogalaxies in rich clusters, steep spectra at 408 and 1407 MHz 4−73758
radiosources, astrophysical implications 4−73761
red shift, directional dependence 4−71046
redshift meas. for parent galaxies of supernovae 4−83249
redshift of galaxy near QSO (4C 11.50 a) 4−65214
relativistic astrophysics and galaxies, First European Astronomical Meeting, Vol. 3 (Athens, 4-9 Sept. 1972) 4−73813
rich clusters, galaxy counts and angular diam.-redshift relation 4−58425
rich regular cluster, association of spiral and irregular galaxies 4−58430
rotation curve waves, population effects 4−73828
rotational velocity decrease with oblateness for 40 flat galaxies 4−68453
satellite radiosources near spiral galaxies 4−58388
Seyfert, steady gas flow from nuclei 4−46273
Seyfert nuclei, emission line intensities in 3300-6750 A range 4−71052
Seyfert nuclei, gas cloud radiative acceleration 4−50623
Seyfert nuclei, high resolution 6 cm obs. 4−73790
Seyfert nuclei, high-velocity gas notions 4−73818
SMC, catalogue of dark nebulae 4−80662
SMC, objective-prism obs. of nova in nebular stage 4−73710
SMC, stellar cluster distribution analysis 4−76888
SMC transparency from background galaxy counts 4−80629
southern galaxies, 10 μ obs. of seven objects 4−73794
southern spiral galaxy nuclei, emissive gas properties *(French)* 4−73788
southern spiral galaxy nuclei photometry and spectroscopy 4−73787
spectroscopic survey of radiosource identifications, redshifts 4−73742
spiral, resonant stellar orbits 4−54548
spiral arms, mathematical form 4−54562
spiral arms and evolution 4−54551
spiral disc galaxies, gaseous flows 4−50660
spiral galaxy angular momentum per unit mass 4−65217
spiral galaxy model, relation between flat and spherical subsystems 4−54558
spiral galaxy vorticities generated by shock waves 4−71051
spiral generating 4−73824

galaxies continued
spiral structure, Pop. II stars and three-dimensional motion effects 4−50683
spiral structure, theory of resonances 4−73823
spiral structure rel. to density wave 4−54552
spirals, M/L and B-V correlation 4−73798
star encounters in spherical stellar systems 4−73801
star formation rate, sensitivity to interstellar heavy element abundance 4−50541
stationary stellar systems, third integral problem 4−73802
stellar drift motions rel. to spiral structure 4−73825
supergiant galaxies with multiple nuclei, spectroscopic obs. 4−71036
supernova frequency, types I and II, rel. to galactic population 4−58360
supernova frequency related to props. of parent galaxies, statistical survey 4−58359
supernova in NGC 4414, spectrograms and visual magnitude estimates 4−50601
supernova lifetime and mass from galaxy density wave theory 4−58378
supernova space distribution in parent galaxies 4−62164
supernovae as extragalactic distance indicators using scatter of absolute magnitudes 4−58362
Uhuru sources at high latitudes, indistinguishability of galactic and extragalactic objects 4−50643
variable N galaxies, trajectories in colour-colour diag. using Sandage model 4−50655
Virgo A, radio galaxy, 4 cm polarization 4−73760
vortex flow around singularities rel. to Jeans' galactic hypothesis 4−58415
X-ray emission from galaxy clusters rel. to radio emission and optical type 4−50677
X-ray galaxies rel. to background X-ray fluctuations 4−54536
H I distrib. in nearby galaxies 4−73815
H I obs. of external galaxies and intergalactic gas 4−76906
H ii regions in galaxies, second survey using $H\alpha$ obs. 4−50708
HI 21-cm line obs. of peculiar galaxies 4−73785

gallium
alkali halide:Ga^+, luminesc. decay times obs. at 295 and 77K 4−70354
amorphous, thin films, supercond. transition temp. 4−76025
amorphous film, elec. and supercond. props. 4−45040
Cauchy relations, deviations, 293K *(Russian)* 4−66959
diffusion in Al at grain boundaries, atomic ionolum. microanalysis obs. *(French)* 4−45564
diffusion through SiO_2 film into Si, h.f. capacitance and inversion voltage obs. 4−53621
ion, site occupancy effects on props. of $Y_{3-x}Sm_x(Fe_{2-y}Ga_y)(Fe_{3-z}Ga_z)O_{12}$ 4−70183
liquid, convective temp. oscillations 4−63946
liquid, diffusion of P, rel. to GaP cryst. growth rate in synthesis, solute diffusion method 4−45469
liquid, embrittlement of Al alloys and brazing of waveguides *(Russian)* 4−80055
liquid, interface with GaAs, substrate characts. influence on contact angles 4−48831
liquid, nuclear quadrupolar spin-lattice relaxation 4−79626
liquid, structural transform. obs. by exoelectron emission method 4−53587
liquid, structure factor investigation *(French)* 4−56603
liquid, structure factor meas. by X-ray scattering 4−48499
liquid, X-ray diffr. obs. between 163 and 323K *(French)* 4−52677
oxidation in H_2O_2, fabrication of tunnelling barriers 4−70114
spectral generation conditions in hollow cathode discharge during elec. charging *(Russian)* 4−59010
superconducting, intermediate state, longit. u.s. absorpt. *(Russian)* 4−70110
superconducting film, crit. field, electron paramagnetism effect 4−49116
supercooled liquid, homogeneous nucleation of cryst. Ga 4−66844
surface diffusion on Sn after laser irrad. and deform. *(Russian)* 4−79234
transverse sound, velocity dispersion in strong transverse mag. field *(Russian)* 4−82358
X-ray emission, $K\beta_2$ bands 4−82765
Au to Au diffusion bonding, Ga interlayer 4−73337
Ca:In, liq., tracer impurity diffusion 4−56899
Ga V, VI, VII, ground-state term intervals, spectra obs. 180 to 500 A 4−63329
Ga:Ag(Sn), liq., tracer impurity diffusion 4−56902
Ga:Au, liq. tracer impurity diffusion 4−56901
Ga:Zn(Cd), liq., tracer impurity diffusion 4−56900
Ga-Ga_2O_3 electrode, oxygen transfer with solid electrolyte CaO-stabilized ZrO_2, kinetics 4−45913
Ga-He liq., Kapitza conductivity, 1.2-1.8K, electronic thermal cond. 4−52956
Ga-Re contact, liq.-solid, FIM obs. of contact phenomena 4−48820
Ga-W contact, liq.-solid, FIM obs. of contact phenomena 4−48820
Ga + In + P mixtures, liquidus isotherms determ. rel. to temp., by cryst. dissolution method 4−52866
Ga + P system, phase equilibria, vapour press. investig., liquidus composition, thermodynamic props. determ. 4−52867
^{68}Ga prod. in ionic form from ^{68}Ge-^{68}Ga generator 4−70615
p-Ge:Ga, d.c. magnetoresist. in hopping cond. range 4−75889
Ge:Ga, dislocation motion, surmounting of local obstacles *(Russian)* 4−79042
Ge:Ga, interface demarcation obs. of facet growth and dopant segregation 4−61314
Ge:Ga, photoelectric current emission into electrolytic solution of KCl 4−57670
KCl:Ga^{2+}s, centre migration with charge transfer, light absorption *(Russian)* 4−82286
Si:Ga, electron irradiated, impurity effects on photoluminesc. 4−76305
YIG:Ga, anisotropy, magnetostriction 4−82576
YIG:Ga, film, domain wall motion, time var. 4−76126

gallium alloys
see also gallium compounds
brazing with Al waveguides *(Russian)* 4−80055

gallium alloys continued
Isotope Transmutation Alloying process feasibility 4—67766
liquid binary, change in molar volumes during formation *(Russian)* 4—52678
Au$_2$Ga, cryst. struct. and lattice consts. *(German)* 4—72443
Co$_c$Ga, (C=0.85-1.46), mag. props. rel. to atomic struct. 4—45098
Cu-Ga, diffusion layers, concn. profiles, 500 to 700°C *(German)* 4—48807
Cu-Ga, dilute alloy, asymptotic region of charge density oscillation around impurities 4—67465
Cu-Ga melt, short range order structure *(Russian)* 4—70453
Fe$_6$Ga$_5$ cryst. struct. determ. *(French)* 4—75477
Ga-Al-As, semiconducting, ternary melting diag., thermodynamic calc. 4—48738
Ga-As-Ge(Zn), ternary phase diagram calc., electronegativity data 4—56866
Ga-Cs system, phase diagram *(Russian)* 4—45538
Ga-In, elec. resist., −20 to 800°C *(Russian)* 4—48955
Ga-In, react. with O$_2$, i.r. spectra, struct. of prods. investig. 4—52157
Ga-K system, phase diagram *(Russian)* 4—45538
Ga-P-Ge, ternary phase diagram calc., electronegativity data 4—56866
Ga-Sn, liquid, change in molar volumes during formation *(Russian)* 4—52678
Ga-Sn, magnetic susceptibility in solid, liquid alloys *(Russian)* 4—79496
In-Ga, liq., compatibility with Ti alloys and alloy steels 4—71997
Nb-Ga system, phase relations *(French)* 4—67022
Nb$_3$Ga, depression of supercond. transition temp. after neutron irrad. 4—60907
Ni-Ga, thermodynamic study by e.m.f. meas. using solid electrolyte cells *(Japanese)* 4—64532
Ni$_2$MnGa, Heusler alloy, lattice parameter by X-ray examination, magnetic properties meas. 4—79510
Pd-Ga system, phase diagram and cryst. struct. of Pd$_5$Ga$_2$ *(German)* 4—61340
Pu-Ga(1 wt.%), liq., sound vel. meas. from m.p. to 950°C 4—66266
Sn-Ga, resistance measurements 4.2-55K, deviations from Matthiessen rule *(Russian)* 4—82389
Ti-Co-Ga, X-ray diffraction and microscopical analysis, phase equilibria *(Russian)* 4—76414
Ti-Fe-Ga, X-ray diffraction and microscopical analysis, phase equilibria *(Russian)* 4—76414
UGa$_3$, antiferromag. order, neutron diffr. 4—57292
V$_2$Ga$_5$, elec. and mag. obs. of supercond. props. 4—76003
V$_3$Ga, low temp. heat capacity meas., martensitic transform. obs. 4—57728
V$_3$Ga superconducting tape, microstruct. and crit. current density anisotropies 4—64159
Zn-Ga liq. systems, thermodynamic props., errors due to side reactions 4—45526

gallium arsenide
acoustoelectric instability, 77K, domain behaviour 4—72834
amorphous, hopping cond., calc. and meas. 4—79359
amorphous, structure investigation, comparison with Ge 4—82115
amorphous and cryst. films, densities of valence states, photoelectron obs. 4—60742
annealing of electron beam induced defects, elec. props. meas. *(Russian)* 4—67721
anodic oxidation props. of oxide film 4—49606
band structure, influence of impurity ions under moderate doping conditions. expt. 4—48914
band structure, nonlocal pseudopotential calc. 4—44849
bulk-excited, effect of increasing degeneracy on spontaneous emission line width at relatively higher temps. 4—49424
compensated, metal-insulator transition in mag. field 4—49048
compensated hot electron mobility, 4.2K and 1.8K 4—60806
crystal degradation by abrasion and subsequent heat treatment 4—49605
crystal growth, gradient freeze method 4—64497
crystal growth by Bridgman method, effects of thermal arrest 4—53602
crystal orientation and imperfections obs. *(Czech)* 4—66801
cyclotron effective mass 4—72696
cyclotron resonance, i.r., mag. fields up to 140 T 4—79292
Debye-Waller factors and melting criteria 4—75605
deep impurity levels and profiles, determ. 4—64036
diffraction grating, selective etching 4—79875
diffusion of Cu, epitaxial and bulk samples, carrier conc. 4—60645
diffusion of Se, proton-enhanced, theory and expt. 4—49590
diffusion of Zn, conc. depend., numerical calc. 4—60646
diffusion rate of Sn, acceleration by preliminary ion bombardment 4—75649
diode thermometer, V−T charact. in 4-300K range, accurate eqn. 4—77040
directional photoelectron emission from negative electron affinity 4—49530
dislocations, produced by device fabrication 4—61320
dislocations in (111) As plane, new etching agent 4—67114
donor concentration over large depths, electrochemical technique for continuous automatic plotting 4—49578
electro-optical modulator, extinction ratio meas. 4—46703
electron and positron scattering, anisotropic, obs. 4—48663
electron diffraction, obs. of anomalies in transmission patterns 4—52669
electron diffusion, generalisation of Fick's law 4—75846
electron energy loss spectra of surface states 4—72840
electron hole liquid, thermodynamics 4—79319
electron mobility, temp. depend., lattice mobility curve 4—82398
electron mobility and electrolytic etching, for f.e.t.'s 4—82414
electron-hole pair creation average energy, bandgap dependence 4—79316
electron-hole recombination enhanced defect reactions, junction meas. 4—70036
electron-optical phonon coupling, wave-vector depend. 4—56841
electrophotographic systems, low temp. charge transfer 4—71215
electroreflectance analysis, thermoreflectance analogy 4—45326
epitaxial, 1.0 eV impurity band in photolum. spectrum 4—61221

gallium arsenide continued
epitaxial, time decay of optically injected free carriers, reflectivity obs. 4—67252
epitaxial and polycrystalline growth in GaAs-I$_2$-He flow system, kinetics 4—44795
epitaxial deposition from Ga(CH$_3$)$_3$-AsH$_3$-H$_2$ system, thermodynamics, kinetics 4—75724
epitaxial growth, adsorption of GaI$_3$, H$_2$ and mixtures 4—67724
epitaxial growth, in system Ga(CH$_3$)$_3$-AsH$_2$-H$_2$, epitaxial layer quality rel. to growth conditions *(German)* 4—48874
epitaxial growth, liquid phase, for microwave devices 4—45460
epitaxial growth, vapour phase, in AsCl$_3$-Ga-N$_2$ system 4—53611
epitaxial growth from liquid phase *(Slovak)* 4—82823
epitaxial growth on corrugated GaAs substrate, for periodic p-n junction struct. production 4—73255
epitaxial layer, Hall effect, Schottky barrier capacitance, photoluminesc. 4—75888
epitaxial layer, liquid phase grown on semi-insulating substrate, elec. props. 4—64088
epitaxial layer preparation, from gaseous phase *(Czech)* 4—64506
epitaxial layers, electron density and mobility, photoluminescence and deep traps obs. *(Japanese)* 4—45025
epitaxial layers, impurity level obs. from photolum. spectra 4—70342
epitaxial layers, liq. phase produced, technology 4—53606
epitaxial layers selective growth, nonuniformity of thicknesses 4—67726
epitaxial vapour phase growth in N$_2$ atm., technique 4—70417
epitaxy, selective vapour phase, for optically pumped mesa surface laser 4—55479
etching by HCl-AsH$_3$-H$_2$ gas mixtures, thermodynamics 4—53619
excited donor states anal., low temp. photocond. meas. 4—72733
excited in Xe$^+$ bombardment, optical spectrum 4—74838
exciton and magnetooptic absorption spectra, mechanical stress influence 4—67611
excitons, degenerate, in mag. field, magneto-optical studies 4—75835
far i.r. optical properties of free carriers 4—82695
Faraday effect, intense mag. fields, electron effective mass obs. *(French)* 4—45275
film, electroabsorption, influence of built-in electric field 4—67610
film, epitaxial, residual cond. meas. after photoexcitation, elec. field appl. 4—75986
film, epitaxial growth on MgAl$_2$O$_4$ and props. 4—45472
film, in GaAs-Al$_x$Ga$_{1-x}$As double heterostruct., absorpt. and photolum. obs. 4—53549
film, laser deposition, structure w.r.t. vapour composition *(Russian)* 4—79884
film, morphology depend. on liq. phase epitaxy conditions 4—60701
film, selective depositing on sapphire substrates 4—45442
film, Stark broadening of photothermal ionisation spectra of donors 4—67626
film, use of AsH$_3$ for vacuum deposition 4—53629
films, growth from soln. by pulling between two parallel substrates 4—45446
films, microwave heating effect on I/V characteristics 4—70034
foil, transmitted, rel. to C replica prep. for transmission electron microscopy 4—46903
g-factor, transverse optical orientation effect *(Russian)* 4—70381
Ga$_{1-x}$Al$_x$As-GaAs, double heterojunction laser, optically induced defect nature 4—77683
p-GaAs-Mo, point contact junction, zero bias anomaly 4—67278
glow discharge optical spectroscopy for monitoring sputter depostion 4—75330
growth, comparison, of Ga and Sn as solvents *(German)* 4—75470
Hall effect measurement, Zn implantation annealing effect 4—44939
heat cycling, effect on surface from Rutherford scattering channelling obs. 4—53632
heat treatment, effect on electrical properties *(Korean)* 4—72797
heteroepitaxial layer, on BeO, electrical props. 4—60889
high field transport, electron-phonon interactions 4—48992
homogeneous single crystal 1/f noise measurement 4—82438
hot electrons, energy relax. effect, 77-300K, theory and expt. 4—64094
impact ionised, recomb. radiation from Landau states 4—82751
implanted layer elec. props. 4—75864
impurity and elec. inhomogeneity in single cryst., layerwise distrib. 4—49022
impurity hopping conduction, shallow levels, 4.2K 4—72774
injection laser, optical gain, saturation behaviour 4—71559
interband absorption of light, allowance for spatial field inhomogeneities 4—67558
interface with liquid Ga, substrate characts. influence on contact angles 4—48831
interference absorption coeff. of X-rays, depend. on dislocation density 4—56750
ion implanted, comparison of SiO$_2$, Si$_3$N$_4$ and AlN encapsulation dielectrics 4—53616
ion implanted, lattice expansion, annealing, X-ray obs. 4—76400
ion implanted injection laser, fabrication, operation 4—65920
ionisation energies of substitutional donor impurities 4—67181
ionisation threshold energy investig., cond., valence band calcs. 4—79825
i.r. window material, figure of merit calc. for appl. as small diam. window, 2-6 μm 4—58845
junction, anisotropic etching behaviour 4—60694
junction, I-V characteristics of abrupt n-n$^+$ junctions *(Italian)* 4—44987
junction laser, photon lifetime, laser length depend. 4—59430
junction laser, reflectivity depend. of photon lifetime 4—47355
laser, c.w., recent progress and new appl. reviewed 4—81326
laser, distrib. feedback homojunction injection, for integrated optics 4—74504
laser, distributed feedback, single heterojunction 4—77681
laser, double heterostruct., optical scattering loss due to P addition to ternary layer 4—55480
laser, double heterostructure, distributed feedback 4—77680
laser, large cavity double heterostructure, mode control 4—59434

gallium arsenide continued
  laser, recomb. in dense electron hole plasma, non conservation of k-selection rule 4—59429
  laser, transverse junction stripe geometry double heterostructure 4—69064
  laser damage thresholds, mechanism 4—55496
  laser diode, p-n-p-n, high optical power and short pulse 4—47357
  laser diode, pulse generator, 110 nsec for waveguide studies 4—42822
  laser diode double heterostructure, optical communication application 4—77721
  laser flux effects 4—74514
  lattice defects, annealing effects, etch pit obs. *(Japanese)* 4—75531
  layerwise inhomogeneity in crucible-free zone refined three-dimensional single crystals 4—45434
  line shapes in donor spectra at high magnetic fields 4—76289
  liquid phase epitaxial growth from supercooled solns. 4—49604
  liquid phase epitaxial growth mechanism determination, by growth meas. 4—75725
  liquid phase epitaxy, quartz sliding boat 4—67736
  luminescence, using laser excitation *(Russian)* 4—76290
  luminescence centre diffusion, heavily doped n-type sample 4—72590
  microstructure, SEM microanalyser in cathodoluminescent mode for surface nonuniformity obs. *(Russian)* 4—71250
  minority carrier lifetime, temp. depend., photoelectric meas. 4—67228
  minority carrier lifetime measurement 4—57105
  molecular beam epitaxy on GaAs, interface and doping profile characts. 4—61311
  monocrystals, high temperature processing *(Czech)* 4—64508
  monocrystals synthesis and growth *(Czech)* 4—67719
  m.o.s. electroluminescence *(Russian)* 4—73195
  m.o.s. structure manufacture growth of Si_3N_4 *(Russian)* 4—76405
  n^+ type, nature of defects 4—79043
  n-n^+ epitaxial layer, for Gunn diode, mobility and carrier conc. 4—64087
  n-type, Ag-Ge-In and Au-Ge-Ni ohmic contacts *(Slovak)* 4—64134
  n-type, band structure from piezoresistance and Hall coefficient, three band model 4—72704
  n-type, carrier conc. nonuniformity meas. by Faraday effect, apparatus design 4—68730
  n-type, conc. profile determ. by Faraday effect *(Russian)* 4—53631
  n-type, depletion region, Raman spectra of LO and TO phonons 4—67591
  n-type, electron microscope obs. of impurity structural effects *(Russian)* 4—72480
  n-type, electron scatt. pot. for ionized impurity, carrier mobility *(German)* 4—57082
  n-type, electron velocity meas. in range 20 to 50 kV/cm 4—70024
  n-type, epitaxial film, peculiarities of field effect *(Russian)* 4—72878
  n-type, free carrier light absorpt., 90-500K, 5-14 μm *(Russian)* 4—82702
  n-type, Hall factor and impurity band conduction 4—72796
  n-type, impact ionisation, far i.r. recombination spectra, electron transitions investig. 4—64442
  n-type, i.r. Faraday effect const. component investigation *(Russian)* 4—53401
  n-type, mag. field depend. of thermoelectric power in extreme quantum limit 4—44949
  n-type, obs. of temp. quenching in 1.28-1.30 eV emission band 4—53521
  n-type, ohmic contact technique 4—45441
  n-type, piezoresist. and Hall coeff., 78-400K 4—49025
  n-type, spectral depend. of plasma region refl. coeff., influence of surface treatment *(Russian)* 4—79724
  n-type, surface electric field influence on absorption coeff. 4—67612
  n-type, thin epitaxial film, drift mobility, time of flight technique 4—60798
  n-type, very low resistance Ni-AuGe-Ni contacts 4—60860
  n-type nondoped epitaxial, electrophysical props. in temp. range 10-1100K 4—79242
  negative affinity X-ray photocathode for imaging detectors 4—50728
  nonlinear optical susceptibility dispersion, 1.19-1.78 eV 4—62865
  nonsaturating velocity-field characts., domain meas. 4—75870
  ohmic contact, Schottky model *(Czech)* 4—60853
  ohmic contacts, at low temp., elec. props. *(Czech)* 4—60854
  optical absorption edge, hot electron effects 4—45322
  optical mode props., strain effects 4—45277
  optical orientation of spins of free and bound electrons 4—79793
  optical phonons, high non-thermal equilib. population 4—56840
  optical waveguide, phase matched second harmonic generation 4—77703
  optically pumped, emission under drifting field 4—73138
  oxide growth, struct., comp., elec. and encapsulating props. 4—67123
  p-type, compensated by defect prod. by fast electron irradiation 4—75898
  p-type, epitaxial growth from liquid phase *(Czech)* 4—61293
  p-type, excitation above band edge, optical pumping and transverse mag. field effect 4—49446
  p-type, low-temperature thermometry application *(Slovak)* 4—65404
  p-type, minority carrier distrib. and lifetime effects on threshold current of EBP laser 4—55483
  p-type hole relax. time, 300-673K, i.r. spectra obs. 4—48984
  p-type layers, substrate removal by selective etching in 2 stages 4—49615
  phase equilibrium, solid-vapour phase 4—44652
  phonon line broadening with polishing, surface refl. Raman scatt. obs. 4—44625
  photocathodes and secondary emitters, with negative electron affinity *(Czech)* 4—64471
  photoconductivity, compensated sample, induced Mott transition 4—72827
  photoconductivity and absorption in 2 to 0.25 mm, range using backward wave tube generators 4—53127
  photocurrent oscillation, phase memory effect 4—44959

gallium arsenide continued
  photoemission spectroscopy using synchrotron radiation, valence band struct. 4—64477
  photoexcited hot electrons, energy relaxation 4—44930
  photofield emission, p-type, sensitivity, time characts. *(Russian)* 4—67704
  photoluminescence, surface treatments effect, kinetic and static characts. *(Russian)* 4—73161
  piezoelectric constant, pseudopotential calc. 4—79676
  Pockels cell, single nanosecond pulse selection of CO_2 laser, reliable half wave operation 4—51083
  prototype structure, bonding calc., pseudopotential method 4—63787
  recombination uniformity control *(Russian)* 4—72794
  recrystallisation from melt, effective distrib. consts. of excess basic components, calc. 4—49625
  refractive index, doping and current depend. rel. to injection laser props. 4—49322
  refractive index, n- and p-type, carrier conc. depend., 1.2-1.8 eV 4—67543
  resonant piezoelectrooptical laser modulation 4—58846
  RHEED investigation of GaAs substrates *(German)* 4—75676
  RHEED investigations of vacuum evaporated films, reflection splitting 4—56760
  Schottky barrier, granular metal, Au or Ni cosputtered with SiO_2 or Al_2O_3 4—44993
  Schottky barrier avalanche photodiodes, obs. of unequal electron and hole impact ionisation coeffs. 4—60800
  Schottky barriers, photocapacitance effect in pure epitaxial layers 4—44964
  self induced transparency, resonant two-photon interaction with ultrashort light pulse, 77K 4—51647
  semiconductor laser, time characts. at near threshold currents 4—65921
  shallow donors, ionization energy, mag. field effect, Hall coeff. and elec. cond. obs. 4—60760
  small signal characteristics at high fields 4—60802
  solubility in Pb, 500-1200°C *(German)* 4—69895
  sputtered epitaxial film, constrained and metastable structures 4—75723
  structural defects, chemical etching of bulk GaAs 4—82324
  substrate, corrugated, liq. phase epitaxy of $Ga_{1-x}Al_xAs$ 4—61290
  substrate, for device applic., crystal growth and synthesis 4—57715
  superradiative state and echo from coherent quasi-particles in interband transition 4—49391
  surface, annealed, AES obs. of As vacancies 4—67690
  surface, Ar^+ bombardment, luminescence and mass spectra ejected particle characterisation 4—53564
  surface (100), clean and Cs-coated, LEED obs. *(Russian)* 4—48822
  surface polariton dispersion, attenuated-total-reflection spectral linewidth 4—44876
  surface roughness, influence of thermal oxidation obs. *(Czech)* 4—64509
  surface vibrational amplitudes, LEED obs. 4—56955
  Tamm states, k.p calc. 4—57156
  technology, for microwave and optoelectronic devices 4—49580
  thermal conductivity, effect of extended defects 4—48808
  thermoreflectance, obs. of struct., 4-9 eV 4—53466
  transient thermal scanning for deep level spectroscopy 4—75805
  transport properties in mag. field 4—75904
  tunnelling, obs. of TO phonon-hole interaction 4—53145
  two photon absorption, exciton effect, degenerate valence bands 4—64387
  uls. attenuation meas. 2 to 300K, phonon-phonon interaction damping 4—66996
  ultrasonic attenuation and velocity 4—60557
  u.s. meas., electrical conductivity and charge carrier mobility obs. *(Slovak)* 4—64074
  u.s. surface reflection from right angle corners 4—44743
  vacancy formation energy, atomistic calc. 4—69803
  vapour grown, transmission mode negative affinity, photoemission characs 4—79844
  vapour phase deposits, growth at different substrate temps. 4—49585
  X-ray emission, $K\beta_2$ bands 4—82765
  X-ray emission $L_{2,3}$ bands 4—67671
  X-ray scattering, K-edge anomaly, three crystal interferometric method *(Russian)* 4—66798
  $Al_{1-x}Ga_xAs$, lattice reflection spectra calc. by modified random-element-isodisplacement model 4—61157
  $Al_xGa_{1-x}As$, electroreflectance, impurity inclusions influence, comp. depend. *(Russian)* 4—67604
  $Al_xGa_{1-x}As$, liq. phase epitaxy on GaP *(Russian)* 4—45439
  $Al_xGa_{1-x}As$, optical orientation of spins of free and bound electrons 4—79793
  $Al_xGa_{1-x}As$ heterojunction electroluminescent diode, operating life, rel. to lasing props. 4—73191
  $Al_xGa_{1-x}As$:Ge, electron diffusion length, comp. depend. 4—60810
  $Al_xGa_{1-x}As$:Si l.e.d., electrolum. spectra in transition range between direct and indirect band struct. 4—67662
  $Al_xGa_{1-x}As$/GaAs double heterostructure laser material, dark-line degradation sites, etching and microscopy obs. 4—51606
  $Al_xGa_{1-x}As$-$Al_yGa_{1-y}As$, p-n heterojunction, on GaAs substrate, $(y>x)$, electrolum. characts. 4—49468
  $Al_xGa_{1-x}As$-GaAs, DH laser material, fluorescence deterioration after microscopic damage 4—57591
  $Al_xGa_{1-x}As$-GaAs-$Al_xGa_{1-x}As$, thin heterostruct., quantum states of trapped carriers 4—79407
  Ga-As system simple soln. treatment, thermodynamic evaluation 4—52865
  (GaAl)As-GaAs, double heterostructure laser with stripe geometry spectral characts. and inhomogeneities 4—69065
  GaAlAs-GaAs-GaAl-As, resonant tunnelling obs., quality depend. 4—67271
  $Ga_{1-x}Al_xAs$, laser, dark line defect growth 4—81327
  $Ga_{1-x}Al_xAs$, liq. phase epitaxy on GaAs with mech. surface corrugations, SEM obs. 4—61290
  n-$Ga_{1-x}Al_xAs$, photocond., 140-420K 4—60830
  $Ga_{1-x}Al_xAs$, refractive index calc. by semi-empirical method 4—61128
  $Ga_{1-x}Al_xAs$ superlattice, profiling by Auger electron spectroscopy 4—57692

gallium arsenide continued
$Ga_xAl_{1-x}As$, normal freezing, closed form eqn. 4–72560
GaAlAsP, heteroepitaxial layers, dislocation elimination 4–45436
GaAlAsP heteroepitaxial layer on GaAs substrate, dislocation elimination by controlled interfacial misfits 4–49602
GaAs Schottky barrier, reaction rate for Pt electrode 4–53604
GaAs:(Se,Si), epitaxial layer, transfer of dopant from $AsCl_3$, carrier conc. 4–44555
GaAs:B, defect. activated first order Raman scatt. from phonons obs. 4–67586
GaAs:C, epitaxial layer, photoluminescence obs. 4–64423
GaAs:Cd, impurity ion capture by vacancies in implanted layers 4–75648
GaAs:Cr, excited levels of Cr centre in reson. with cond. band., optical absorpt. and photocond. obs. 4–48932
GaAs:Cr, high resistivity, optically induced modulation of absorption 4–76287
n-GaAs:Cr, optical absorpt. meas., extrinsic transitions localised levels investig. 4–64413
GaAs:Cr, semi-insulating, with mixed cond., Hall and magnetoresist. meas. of carrier mobility 4–53108
GaAs:Cr-In, symmetric structure, negative resist. effects 4–75952
n-GaAs:Cu, field-induced deform. of impurity luminesc. spectrum 4–49457
GaAs:Cu, negative photocond. obs., quenching of injection current 4–67259
p-GaAs:Cu, temp. quenching of Cu-induced 1.35 eV emission band 4–79790
GaAs:Fe, compensation mechanism, Hall effect, e.s.r. and a.p.r. obs. 4–48933
GaAs:Fe, mag. susceptibility, temp. depend. 4–49156
GaAs:Ge, electron lifetime and diffusion const. 4–75853
GaAs:Ge, LPE, electrolum., photolum. and minority carrier diffusion length, dislocation effects 4–53008
GaAs:Ge, Si-Te epitaxial layer, elec. and optical props. rel. to semicond. lasers 4–57095
GaAs:Mn, epitaxial, wide-range thermometer 4–77041
GaAs:Mn, photoionisation cross section, 0.11-0.45 eV 4–49357
GaAs:N, i.r. refl., dispersion parameters, implantation effect 4–76243
GaAs:Na, electroluminesc. theory 4–67663
GaAs:Ni, opt. absorpt. spectra, meas. of acceptor level ionisation energy 4–49408
GaAs:O energy spectrum of impurity levels, photocond. and photoluminesc. meas. 4–67656
GaAs:O films, effect of growth temp. on phys. props. 4–45026
GaAs:Se, electron conc., influence of subsidiary extrema in conductivity zone 4–44817
GaAs:Se, epitaxial layer, strain, precipitation, dislocations 4–82329
GaAs:Se, nature of defects 4–79043
GaAs:Se dendrites, cryst. conditions effect on elec. props. 4–44912
GaAs:Se solid solutions, lattice constant meas. and elec. props. investigation 4–45450
GaAs:Si, Fermi level effect on Si site distrib. 4–60753
GaAs:Si, fusion-epitaxial layer prod. for l.e.d's *(German)* 4–49629
GaAs:Sn, highly doped single crysts., X-ray topographic obs. *(German)* 4–82184
GaAs:Sn layers, epitaxial growth and impurity conc. 4–49579
GaAs:Sn(Si)(Ge), compensation mechanisms investigation 4–67180
GaAs:Te, irrad. parameters depend. of elec. props. 4–60790
GaAs:Te, microstructure, impurity conc. depend. 4–79054
GaAs:Te, nature of defects 4–79043
GaAs:Te, nature of small etch-pits 4–82325
n-GaAs:Te, photoluminesc. spectra in strong mag. fields to 300 kOe 4–49455
GaAs:Te, solid soln., lattice const., elec. props., Te interstitial and vacancy conc. 4–44531
GaAs:Te, thermal cond., dislocation-phonon interaction investigation *(French)* 4–75654
GaAs:Te 70 keV ion implantation, annealing effects, photoluminescence and He ion channelling obs. 4–49610
GaAs:Te dendrites, cryst. conditions effect on elec. props. 4–44912
GaAs:W(Ti)(Co)(Mo)(Cr), deep level impurities, photoluminescence 4–76308
GaAs:Zn,Sn, lateral diffusion when using phosphosilicate glass masks 4–57697
GaAs:Zn diffusion layers, structural perfection of p region near a p-n junction 4–67274
GaAs-(AlGa)AS, injection laser, radiation fields 4–71558
GaAs-$Al_xGa_{1-x}As$ double heterostruct. laser, degradation 4–51607
GaAs-AlAs heterojunction-based l.e.d.s 4–82753
GaAs-AlAs superlattice, high field domain generation, tunnelling 4–70027
GaAs-Au contact, barrier height, semicond. surface layer thickness depend., interpretation 4–53144
GaAs-$Ga_{1-x}Al_xAs$, laser, current depend. on carrier lifetimes 4–59428
GaAs-$Ga_{1-x}Al_xAs$ double heterostructure laser diode, with output power >80 mW, continuous operation over 2500 hr 4–74507
GaAs-GaAlAs, DH laser with corrugated interface, threshold reduction, analysis 4–47360
GaAs-GaAlAs double heterostruct. cryst., dark line growth from cryst. defects 4–72467
GaAs-GaP p-p heterojunctions, surface and interface recomb. vel. meas. 4–67276
GaAs-Te, effect of heat treatment on struct. perfection 4–48759
$GaAs_xGa_{1-x}As$ injection laser, doping effect on degradation 4–65919
GaAsP, p-n junctions, growth from gaseous phase *(Czech)* 4–64506
$GaAs_{0.6}P_{0.4}$, p-n junction, multiple level defects in n-type material, photocapacitance meas. 4–75953
$GaAs_{0.62}P_{0.38}$, refr. index, 1.2-2.0 eV 4–67544
$GaAs_{0.62}P_{0.38}$, Zn ion implantation, light emitting diode appl. 4–49577
$GaAs_{1-x}P_x$, electroluminesc. obs. at 77 and 295K with x corresponding to indirect band struct. 4–67665
$GaAs_{1-x}P_x$, epitaxial chemical etching of structural defects 4–82324
$GaAs_{1-x}P_x$, liq. epitaxy at const. temp. 4–82830
$GaAs_{1-x}P_x$, uniaxial stress effects on red emission characts. of l.e.d. 4–53535

gallium arsenide continued
$GaAs_{1-x}P_x$ ($x>0.06$) vapour phase epitaxy, gas-solid relationships and optimum growth conditions 4–53618
$GaAs_{1-x}P_x$:N, ion implanted, photolum. 4–53497
$GaAs_{1-x}P_x$:N, ion-implanted, ($x=0.52$), photolum., 2K 4–76296
$GaAs_{1-x}P_x$:N, quasidirect recomb. and l.e.d. performance, cryst. comp. effects 4–70365
n-$GaAs_{1-x}P_x$:N, Zn, photoluminesc., radiative recombination investig. 4–64434
$GaAs_{1-x}P_x$:N,Zn, recomb. transitions in direct and indirect comp. regions 4–53494
$GaAs_{1-x}P_x$:N^+, radiative recomb., behaviour of above-gap NN pair states, 77K 4–59432
$GaAs_{1-x}P_x$:Se,Te, epitaxial growth using sandwich method *(Czech)* 4–67720
n-$GaAs_{1-x}P_x$-Au, barrier height depend. on energy gap 4–82481
$GaAs_xP_{1-x}$ lattice-mismatched deposits on GaAs, asymmetric cracking obs. 4–49607
$GaAs_{1-x}P_x$(:N), spontaneous and stimulated carrier lifetimes 4–49416
$GaAs_xSb_{1-x}$, intrinsic photocond. in presence of mag. field to 65 kG *(French)* 4–49034
$(GaAs)_{1-x}Si_x$, nonequilibrium solid soln., epitaxial growth 4–82814
$GaP_{0.3}As_{0.7}$:Zn, excess circular polarization of luminesc. as result of optical orientation of spins 4–57625
n-$GaP_{0.35}As_{0.65}$, magnetis. by light and n.m.r. during optical pumping in transverse field *(Russian)* 4–79615
GaP_xAs_{1-x}, optical orientation of spins of free and bound electrons 4–79793
Ge/GaAs heterojunction, gas transport and vacuum condensation, struct. effects *(Russian)* 4–73258
(In,Ga)As, photoemission, Cs-O activation temp. effect on surface escape probability 4–64472
(In,Ga)As, vapour grown, transmission mode negative affinity, photoemission characts. 4–79844
In-GaAs:Cr-In, recom., radiation, high-freq. instability in strong elec. fields *(Russian)* 4–73198
$In_{1-x}Ga_xAs$, thermal diffusivity and thermal cond., depend., 300-750K 4–56850
$In_xGa_{1-x}As$, epitaxial layer, electron Hall mobility meas., phonon and disorder scatt. 4–45028
$In_xGa_{1-x}As$ epitaxial film, optical absorpt. coeff. as function of x and Zn acceptors 4–45316
$In_{0.5}Ga_{0.5}P$-$Ga_{0.4}Al_{0.6}As$, growth and laser operation 4–77682

gallium compounds
see also gallium alloys; gallium arsenide
c GaP:O, cryst. growth, encapsulated Czochralski method, total O content by ion beam analysis 4–45451
X-ray emission, $K\beta_2$ bands 4–82765
X-ray spectroscopic investigations of chem. bonding *(German)* 4–64455
$Al_xGa_{1-x}As$, p-n junctions from mol. beam epitaxial layers 4–57163
$Al_xGa_{1-x}P$, epitaxially grown, donor-acceptor pair and bound exciton recomb. 4–73179
$Al_xGa_{1-x}Sb$, growth of film by liquid phase epitaxy with temp. gradient 4–45481
Ga-Ga_2O_3 electrode, oxygen transfer with solid electrolyte CaO-stabilized ZrO_2, kinetics 4–45913
Ga-P system simple soln. treatment, thermodynamic evaluation 4–52865
n-GaAlAs, ohmic contact technique 4–45441
(GaAl)As-GaAs, double heterostructure laser with stripe geometry spectral characts. and inhomogeneities 4–69065
$Ga_{1-x}Al_xAs$, refractive index calc. by semi-empirical method 4–61128
$Ga_{1-x}Al_xAs$ epitaxial layers, comp. determ. by electron probe microanalysis *(German)* 4–50161
$Ga_3Al_2Ge_3O_{12}$, e.p.r. of V^{4+} 4–67444
$Ga_{1-x}Al_xSb$, optical absorption coeff. and photovoltage meas. near absorption edge *(French)* 4–82713
GaAs, as-grown, effect of precipitate-like zone on opt. absorptivity 4–60491
GaAs, conduction in disordered layers produced by ion implantation 4–57092
GaAs, Schottky barriers and p-n junctions from mol. beam epitaxial layers 4–57163
GaAs, surface stoichiometry and struct. during growth 4–56947
GaAs, vapour phase epitaxial growth, difference in (001) facet and vicinal planes 4–57680
GaAs native oxide, mask for Zn diffusion 4–61315
GaAs:$^{n,m,n+m}$Si, ($n=28,30$), i.r. absorpt. 4–57514
GaAs-GaP p-p heterojunctions, surface and interface recomb. vel. meas. 4–67276
n-GaAsP, ohmic contact technique 4–45441
GaAsP p-n junctions, growth from gaseous phase *(Czech)* 4–64506
$GaAs_{0.6}P_{0.4}$, p-n junction, multiple level defects in n-type material, photocapacitance meas. 4–75953
$GaAs_{0.62}P_{0.38}$, elec. and electroluminesc. props., effect of reactant gas vapour pressure during growth 4–57709
$GaAs_{0.62}P_{0.38}$, refr. index, 1.2-2.0 eV 4–67544
$GaAs_{0.62}P_{0.38}$, Zn ion implantation, light emitting diode appl. 4–49577
$GaAs_{1-x}P_x$, electroluminesc. obs. at 77 and 295K with x corresponding to indirect band struct. 4–67665
$GaAs_{1-x}P_x$, liq. epitaxy at const. temp. 4–82830
$GaAs_{1-x}P_x$, uniaxial stress effects on red emission characts. of l.e.d. 4–53535
$GaAs_{1-x}P_x$:N, ion implanted, photolum. 4–53497
$GaAs_{1-x}P_x$:N, ion-implanted, ($x=0.52$), photolum., 2K 4–76296
$GaAs_{1-x}P_x$:N, quasidirect recomb. and l.e.d. performance, cryst. comp. effects 4–70365
$GaAs_{1-x}P_x$:N,Zn, recomb. transitions in direct and indirect comp. regions 4–53494
$GaAs_{1-x}P_x$:N^+, radiative recomb., behaviour of above-gap NN pair states, 77K 4–59432
$GaAs_{1-x}P_x$:Se,Te, epitaxial growth using sandwich method *(Czech)* 4–67720
$GaAs_xP_{1-x}$, thin film prep. using controlled AsH_3 and PH_3 vacuum deposition 4–53629

gallium compounds continued
$GaAs_{1-x}P_x$(:N), spontaneous and stimulated carrier lifetimes 4−49416
$GaAs_xSb_{1-x}$, intrinsic photocond. in presence of mag. field to 65 kG *(French)* 4−49034
GaAs(c), vapour press. of As investig., enthalpies of form., decomp. determ. 4−52886
$GaBr_3(Cl_3)(I_3)$ vapours, i.r. absorpt. spectra, vibr. freqs. 4−69489
GaCN, gaseous, mass spectra 4−52229
Ga(III) complex, tris(acetylacetonato)gallium(III), cryst. and mol. struct. 4−48558
$Ga_yIn_{1-y}As_xP_{1-x}$, band gap and lattice constant as function of alloy comp. 4−72697
$Ga_{0.5}In_{0.5}P$, electroluminescence of p-n junction 4−76320
$Ga_xIn_{1-x}P$, epitaxial, $0.45<x<0.5$, photolum., 4.2-300K 4−82746
$Ga_xIn_{1-x}Sb$, scattering processes, transport phenomena under pressure 4−57096
$Ga_xIn_{1-x}Sb$ solid solns., liq. phase epitaxy, conditions for homogeneous growth *(French)* 4−53605
$Ga_xIn_{1-x}Sb$ velocity field characteristic 4−75869
$GaMn_3C$, Mossbauer effect of ^{57}Fe, antiferro-ferromag. transition *(French)* 4−61080
GaN, band struct., props. and possible applications, review 4−75783
GaN, cathodoluminescence, and method of growth from Ga_2O_3 4−76323
GaN, electroluminescence, technology and applications *(Czech)* 4−64439
GaN, epitaxial, built-in strain effect on luminescence and absorption spectra 4−82740
GaN, epitaxial growth from Ga, HCl and NH_3, growth parameters, kinetics 4−45477
n-GaN, epitaxial layer, i.r. Faraday rotation obs. at room temp. 4−70284
n-GaN, epitaxial vapour deposition, carrier conc., mobility and photoluminescence *(Japanese)* 4−45438
GaN, form. from GaP + NH_3 reaction 4−45444
GaN, fundamental energy gap, determ. from photolum. excitation spectra 4−79291
GaN, grown by vapour phase epitaxy, i.r. absorption 4−53425
GaN, growth from vapour morphology and lattice struct. 4−45478
GaN, growth of sphalerite struct. by vapour phase reaction 4−53633
GaN, i.r. absorption spectra, phonon-plasmon modes 4−67573
GaN, semi-insulating and degenerate n-type, heat-cleaned or caesiated, photoemission 4−73235
GaN, thermal expansion, X-ray obs. for epitaxial growth techniques 4−56893
GaN film, s.c.l. current flow 4−79421
GaN:Cd, epitaxial layer, luminesc., 1.6-300K, energy depend. 4−61207
GaN:Mg point contact diodes, violet electrolum. 4−76316
GaN:Zn, photoluminesc., implanted ion conc. depend. 4−45348
GaN:Zn-In, metal-insulator-n-type diode, electrolum. model 4−70367
Ga_2O, Ga_4O_2, $GaIn_{4-x}O_2$, form., matrix isolated, i.r. spectra, force consts., struct. determ. 4−52157
β-Ga_2O_3, electrical conductivity and thermogravimetric studies, 400 to 1000K 4−44924
β-Ga_2O_3, enthalpy and thermal capacity at high temp. 4−69916
β-Ga_2O_3, Ga^{3+} substitution by Fe^{3+}, Cr^{3+} ions, e.s.r. investig. of kinetics *(German)* 4−57843
Ga_2O_3, growth of GaN 4−76323
β-Ga_2O_3, neutron damage effects on elec. cond. and thermoelectric power, defect annealing 4−69832
β-Ga_2O_3, refr. index meas., orientation depend. 4−45263
β- Ga_2O_3 vapour grown platelike crystals, absorption and reflection spectra 4−82719
Ga_2O_3-MgO system, decomp. of nonstoichiometric spinel, periodic antiphase struct. of intermediate phase 4−56858
GaP, amorphous and cryst. films, densities of valence states, photoelectron obs. 4−60742
GaP, annealing effect obs. by photoluminesc., Hall effect and X-ray diffraction 4−49012
p-GaP, anomalous defects, etching obs., doping depend. 4−75528
GaP, binary phase system, vapour press. investig., liquidus composition, thermodynamic props., determ. 4−52867
GaP, classical particle description of photons and phonons, synthesis of classical mechanics and geometrical optics 4−74200
GaP, conduction band X_3 effective mass and spontaneous emission time of X_1 and X_2 conduction band transitions 4−60739
GaP, cryst. growth rate using synthesis, solute diffusion method, rel. to P diffusion in liquid Ga 4−45469
GaP, crystal orientation and imperfections obs. *(Czech)* 4−66801
n-GaP, deep donor states, thermally stimulated current obs. 4−57046
GaP, electrolum. spectra, 77-293K *(Russian)* 4−53537
GaP, epitaxial growth from fluid phase *(Czech)* 4−61297
GaP, epitaxial layers, dislocation density 4−60702
GaP, epitaxial layers, zone recrystallisation with temp. gradient, growth kinetics *(Russian)* 4−73260
GaP, free excitons in luminescence spectra 4−73183
GaP, green emitting diodes, electrolum. decay time, quantum efficiency 4−64441
GaP, green-emitting p-n junction lamps, nonradiative recomb. centres 4−64132
GaP, growth from non-stoichiometric and stoichiometric melts *(Czech)* 4−64505
GaP, high pressure growth for l.e.d.'s 4−57689
p-GaP, hole mass, sub mm cyclotron reson. in pulsed mag. field 4−72698
GaP, homogeneous single crystal 1/f noise measurement 4−82438
GaP, ion-implanted, optical props. and channelling 4−61307
GaP, l.e.d. fabrication by heteroepitaxy on spinel substrate, props. 4−49624
p-GaP, lattice thermal cond. investigation at low temp. 4−67010
GaP, N conc. determ., light absorpt., proton induced nucl. reactions 4−61313
GaP, N doping using NH_3 dopant source 4−70421
GaP, n-ν, p-ν-n structs., elec. and photoelec. characts. 4−70068
GaP, ohmic contact, Schottky model *(Czech)* 4−60853
GaP, one and two phonon Raman spectra up to 128 kbar 4−57533

gallium compounds continued
GaP, p-n junction, thermally stimulated current meas., trap levels 4−49060
GaP, p-n junction, ZnO and O centre characts., apparatus 4−74092
GaP, photocathodes and secondary emitters, with negative electron affinity *(Czech)* 4−64471
GaP, photoemission spectroscopy using synchrotron radiation, valence band struct. 4−64477
GaP, prep. of thin film using PH_3 vacuum deposition 4−53629
GaP, radiative exciton recomb. on isoelectronic impurities *(Russian)* 4−79803
GaP, reaction with NH_3, form. of GaN or GaP:N 4−45444
GaP, semiconductor-to-metal transition under high press. 4−44975
GaP, single cryst., effects of voltage pulses on surface *(Russian)* 4−70057
GaP, solubility in Pb, 500-1200°C *(German)* 4−69895
GaP, sp. ht., 15-150K, comparison with values calc. from Raman spectra 4−52899
GaP, surface polariton dispersion, attenuated-total-reflection spectral linewidth 4−44876
GaP, temp. depend. anal. of charge carrier conc. 4−82397
GaP, thermoreflectance spectra, obs. of struct., 4-9 eV 4−53466
GaP, two-phonon Raman spectrum, selective resonant enhancement 4−57551
GaP, vapour phase epitaxy, dislocations, and effects on l.e.d. performance 4−57710
GaP, X-ray diffr., defect enhanced sensitivity 4−44439
GaP, zone melting without crucibles, power regulation *(Bulgarian)* 4−57694
GaP crystals, luminesc. quality, optical techniques for characterisation, review 4−73194
GaP epitaxial growth, large area, from gaseous phase *(Czech)* 4−61294
GaP epitaxial layer, growth using chloride transport method, influence of temperature distribution obs. *(Czech)* 4−64507
n-GaP epitaxial layer obs., using electrical and mass-spectral methods *(Czech)* 4−64511
GaP film, laser deposition, structure w.r.t. vapour composition *(Russian)* 4−79884
GaP films, vapour deposition on NaCl and mica, structure obs. 4−49584
GaP high-brightness yellow and green LED display prod. by vapour phase epitaxy 4−49630
GaP layers on Ge substrate, prep. and struct. props. 4−48873
GaP liquid phase epitaxy, N incorporation rel. to growth temp. and NH_3 partial pressure 4−53617
GaP monocrystals obs., epitaxially grown, secondary ion mass spectrometry application *(Czech)* 4−64510
GaP p-n junctions, growth from gaseous phase *(Czech)* 4−64506
GaP polycrystals, direct synthesis and vertical Bridgman method *(Czech)* 4−67719
GaP solid composition, Ga and P vacancy conc. isobars 4−52753
GaP solidus curve, Ga and P vacancy conc. determ. 4−52752
GaP substrate, for device applic., crystal growth and synthesis 4−57715
n-GaP surface barrier structure, forward current flow mechanism 4−82483
GaP:Cr, excited levels of G centre in reson. with cond. band, optical absorpt. and photocond. obs. 4−48932
GaP:Cs, negative electron affinity, secondary and photoemission meas. 4−76342
GaP:Fe^{3+}, first ENDOR meas. on defect centre in III-V compound *(German)* 4−76193
GaP:Ge, photluminesc., pair emission bands, temp. depend. 4−53507
GaP:Ge, photocond. quenching by impurity levels 4−75923
GaP:Ge, photoluminesc., 80-180 K, conc. depend. *(Russian)* 4−45349
GaP:Ge, photoluminesc., pair emission band shapes 4−53506
GaP:In(Al), free excitons in luminescence spectra 4−73183
GaP:N, 1.6K photoluminesc. at high N concs. 4−49451
GaP:N, electron ground state, screened ionic pseudopotential 4−60754
GaP:N, hydrostatic press. effect on photocond. and electroluminesc. 4−45365
GaP:N, stimulated emission, luminesc. decay time 4−73139
GaP:N epitaxial layers, doping, use of GaN *(Czech)* 4−61296
GaP:O, pseudo impurity theory for binding energy of first-row deep donors 4−57049
GaP:S, Mn^{2+}, Zn^{2+} ion implantation 4−79876
GaP:S,C, luminesc. obs. at 8K, use of pulsed dye laser system 4−65425
in-GaP:Te, free-carrier piezobirefringence obs., shear-deformation potential const. determ. 4−67552
p-GaP:Zn, diffuse layers prep. with low surface conc. *(Czech)* 4−61295
p-GaP:Zn,O, dope-dependent luminescence efficiency degradation, obs. 4−49465
GaP:Zn,O(Te) p-n junctions, Zn and Te dopant parameters from C-T meas. 4−60850
GaP:Zn(S), minority carrier diffusion length, lifetime, conc. depend. 4−72763
n-GaP-Au, surface barrier structure, photoelectric properties in u.v. spectrum 4−72866
$GaP_{0.3}As_{0.7}$:Zn, excess circular polarization of luminesc. as result of optical orientation of spins 4−57625
GaP_xAs_{1-x}, optical orientation of spins of free and bound electrons 4−79793
GaP(110), ellipsometric study of chemisorption 4−48858
GaS, Raman and i.r. spectra, vibrational assignment 4−53432
GaS_xSe_{1-x}, exciton absorption spectra 4−76273
GaS(Se)(Te), energy gap, effect of thermal expansion 4−82366
GaSb, amorphous, band struct., Kohn variational method 4−69976
GaSb, amorphous and cryst. films, densities of valence states, photoelectron obs. 4−60742
GaSb, Debye-Waller factors and melting criteria 4−75605
GaSb, electron beam pumped laser, KGS-3, stimulated emission obs. at 1.6 μ 4−77687
GaSb, $\Gamma(000)$ conduction band parameters, Faraday effect meas. 4−44852

gallium compounds continued
p-GaSb, high field Hall coeff., uniaxial stress effect 4−49008
p-GaSb, lattice thermal cond. investigation at low temp. 4−67010
GaSb, luminesc. quasiexciton nature, phase transition possibility in eectron-hole plasma 4−76310
GaSb, molecular dissoc. energy 4−80177
GaSb, nonlinear optical susceptibility dispersion, 1.19-1.78 eV 4−62865
GaSb, ohmic contacts, prep. and props. 4−64136
GaSb, optical obs. of lattice vibrs., theoretical approach 4−56837
p-GaSb, optical pumping, excitation effects above band gap 4−49446
p-GaSb, phonon cond. and photon scattering by bound holes 4−82239
GaSb, phonon line broadening with polishing, surface refl. Raman scatt. obs. 4−44625
GaSb, superradiative state and echo from coherent quasi-particles in interband transition 4−49391
GaSb, tunnelling, obs of TO phonon-hole interaction 4−53145
p-GaSb elastic moduli and deformation potential constants determ. using pulse-pulse technique 4−66958
GaSb monocrystals, high temperature metallography *(Czech)* 4−64508
GaSb vapour phase deposits, growth at different substrate temps. 4−49585
GaSb:Li, compensated, obs. of free hole and hopping transport props., Hall effect meas. 4−53110
n-GaSb:Te, Nernst-Ettingshausen effect, Seebeck coeff. and electron scatt. 4−44938
GaSe, anomalous valence band anisotropy 4−48911
GaSe, carrier mobility, transient charge technique *(German)* 4−82400
GaSe, charge density of valence electrons determ. from pseudo-wave-functions calc. 4−67147
GaSe, conversion of i.r. light into near i.r. and visible 4−74529
GaSe, crystal growth from vapour 4−64516
GaSe, elec. cond. change due to strong microwave fields 4−70035
GaSe, electron-beam excited, spontaneous and stimulated emission, possible laser appl. 4−82716
GaSe, electron-lattice interaction 4−75893
GaSe, higher interband electroreflectance struct. around 3.37 eV 4−61177
GaSe, hyperbolic exciton absorpt. 4−76274
GaSe, layered crystals, optical properties in fundamental absorption band interior 4−76280
GaSe, optical absorpt. edge press. depend. 4−45321
GaSe, optical freq. up-converter, expt. arrangement *(French)* 4−65939
GaSe, photoluminescence spectra meas. at 4.2 to 300K, following laser excitation 4−67643
GaSe, single cryst., edge luminesc. band assignments 4−76311
n-GaSe, space-charge limited current meas., existence of deep electron traps 4−82428
p-GaSe, switching effect obs. in static and varying elec. fields 4−57152
GaSe single crystals, edge emission at high excitation levels, temp. depend. 4−67645
$Ga_2(Se_xTe_{1-x})_3$, solid immiscibility and liq. struct. investigation 4−67046
GaTe, derivative reflectivity lineshape meas. near fundamental edge, exciton binding energy 4−49376
GaTe, layered crystals, optical properties in fundamental absorption band interior 4−76280
GaTe, metal like semicond. melt, Hall coeff. meas. 4−79371
GaX_3 (X=Cl_2Br,I), He I photoelectron spectra 4−72238
$2GaX_3 \rightleftharpoons Ga_2X_6$ (X=Cl, Br or I), variable temp. He I photoelectron spectra 4−52256
Gap:Ge, cond. and photoluminesc., conc. depend. of Ge behaviour 4−79348
Gd-Ga garnet, crystal defect mapping, luminesc. obs. 4−44547
$Gd_3Ga_5O_{12}$:Nd laser, transition probability 4−81321
GeO_2-La_2O_3-Ga_2O_3 system glasses, viscosity and elastic props. correl. with phase diagram 4−67897
InAs-GaAs solid soln., iodide transfer, effect of source comp. 4−53610
$In_{0.48}Ga_{0.52}P$, on GaAs, luminesc., laser and carrier lifetime behaviour 4−49417
$In_{1-x}Ga_xP$:Te, carrier conc., cond., Hall mobility, temp. depend. 4−82408
$In_{1-x}Ga_xP$:Te, Hall mobility, comp. depend., 300K 4−75890
$In_xGa_{1-x}P$ lattice-mismatched deposits on GaAs, asymmetric cracking obs. 4−49607
$Mn_3Ga_xR_{2-x}Ge_3O_{12}$, (R=Al,Cr,or Fe), i.r. spectra 4−49366

gallium phosphide light emitting diodes *see light emitting diodes*

galvanomagnetic effects *see magnetoelectric effects*

galvanomagnetism *see electromagnetism*

galvanometers
superconducting low inductance undulating galvanometer, noise limitations 4−77123

galvanothermomagnetic effects
metal, electron diffusion magnetothermopower, model 4−70010
metal, phonon conductivity, influence on thermal magnetoresistivity tensor 4−72754
Bi, magneto-Seebeck effect, obs. of phonon drag at high mag. field 4−49018
Cu-Cr alloy, dil., transport props. in mag. field 4−53082

game theory
see also information theory
linear control system, anal. as estimation game with conflicting controls *(Russian)* 4−47050
matrix game problem 4−65648
minimax principle application to reactor in-core monitoring system design 4−43587
nonlinear differential games, problem of pursuit *(Russian)* 4−47052
pulsed pursuit of point particle moving with limited traction *(Russian)* 4−47051

gamma fission reaction *see photofission*

gamma radiation *see gamma-rays*

gamma-ray absorption
see also Mossbauer effect; nuclear reactions and scattering due to photons
absorbed fractions for small bodies, cube root of mass dependence 4−51927
in astronomical X-ray sources 4−65193
bone mineral content determ. by absorption of 17.8 to 59.6 keV photons 4−65573
bone mineral content estimation, at selected skeletal sites 4−68512
building materials, Mexican, gamma-ray attenuation coeffs. meas. *(Spanish)* 4−78301
cervical applicators, dose distrib. correction factors for wall attenuation 4−50897
human tissue attenuation coeffs., diagnostic applic. 4−50831
infinite medium buildup factors including bremsstrahlung contribution 4−81701
Invar, plastic deformation, nuclear gamma resonance *(Russian)* 4−67500
ionisation chamber, neutrons and gamma radiation absorbed doses determination errors 4−51155
metal foil, 3.3-165.8 keV photon attenuation, photoelec. cross sections 4−80985
nuclear spin systems, quantum absorpt. theory *(Russian)* 4−64297
self-absorption effects in passive assays 4−55117
Al 250 to 550 MeV, total absorpt. cross-section 4−63127
C, 250 to 550 MeV, total absorpt. cross-section 4−63127
^{109}Cd, use in body composition assay, errors and reproducibility 4−46418
Cu 250 to 550 MeV, total absorpt. cross-section 4−63127
NbHf alloys, quadrupole interaction, temp. depend. 4−79659

gamma-ray angular distribution
see also gamma-ray spectra
:- 4−71935
annihilation photon angular correlation, exptl. resolution 4−46800
anthracene, positron annihilation, obs. of ang. distrib. of annihilation radiation 4−48652
metals, Doppler broadening of positron annihilation photons 4−82196
PAC, zero field, paramag. relax. effects *(French)* 4−45211
PAC in fluctuating extranuclear field 4−51794
perturbed angular correlation and multiple lifetime expts., data analysis method 4−77168
phenanthrene, positron annihilation, obs. of ang. distrib. of annihilation radiation 4−48652
polyethylene, positron annihilation, annihilation gamma ray ang. distrib. and time spectra 4−60516
rare earth metal:Ta, elec. quadrupole interaction at impurity, PAC obs. 4−73062
Teflon, positron annihilation, annihilation gamma ray ang. distrib. and time spectra 4−60516
(γ,$\gamma\gamma$), high energy, photon ang. distrib. and prod. mechanism *(Russian)* 4−63136
$\gamma\gamma$ angular correlation experiments, perturbations as interference phenomenon 4−62514
Al, angular correlation for electron momentum density distribution *(Russian)* 4−82197
^{27}Al(p,γ)^{28}Si, 1.118 MeV resonance, DSA meas. 4−66202
^{27}Al(p,γ)^{28}Si, determ. of spin and parity of 17.75 MeV level in ^{28}Si *(Russian)* 4−51815
^{36}Ar(α,pγ)^{39}K, high spin states in ^{39}K 4−59793
Au, fast neutron capture, γ-ray strength functions 4−59744
Au-Tb(0.05 at.%) alloy, hyperfine interaction parameters obs., 100-10 mK 4−79653
$AuCu_3$, positron annihilation effect of ordering 4−82199
AuYb, nuclear orientation expts. on ^{175}Yb and ^{169}Yb 4−67498
^{11}B(^{7}Li,pγ)^{17}N, 6 MeV, e.m. decay props. meas. and shell model anal. 4−63201
Bi, band struct. obs. by meas. of ang. correl. of annihilation quanta 4−60732
Cd, electric field gradient sign determ. by PAC technique 4−61081
Cd:In, temp. depend. of elec. field gradient, γ-γ angular correlation meas. 4−64313
Ce, angular correlation for electron momentum density distribution *(Russian)* 4−82197
Co, crystal shape effect on nuclear orientation thermometry at <100 mK 4−79656
Co:^{44}Sc, ang. correlation obs. of hyperfine mag. fields 4−61082
Cr, A=50, 52, 54, radiative proton capture, γ-ray correlation obs. 4−59772
^{50}Cr(p,γ), 1 MeV, gamma decay of $p_{3/2}$ analogue state in ^{51}Mn 4−47697
Cu, annihilation photons, ang. correl. tails 4−69979
Cu, positron annihilation, effects of multivacancies, ang. correl. obs. 4−44565
Cu-Ge(5 at.%), annihilation photons, distrib. recovery by annealing 4−72488
^{153}Eu, perturbations of γ-γ directional correlations proceeding through level of 3.8 nsec lifetime 4−43495
^{19}F(n,n′γ), E=0.2 to 1.7 MeV, decay of 110 and 197 keV levels 4−43533
^{56}Fe(n,n′γ), 2.5 to 14.1 MeV, γ-ray prod. cross-sections meas. 4−81492
^{71}Ga(p,nγ)^{71}Ge, 1.72 to 2.96 MeV energy levels of ^{71}Ge 4−66123
^{154}Gd, perturbations of γ-γ directional correlations proceeding through level of 1.2 nsec lifetime 4−43495
Ge isotopes, A=69, 71, 73 populated in Zn(α,n) reaction, anal. of positive parity levels 4−59794
^{2}H(n,γ)^{3}H, thermal, parity non-conserving effects of N-N interaction 4−71884
^{3}H(^{12}C, pγ), 21 MeV, magnetic moment of 3^- level in ^{14}C 4−63066
$HfSiO_4$, elec. quadrupole interaction perturbed ang. correlation tech. 4−49281
^{180}Hf(α,$\alpha'\gamma$), 13 to 15 MeV, transition probability meas. of collective quadrupole vibrational states 4−47712
Hg, fast neutron capture, γ-ray strength functions 4−59744
Ho with ^{111}Cd impurities, temp. depend. of mag. hyperfine field 4−76201
^{129}I, angular correlation of 459.7-27.7 keV γ-γ cascade and appl. for time differential perturbed ang. correlation 4−74737
In, γ-γ ang. correl. and attenuation coeff. 4−79652

gamma-ray angular distribution continued
InBi and In$_2$Bi, γ-γ ang. correl. and attenuation coeff. 4−79652
KCl, coloured, positron annihilation 4−69804
KCl, KCl-KBr, Frenkel exciton states obs. γ-ray ang. correlation of positron annihilation 4−57065
Mg-In (20-30 at.%Mg), from positron annihilation study of corrosion and voids 4−79063
^{24}Mg, transient field meas. g-factors using IMPAC technique 4−71765
^{26}Mg, transient field meas. of g-factor using IMPAC technique 4−71765
^{15}N(α,γ)^{19}F, 4 to 6 MeV, high-spin states in ^{19}F $K^{\pi}=1/2^-$ band 4−55730
NaCl, angular correlation for electron momentum density distribution *(Russian)* 4−82197
NiO, anisotropy in positron angular correlation curves 4−82191
^{59}Ni, 339 keV level, nuclear g-factor 4−59673
^{60}Ni(p,γ)^{61}Cu, $g_{9/2}$ isobaric analogue resonance 4−47630
^{62}Ni(γ,γ'), elastic and inelastic scatt., 7646 keV resonance level, energy level determ. 4−51759
PbTiO$_3$:Ce, static electric quadrupole interaction of ^{140}Ce and ^{204}Pb, PAC obs. 4−73061
^{200}Pb, negative parity states, g-factor of 480 ns 9^- isomer 4−74718
^{208}Pb, 4843 keV 1^+ level anal. in bremsstrahlung excitation 4−63105
^{208}Pb(d,2nγ)^{208}Bi, 18 MeV, magnetic moment of ^{208}Bi, NMR-PAD method 4−66119
Pd-Tb(0.05 at.%) alloy, hyperfine interaction parameters obs., 100-10 mK 4−79653
^{103}Pd, collective excitation in ^{100}Ru(α, nγ) and ^{94}Zr(^{13}C, 3nγ), decay scheme 4−74736
^{151}Pm→^{151}Sm, $\gamma\gamma$ cascade meas., TDPAC determ. of g-factor for ^{151}Sm 91.5 keV state 4−43451
^{143}Pr, γ-γ directional correlation studies with high efficiency spectrometers 4−55769
^{143}Pr, perturbations of γ-γ directional correlations proceeding through level of 4.2 nsec lifetime 4−43495
^{233}Pu(n, f) fission fragment γ-ray anisotropies 4−55892
^{239}Pu(n, f), fission fragment γ-ray anisotropies 4−55892
^{99}Ru(α,2nγ)^{101}Pd, 16 to 24 MeV, ^{101}Pd decay scheme 4−47725
Sb, band struct. obs. by meas. of ang. correl. of annihilation quanta 4−60732
^{28}Si(p, γ)^{29}P, 0.35-2.65 MeV, gamma-ray meas., structure determ. *(French)* 4−43490
^{30}Si, negative parity levels calc., polarisation direction correlation meas. 4−81453
^{151}Sm, low lying states spin determinations from γ-γ directional correl. meas. 4−63062
Sn, angular correlation for electron momentum density distribution *(Russian)* 4−82197
^{120}Sn(n,n'γ), 2.0-3.1 MeV, γ-ray angular distribs., energy level study 4−43457
^{88}Sr(^{16}O,3nγ)^{101}Pd, 56 to 64 MeV, ^{101}Pd decay scheme 4−47725
Ta, fast neutron capture, γ-ray strength functions 4−59744
^{181}Ta(α, 4nγ)^{181}Re, E=23-65 MeV, study of ^{183}Re levels scheme 4−77962
^{181}Ta(α,2nγ)^{183}Re, E=23-65 MeV, study of ^{183}Re levels scheme 4−77962
^{181}Ta(γ,γ), 7.9 MeV, ang. distrib. meas. 4−66175
Tb-Er(83.2%), semi-cone angle of Tb, nucl. polarization method 4−82577
Ti:Cd(Ta), impurity electric quadrupole interaction, temp. depend. obs. 4−57047
^{48}Ti(p,p')^{48}Ti, E=5 MeV, statistical model analysis for various transitions 4−43540
Tl, fast neutron capture, γ-ray strength functions 4−59744
^{127}Xe→^{127}I, gaseous source, press. depend. perturbed ang. correlation meas. 4−59704
^{90}Y, g-factor of 202.5 keV level, integral perturbed angular correlation technique 4−51787
Zn:^{111}Cd, nucl. quadrupole interaction, PAC obs. 4−45212
ZrO$_2$, positron annihilation obs. 4−44839
^{92}Zr(^{12}C,3nγ)^{101}Pd, 45 to 56 MeV, ^{101}Pd decay scheme 4−47725

gamma-ray applications
see also radiation therapy
backscatter density measurement, comp. errors, elimination possibilities 4−73983
backscatter surface density gauge, eqn., count rate rel. to density 4−73982
bone mineral content determ. by absorption of 17.8 to 59.6 keV photons 4−65573
bone mineral content estimation, at selected skeletal sites 4−68512
camera for biomedical applications 4−76973
crack detection, sensitivity improvement by two-beam betatron 4−46917
defect determ. by radiometric method, improvement using two-beam betatron 4−46918
graser, or gamma-ray laser, review 4−55459
liquid level gauges using backscatter, sensitivity, expt. 4−80832
marine nuclear logging methods, review 4−61897
Mossbauer thermometer using ^{151}Eu in EuS for 25-250 mK range 4−71173
oil borehole 2-probe gamma-gamma logging apparatus *(Russian)* 4−54305
pulsed gamma-gamma logging, approx. for time relationships 4−80986
radiography, effects of line surge on camera 4−50827
sediment density probe 4−55115
tomography, with monoenergetic photons 4−46425
^{60}Co gamma rays, dosage calcs. for radiotherapy applications at varying SSD 4−80749
^{60}Co tangential chest wall therapy, skin dose obs. 4−50853

gamma-ray astronomical observations
background measurements by satellite-borne spectrometer 4−50726
cosmic ray structured acceleration on galactic scale, SAS-2 γ-ray line obs. 4−46137
Crab Nebula, gamma radiation above 35 MeV 4−80618
Crab Nebula, X-ray and γ-ray spectra 4−58366
Cygnus X-3, gamma-ray detection using spark chamber telescope *(Russian)* 4−80617

gamma-ray astronomical observations continued
diffuse gamma-radiation in MeV range, energy spectrum and extragalactic origin 4−73778
Gum Nebula, gamma-ray obs. from OSO-7 4−58370
microbursts with trailers, spectra meas. with Vela satellites 4−73779
NP 0532, model of variation of double pulse struct. at gamma-ray energies 4−58397
NP-0532, X-ray and γ-ray spectra 4−58366
PSR0833-45 (Vela), pulsed 10-30 MeV gamma ray detect. 4−76874
SN 1972e in NGC 5253, gamma-ray obs. from OSO-7 4−58370
solar activity of 1972, August, gamma-ray obs. from OSO-7 satellite 4−62027
solar flare, 1972, August 4, neutron and γ-ray fluxes from γ-ray intensities 0.51-6.1 MeV 4−50470
variability of high-energy sources 4−54539
Vela region, SAS-2 obs. of high-energy gamma-rays from galactic plane 4−68449

gamma-ray astronomy
see also gamma-ray sources (astronomical)
absorption of gamma-rays in intense X-ray sources 4−65193
celestial X-ray and γ-ray burst, satellite search and instrumentation 4−58403
comet impact on neutron star or white dwarf, generation of gamma-ray bursts 4−50652
galactic arm structure and cosmic gamma-ray intensities 4−50679
instrument calibration using tagged gamma ray beam 4−46832
neutron stars, gamma-ray line emission from accretion 4−54483
nuclear goblins and cosmic gamma ray bursts 4−50580
planetary surface elemental analysis, problems in use of neutron-gamma methods 4−62262
variability of high-energy sources 4−54539
Ge(Li) spectrometer, space-born instrument 4−54601

gamma-ray detection and measurement
see also dosimetry; gamma-ray spectrometers; particle detectors; radioactivity measurement
absorbed dose and flux in nuclear reactor, chemical dosimetry 4−81679
astronomical instrument calibration using tagged gamma ray beam 4−46832
camera collimator, for imaging ^{123}I 4−68520
camera system based on high purity Ge charge splitting detector 4−54681
Cherenkov counter, directional for gamma-ray astronomy 4−77180
Compton polarimeter for energies of 5 to 10 MeV 4−55116
cosmic ray meas. using shaped scintillation counters 4−46841
cosmic rays, Pb glass Cherenkov energy calorimeter 4−46854
delayed γ-ray meas. from fissile material using assay system based on neutron activation anal. 4−81088
diagnostic instrumentation trends 4−58555
doses in building structures, adjoint Monte Carlo calcs. elevated ring sources 4−81694
dosimeters, chemical, for in pile use, international intercomparison 4−58622
environmental radionuclides, low level, gamma-ray spectrum anal. technique 4−51923
environmental samples, comparison of Ge(Li) and anti-Compton systems 4−51922
focusing collimator camera coincidence system, lesion detection characteristics 4−54682
Fresnel zone plate, coded aperture for extended object imaging 4−42931
gamma telescope using scintillation, Cherenkov counters, spark chamber, cosmic gammas $\geqslant$100 MeV, meas. *(Russian)* 4−83262
half-lives of short lived nuclides meas. 4−46850
imaging system using Fresnel zone plate aperture, multiwire proportional counter, computer reconstruction 4−54683
implantable dosimeter packages for small vertebrates resident in fallout field 4−83350
ionisation chamber, neutrons and gamma radiation absorbed doses determination errors 4−51155
ionising radiation dosimetry using glass colorant detectors 4−73912
logging instruments, automatic calibration *(Russian)* 4−55070
low-energy resolution using parallel plate gas scintillation proportional counter 4−46834
metal convertors for γ-ray mapping and detections 4−55052
mixed field dosimetry, use of LiF-7 Teflon and track detectors 4−80988
monitor for high-energy beams following photodisintegration expts. 4−42899
multiple beta-single gamma detector assembly for low-level coincidence spectroscopy 4−55056
nuclear accident dosimetry system 4−78314
nuclear excited level width determ. using wide-angle interference method *(Russian)* 4−65522
nuclear level lifetime meas. using time-amplitude convertor *(Japanese)* 4−55069
nuclear medicine, Fresnel zone plate imaging systems, noise analysis 4−54705
nuclear power plant site surveys, using airborne gamma-ray spectrometer 4−51924
nuclear reactor natural background meas. with Ge(Li) detector 4−80995
pair-production cross section meas. by internal source method 4−47684
peak pile-up, simulation 4−74130
phoswich scintillation detectors dual energy anal. for low-level in-vivo counting 4−51166
photoactivation of ^{115}In, use as γ-dosimeter 4−46856
photographic anal. in X-ray emulsion camera in range 8 to 35 TeV *(Russian)* 4−58179
planetary surface elemental analysis, problems in use of neutron-gamma methods 4−62262
plastic phantoms for X-ray and γ-ray calibration, analytical model 4−50896
plastic scintillation, intrinsic efficiency for ^{60}Co source 4−46853
polarimeters, generalised figure of merit 4−46851
positron annihilation, automatic corrections for deadtime effects and lineshape changes 4−62515
prompt gamma-ray spectra from 14.5 MeV neutron interactions, apparatus, Fe and U spectra 4−46801

gamma-ray detection and measurement continued
pulse shape discrimination circuit for n-γ discrimination 4−58936
pulsed ionisation chamber, for wide-range gamma-ray field monitoring 4−78304
radioisotope imaging systems, sensitivity parameters 4−50825
radionuclides in soil, low-level in-situ meas. using Ge(Li) spectrometer 4−47812
recoil-distance data anal. for incompletely resolved stopped and in-flight components 4−55045
scintillation counter, plastic, energy transfer and light collection characteristics 4−46885
scintillation defectoscopy using semiconductor measurement circuit 4−76560
scintillation flow detectors, smoothing filter time constant optimisation 4−46916
scintillation spectrometry, gamma-ray attenuation determ. 4−80994
self-powered detectors, gamma-ray response anal. 4−77190
semiconductor, amplitude spectra calc. 4−80993
single-detector efficiency meas. under isotropic irradiation 4−62527
superhigh energy cascading γ-rays, detection by acoustic signal produced in solid body *(Russian)* 4−55040
terrestrial radiation, airborne surveys in environmental research 4−54284
thermoluminescent dosimeter measurements in ZPPR/FTR-2 reactor assembly 4−81702
time-modulated coded apertures for γ imaging 4−54704
W pin cushion photon beam monitor 4−46837
^{241}Am, terrestrial, in situ meas. by Ge(Li) spectrometer and FIDLER, comparison 4−46825
$BaSnO_3$ Mossbauer source, recoil-free fraction meas. 4−57435
CdTe detector, crystal growth technique 4−67734
CdTe halogen-doped detector developments 4−46824
CdTe medical probes, high spatial resolution, appl. to dental pathology 4−50821
CdTe n-type surface barrier detectors, energy resolution 4−62540
CdTe:Br transport characterisation for γ detectors 4−46816
CdTe:Cl nuclear radiation detector polarisation and γ efficiency 4−46815
CdTe:Cl transport characterisation for γ detectors 4−46816
^{115}Cd decay spectra anal. with semiconductor detectors setup 4−46845
^{60}Co, γ and X-ray calibrations laboratory 4−46436
Ge coaxial detectors, fabrication and performance 4−46813
Ge high-purity γ detector fabrication and handling reliability improvement 4−51149
Ge high-purity γ detector performance after exposure to H_2, O_2 and water vapour 4−46819
p-Ge high-purity monolithic arrays and position-sensitive γ detectors 4−46820
Ge(Li), low background detector systems for radioenvironmental studies 4−46884
Ge(Li) coaxial detector, timing information dependence on γ-ray intensity distrib. 4−46848
Ge(Li) counter, multireaction spallation detectors, flux and energy spectra of hadrons 4−74149
Ge(Li) detector, correlation of local trapping with crystal defects by electron loss obs. 4−51167
Ge(Li) detector, large, performance and cost comparison with smaller Ge(Li)-NaI(Tl) Compton suppression system 4−51150
Ge(Li) detector, neutron radiation anal. of alloys 4−46943
Ge(Li) detector meas. in neutron activation anal. of rocks and rock forming minerals 4−81082
Ge(Li) detectors, gamma-ray efficiency calibration using ^{138}Xe and ^{138}Cs sources 4−46790
Ge(Li) detectors, meas. of finite solid angle correction factors 4−62542
Ge(Li) detectors, precision half-life meas. 4−46847
Ge(Li) detectors, preparation 4−77184
Ge(Li) detectors use of ^{160}Tb, ^{182}Ta and ^{192}Ir as efficiency calibration standards 4−46791
Ge(Li) meas. of spectra from (n,nγ) reactions at 0.1 to 3.5 MeV 4−55095
Ge(Li)-NaI(Tl) Compton suppression system, performance and cost comparison with larger Ge(Li) detector 4−51150
Ge(Li)-Na(Tl) detector system for $\gamma\gamma$ ang. correlation meas. 4−62516
^{a}I, A=127, 129, 131, in environmental samples, detection systems for low level radiochemical anal. 4−51210
InSb detector, for operation at 77K, design, fabrication and expt. results 4−58931
LiF thermoluminescence dosimeters, estimation of γ-ray exposure in mixed n-γ fields 4−46840
NaI (Tl) γ-spectroscopy of radioactivity in the atmosphere and soil of India 4−42901
NaI(Tl), trigger circuit for timing at low γ-ray energies *(French)* 4−77235
NaI(Tl) scintillation counter, calc. of response to γ-rays *(Spanish)* 4−46802
Si(Li) detectors, effect of electron-momentum distrib. on shape of Compton edge, calibration use 4−55059
Si(Li) electron detectors, fast calibration, using ^{66}Ga double-escape peaks and Compton edges 4−77239
Th ores anal. using gamma-ray spectrometer with Ge(Li) detector 4−77286
U ores anal. using gamma-ray spectrometer with Ge(Li) detector 4−77286
gamma-ray effects
see also nuclear reactions and scattering due to photons
acetone, deferred radiolum., L.E.T. and dose rate influence 4−54046
acetonitrile dimer radical anion, proton h.f.s. in e.s.r. spectrum 4−61029
alkaline glasses, trapped electron decay, apparent activation energy 4−76611
alkyl radicals in γ-irrad. inclusion cpds. of urea with alkyl halides, hindered internal motion, e.s.r. determ. 4−67429
aluminophosphate glasses, fluorine effect on microstruct., γ-irrad. induced e.p.r. line intensities 4−67423
biological induction of mutations in bacteriophage ΦX174 influence of O_2 4−80694
gamma-ray effects continued
biological T4 and Escherichia coli DNA induced lesions expt. 4−80754
biphenyl, glassy solns. in methylcyclohexane and 3-methylpentane, irrad. at 4.2 and 77K, deferred isothermal luminescence 4−57600
cadmium(II) carboxylates, gamma-irrad., Cd^{+} form., e.s.r. obs. 4−75537
cadmium formate dihydrate:Cd^{+}, γ-irrad., electron trapping, and Mn^{2+} e.s.r. obs. 4−57364
cation exchange resin, degradation mechanism 4−45923
chromosome aberrations, metaphase in Chinese hamster liver after ^{60}Co irrad. 4−54718
corrosion experiments design for testing materials exposed to gamma radiation 4−76566
n- decane(-d$_{22}$), γ-irrad., radical pair formation, pair trapping, e.s.r. obs. 4−79573
n-decane-d$_{22}$:n-decane, γ-irrad., alkyl radical form., energy transfer investig., isotope effect, e.s.r. studies 4−76609
dimethyl disulfide, γ-irradiated, e.s.r. of radical ions 4−64254
DNA strand breakage dosage 4−80688
dose protraction and acute radn. mortality in chickens, reappraisal of injury accumulation kinetics 4−54715
double to single electron-positron pair creation cross section ratio, 6.6 MeV 4−44563
electron currents excited from atoms, calc. 4−44562
environmental γ doses, low level, meas. with thermoluminescent dosimeters and Geiger counters 4−51915
ethanol, deuterated, glass, gamma-irradiated, e.s.r. meas. of electron solvation rel. to temp. 4−54091
ethanol, protiated and deuterated glasses, γ-irrad., photobleaching of trapped electrons, kinetics 4−70612
ethanol glass, photoconversion of solvated electrons to trapped electrons at 6K 4−73439
exposure rate constants, table for 20 radionucleides *(French)* 4−47813
ferrites, square-loop, radiation stability 4−69824
fission counters, design and operation, effects on performance 4−68779
galactic nucleus, D formation by γ-activity 4−58410
gas core reactor, gamma-ray heating calcs. using track-length Monte Carlo estimator 4−78179
glass, Ca metasilicate, γ-irrad., e.p.r. spectra, paramag. centres 4−53295
glycine, γ-irrad. single crysts., low temp. photoconversion obs. by e.p.r. *(Russian)* 4−79602
graft copolymers, natural rubber with methyl methacrylate and styrene, degradation *(Polish)* 4−48645
trans-hexene-2, liq., γ-irrad., ionisation investig., electron range distrib. functions 4−76612
in-core radiation detectors, self-powered, γ-ray effects 4−78164
N-iodosuccinimide, γ-irradiated, σ^*-radical anion e.s.r. 4−61626
γ-irradiated frozen matrices, electron tunnelling 4−76610
Kapron, γ-irrad. effect on cracking and mech. props. 4−45826
lithium acetate dihydrate, radiation damage, e.s.r., u.v. and i.r. spectra 4−48091
magnesium diethyl phosphate, γ-irrad., $CH_3CHOP(O)_2OC_2H_3^-$ radical obs. 4−45168
methane thiol, γ-irradiated, e.s.r. of radical ions 4−64254
methanol, protiated and deuterated glasses, γ-irrad., photobleaching of trapped electrons, kinetics 4−70612
methylcyclohexane glass, γ-irradiated, trapped electron e.s.r. 4−76139
3-methylhexane glass, γ-irradiated, trapped electron e.s.r. 4−76139
3-methylpentane glass, γ-irradiated, trapped electron e.s.r. 4−76139
m.i.s. structure, irrad., current transfer through one- and two-layer dielecs., 77-470K *(Russian)* 4−82494
monkey, e.e.g. responses to 2500 rads of whole-body gamma-neutron radiation 4−76976
monoisopropyldiphenyl reactor coolant viscosity *(Czechoslovakian)* 4−43648
m.o.s. tunnel junction, surface states 4−45002
m.o.s.t., n-channel, interface states growth obs. 4−57179
neopentane, liq., γ-irrad., ionisation investig., electron range distrib. functions 4−76612
neutron flux, γ-ray effects on metrological characts. 4−42880
nonhomogeneous media, refl., energy and ang. distrib. *(Russian)* 4−61252
nuclear reactor constituents, radiation damage 4−74777
nylon 6, DSC obs. of melting behaviour and γ-irrad. effects *(Japanese)* 4−53856
organic glasses, γ-irrad., light intensity depend. of photocurrents and bleaching rates for trapped electrons 4−80194
paper, exo-sensitive, with $CaSO_4$ and graphite, γ-irrad., OSEE rate const., temp. depend. 4−49549
plant growth, vegetative and generative, increase induced by pre-sowing treatment of seeds with small γ-radiation doses 4−58608
PMMA, radiation-induced degradation, inhibition by additives 4−54050
polychlorotrifluoroethylene, chain folding crystallisation 4−82974
polyethylene, structural changes, γ-irradiation *(Russian)* 4−72484
polyethylene terephthalate, γ-irradiated, change in cryst. structure *(Polish)* 4−48644
polymer film, dielectric polarisation 4−64326
polytetrafluoroethylene, chain folding crystallisation 4−82974
polytrifluoroethylene, structural changes, γ-irradiation *(Russian)* 4−72484
polyvinylfluoride, structural changes, γ-irradiation *(Russian)* 4−72484
n-propylarsonic acid, e.s.r. spectra, hyperfine coupling of trapped radicals, 77K 4−53284
pseudowollastonite, γ-irrad., e.p.r. spectra, paramag. centres 4−53295
pulmonary irradiation injury detection by plasma lactic dehydrogenase activity determ. 4−62332
quartz, capture centre form., positron annihilation *(Russian)* 4−56776
quartz, etching and surface layer features 4−53004
quartz glasses: Fe^{3+}, γ-irrad., e.p.r. *(Russian)* 4−70216
Schizosaccharomyces pombe, repair mechanisms and ultraviolet and γ-ray sensitivity 4−46469

gamma-ray effects continued
sodium methylarsonate, e.s.r. spectra, hyperfine coupling of trapped radicals, 77K 4−53284
solid, thermoelastic effect, acoustic pulse generation *(Russian)* 4−63848
succinic acid, γ-irradiated, e.s.r. ^{13}C hyperfine splitting investig. of radical struct. 4−53285
sucrose, radiation induced decomposition, radical form., e.s.r. studies 4−80197
survival and regeneration characteristics of spermatogenic stem cells of mouse testis 4−54713
DL-threonine, γ-irrad., room temp. e.p.r. obs. 4−57377
thymine damage, in mammalian cells 4−54627
triglycine sulphate, γ-irrad., fund. absorpt. band edge obs. *(Russian)* 4−53406
trimethylphosphite, γ-irrad., e.s.r. identification of dimer radical cation 4−80195
vinylidenefluoride-tetrafluoroethylene copolymers, structural changes, γ-irradiation *(Russian)* 4−72484
Al, oxide layer form., thermionic electron emission 4−45398
$2Al_2O_3 \times 5B_2O_3 \times 3BaO$:Ce, Ba aluminoborate, irradiation, colour centres, growth and decay 4−69805
B_2O_3-P_2O_5 glasses, radiation electron-hole centres ratio, controlled change 4−67449
$90Ba(PO_3)_2.10BaF_2$ glass, γ-irradiated existence of tetrametophosphate radical, e.s.r. obs. 4−57379
$BaSO_4$, γ-irradiated, thermoluminescence 4−57640
$BaSO_4$, impurity doped, thermoluminesc. and e.s.r., trapping and emission centres 4−70372
$BaSO_4$:Sm(Eu), thermoluminesc. mechanism determ. 4−82761
BeO, on γ-irrad. beryllium bronze surface, thermally stimulated exoelectron emission *(Japanese)* 4−61276
C fibres, mech. props. 4−73375
CaF_2, irrad., colouring kinetics and annealing 4−53482
CdS, changes in local centres, ionising action of γ-rays 4−72724
CsI(Tl), luminescence spectra and light yield meas., effects of gamma irradiation 4−79774
Ge, group V impurity doped, model of γ-radiation defect form. 4−75538
Ge:Li, vacancy-Li atom interaction during γ-irradiation 4−66910
n-Ge:P(As)(Sb)(Bi), γ-irrad., acceptor levels, annealing obs. 4−60761
Ho, bivalent oxidation state, creation by irradiation 4−64718
KBr:Li, γ-irradiated, hardening and activation volume investigation 4−56769
KCl, dislocation motion, hardening 4−82181
$KClO_3$, γ-irradiated cryst., resonance Raman spectrum of O_3^- ion, struct. determ. 4−48012
Li-Na-stainless steel CTR blanket, heat transfer and radiation damage 4−55935
LiF, F-centre form., 450 nm absorption, fluoresc. obs. 4−64417
LiF, H-centre form., dislocation sinks 4−44600
LiF:Mg positron annihilation, obs. of lifetime spectra in γ-irradiated samples 4−56772
$LiNbO_3$, kinetics of colour changes during radiation and annealing *(Russian)* 4−52756
MgF_2, mag. susceptibility of gamma-irrad. single crysts. 4−66934
Mo, deformed, temp. and e.m. radiation influence on elec. resist. *(Russian)* 4−79327
NH_4ClO_4, fast neutron, gamma-ray and combined radiation effects on thermal decomp. 4−57855
$NH_4H_2AsO_4$, γ-irradiation, $HAsO_3^-$ radical ENDOR obs., H bond antiferroelectricity depend. 4−61064
$(NH_4)_6.Mo_7O_{24}.4H_2O$:$[MoO_6]^{7-}$ radical, e.s.r. study 4−53311
NaCl, dislocation motion, hardening 4−82181
$NaH_3(SeO_3)_2$, irrad., formation of monoclinic γ-phase below T_c 4−49313
NaI:Tl scintillation with γ-ray excitation, complex struct. of leading edge 4−67649
NaOH alkaline ice glass, α-substituted, γ-irrad., e.p.r., ENDOR studies of trapped electrons 4−70197
p-Si:B, γ-irrad., steady state photocond. and excess carrier lifetime, theory 4−53118
Si-SiO_2 interface, vapour deposition, charact., device applics. 4−67742
SiO_2, glassy silica, E'-centre form., e.s.r. hyperfine struct. 4−67451
Y-type zeolites, γ-irrad., e.s.r. study of trapped H ats., exchanged cation effects 4−79598
YAG:rare earth, luminesc., charge transfer, radiation defects *(Russian)* 4−73203
YAG:rare earth crystals, γ-irrad., thermolum. meas. 4−67669
$YAlO_3$, monocrystals, colour centre spectra when activated with transition metal ions 4−45339
n-ZnO, γ-irradiated, surface activity investig. by e.s.r., reflectance, adsorpt., cond. meas. 4−57887

gamma-ray interactions
see also nuclear reactions and scattering due to photons; photon interactions
No entries

gamma-ray internal conversion
see also conversion electron spectra
coefficient tabulation, accuracy of theoretical calcs. *(Russian)* 4−69221
M1 internal conversion processes, possible hidden penetration effect 4−77996
odd-A nuclei, spin gyromagnetic ratio by Nilsson model method 4−43493
^{241}Am, anomalous conversion and K-Auger spectra meas. 4−78001
Ar, electron pair detection in diffusion chamber following hot neutron trapping *(Russian)* 4−46858
^{77}Br populating ^{77}Se, multipole mixing ratios meas. 4−59705
^{135}Ce decay to ^{135}La, energy level scheme 4−55766
^{53}Fe first excited level, J^π assignment from internal conversion coeff. meas. 4−74717
^{113}In, meas. of electron-photon double decay 4−59707
^{115m}In, conversion ratio meas. 4−66144
Lu, A=171, 172 decay, transition energy determination *(Russian)* 4−51799
^{175}Lu, internal conversion coeff. of 113.8 keV transitions 4−47662

gamma-ray internal conversion continued
^{95}Mo, ^{96}Mo, ionisation effects accompanying internal conversion in K-shell *(Russian)* 4−71817
Os even-even isotopes, $2'+ \rightarrow 2+$ transitions, nuclear struct. effects 4−69230
^{207}Pb, internal conversion meas. with combined magnetic-Si(Li) spectrometer 4−47654
^{143}Pr, penetration parameter and mixing ratio for 57-keV transition 4−43487
^{184}Rh, isomeric E5 transitions obs. in conversion spectrum *(Russian)* 4−71816
^{100}Ru produced in ^{103}Rh(p, 4n), elec. monopole strength determ. 4−55782
^{177}Ta β^+ conversion elec. decays to ^{177}Hf levels, log ft values determ. 4−78013
^{97}Tc, ionisation effects accompanying internal conversion in K-shell *(Russian)* 4−71817
^{153}Td, retarded mag. dipole transitions, penetration effects 4−55765
^{121}Te, electron-gamma directional correl., internal conversion processes of 212 keV transition 4−66140
^{125}Te, 35.5 keV transition, L-subshell ratios, structure parameter and percentage E_2-admixture 4−66141
Th, X-ray intensity ratios determ. 4−55776
^{203}Tl, populated in ^{203}Hg decay, internal conversion coeff. and penetration effect electron 4−47661
^{205}Tl muonic, penetration effects in converted muonic transitions 4−47651
$^{235}U^m$, effect of oxidation state on half-life 4−51791
^{49}V from ^{49}Ti(p,nγ), 3.6 to 5.2 MeV, conversion coefficient measurements 4−77997
^{129}Xe populated in ^{129}Cs decay, e.m. props. of low-lying levels 4−71832
^{130}Xe populated in ^{130}I β-decay, abs. transition prob. determ. 4−77999
^{173}Yb populated in ^{173}Lu decay, gamma-ray multipole mixtures meas. 4−71829
^{174}Yb populated in ^{174}Lu decay, gamma-ray multipole mixtures meas. 4−71829

gamma-ray polarisation
^{103}Pd, collective excitation in ^{100}Ru(α, nγ) and ^{94}Zr(^{13}C, 3nγ), decay scheme 4−74736
^{47}Sc, populated in ^{44}Ca(α,pγ), 1147 keV gamma-ray linear polarisation meas. 4−69228
^{181}Ta, 482 keV transition, determ. of parity mixing using backscatter polarimeter 4−71835

gamma-ray production
bremsstrahlung from 25 MeV linear accelerator, 19 MeV betatron expt. and calc. 4−71266
circular and cylindrical sources, calc. of spatial flux distribs. of radiation 4−77163
laser, difficulties in design *(Hungarian)* 4−81291
radioactive sources, spherical, calc. of self-absorption 4−46794
recoilless nuclei, pumped by X-rays from laser plasma 4−69035
secondary sources in a collimated beam using ^{40}Co source, contrib. to spectrum 4−42869
solar flare generation, cosmic ray spectrum, gamma radiation, predictions *(Russian)* 4−80469
^{27}Al(p,γ), monoenergetic gamma flux production using 2 MeV Van de Graaff accelerator *(French)* 4−55829
^{9}Be(p,γ), monoenergetic gamma flux production using 2 MeV Van de Graaff accelerator *(French)* 4−55829
60 Co, irradiation facilities for exposure standards *(Japanese)* 4−80733
^{60}Co Brachytron prototype afterloading unit design and application 4−54724
137 Cs *(Japanese)* 4−80733
Cs quasicylindrical irradiator for uniform exposure dose distrib. from line of point sources 4−46915
^{7}Li(p,γ), monoenergetic gamma flux production using 2 MeV Van de Graaff accelerator *(French)* 4−55829
^{50}V populated in ^{50}Ti(p,nγ), obs. of gamma-ray transitions 4−59762

gamma-ray scattering
see also Compton effect; nuclear reactions and scattering due to photons; photon scattering
absorbed fraction, multiple scatter corrections, below 0.1 MeV 4−46484
backscattering in special geometry, approx. calcs. *(Czech)* 4−69396
fusion reactor, demonstration, nuclear blanket and shielding problem 4−74808
mosaic crystals, reconstruction of electronic scatt. amplitude phase from resonant γ-ray diffraction expts. 4−53356
^{60}Co point source, first scatter absorbed dose calc. and comparison with Clarkson method 4−50898

gamma-ray sources *see gamma-ray production*

gamma-ray sources (astronomical)
heading is a late addition; see also gamma-ray astronomy
black hole γ-ray production by accreting hot gas 4−62145
celestial bursts, from rotating magnetic star collapse 4−58404
compact stars, generation of gamma-ray bursts by comet impact 4−50652
cosmic bursts, Galactic origin, distance estimate 4−76883
cosmic gamma-ray burst origin in old neutron stars, magnetospheric activity rel. to glitches 4−76884
cosmic ray burst, COS-B satellite modifications for observation 4−83246
Crab Nebula, gamma radiation above 35 MeV 4−80618
Cygnus X-3, gamma-ray detection using spark chamber telescope *(Russian)* 4−80617
diffuse gamma-radiation in MeV range, energy spectrum and extragalactic origin 4−73778
hard X-ray burst, coincidence with gamma ray burst 4−50644
microbursts with trailers, spectra meas. with Vela satellites 4−73779
neutron stars, gamma-ray line emission from accretion 4−54483
nuclear goblins and cosmic gamma ray bursts 4−50580
PSR0833-45 (Vela), pulsed 10-30 MeV gamma ray detect. 4−76874
supernovae, early γ-rays from bremsstrahlung and inverse Compton heated photons 4−46265
variability of high-energy sources 4−54539

gamma-ray sources (astronomical) continued
- Vela region, SAS-2 obs. of high-energy gamma-rays from galactic plane 4−68449

gamma-ray spectra
- *see also gamma-ray angular distribution; gamma-ray internal conversion; nuclear decay theory*
- analogue resonances, gamma decay diagrams *(Russian)* 4−69223
- angular penetration spectra in bulk shields, exptl. evidence of equilibrium property 4−66271
- atmospheric gamma-rays in 30-300 MeV range, three-dimensional study 4−50422
- atmospheric spectra from 50 MeV to 1 GeV 4−46029
- bovine carbonic anhydrase, γ-ray directional correlation obs. 4−80690
- bremsstrahlung spectra, 25 MeV linear accelerator, 19 MeV betatron expt. and calc. 4−71266
- bulk shields, prediction at deep penetration using equilib. ang. distrib. 4−66270
- clinical in-vivo neutron activation analysis facility development 4−83329
- continuum gamma-rays prod. in (HI,xnγ) reactions, ang. momentum effects 4−71941
- cosmic microbursts with trailers, spectra meas. with Vela satellites 4−73779
- cosmic ray differential energy spectrum in range 2 to 20 TeV *(Russian)* 4−58158
- Coulomb excitation of ^{105}Pd, ^{107,109}Ag, ^{117}Sn, ^{125}Te, ^{127}I, ^{133}Cs, excited state lifetimes *(Russian)* 4−77993
- data processing, minicomputer system 4−42892
- Doppler shape of gamma line in Coulomb excitation calc. 4−62510
- Doppler shift attenuation of γ-ray energies, method for lifetime determ. *(Russian)* 4−69222
- environmental radionuclides, low level, gamma-ray spectrum anal. technique 4−51923
- Fribourg curved crystal spectrometer precise energy determ. of ^{169}Yb, ^{170}Tm and ^{192}Ir transitions 4−46844
- heavy elements, effect of atomic level widths on Ge(Li) line shapes 4−78334
- isomeric states, short-lived, excited by thermal neutron capture, gamma-gamma coincidence technique 4−43497
- kaons stopped in elements and isotopes with Z=2-92, X-ray and γ-ray spectra 4−72107
- neutron activation anal. of rocks and rock forming minerals using Ge(Li) detector 4−81082
- radionuclide separation from fission products by h.v. electrophoresis *(German)* 4−64720
- rocks, activation anal. 4−46936
- steaming problem from steel nuclear reactor pool lining 4−43702
- thermonuclear source in air, transport cross-section sensitivity anal. 4−81680
- two-quantum annihilation obs. with K-shell electron of Ag atom 4−51711
- (γ, γ^1) reactions on heavy nuclei at 10.83 MeV, Delbruck and Raman scattering 4−59734
- (n,γ) reactions on Au, Sb, I and Tb, width correlations and intermediate structure in n-γ spectra 4−47698
- (n,n'γ) as indicator for fast neutron slowing down time meas. 4−46798
- π^--nuclear absorption at rest and 60 MeV, meas. of multinucleon removal 4−69259
- ^{226}Ac radioactive decay scheme *(Russian)* 4−71836
- ^{110m}Ag, γ-ray spectra and transitions 4−71819
- ^{27}Al + $\pi^\pm$, up to 100 MeV interaction and cross section determ. γ-spectra 4−43568
- ^{34}Ar, β-delayed γ-ray spectrum, half-life and ft values, mirror comparison of superallowed β-decay 4−43503
- ^{34}Ar, energies, γ-ray decay scheme and lifetimes of levels populated in ^{32}S(^{3}He, nγ) reaction 4−43488
- ^{34}Ar gamma decay, excited states populated by ^{32}S(^{3}He,nγ) reaction 4−59710
- ^{75}As(n, n'γ), 0.3 to 1.3 MeV, level structure determ. 4−55827
- ^{75}As(p,nγ)^{75}Se, 2.0-5.0 MeV, gamma-ray and internal conversion electron spectra, level struct. determ. 4−51760
- ^{135}Ba(n, γ)^{136}Ba, resonance capture γ-spectra meas. 4−59766
- ^{138}Ba γ-γ directional correlation meas. for 2308 and 2446 keV levels, spin assignments 4−43501
- Bi n-deficient nuclides, production in (HI, xn) reactions, $T_{1/2}$ meas. 4−59799
- ^{76}Br, decay to levels of ^{76}Se, γ-γ coincidence expts. 4−59711
- ^{13}C(^{3}He,γ)^{16}O, 4-12 MeV, excited states of ^{16}O 4−74750
- ^{40}Ca, radiative muon capture, photon spectrum and angular correlation calc. 4−71837
- ^{40}Ca(γ,nγ'), 11 to 30 MeV, cross-section meas. determ. of reaction channel configurations 4−63130
- ^{40}Ca(γ,pγ'), 11 to 38 MeV, cross-section meas. determ. of reaction channel configurations 4−63130
- ^{41}Ca populated in ^{40}Ca(d,pγ), spin-parity assignments 4−74719
- CdS, single cryst., halogen impurities, thermal neutron activation 4−73264
- Cd(p,nγ) A=111, 113, 2.7 to 5.2 MeV, study of ^{111,113}In low lying states 4−43461
- ^{133}Ce, ^{135}Ce, high-spin levels excited by (^{16}O,3n) reaction, in-beam γ-ray spectroscopic study 4−43456
- ^{57}Co, appl. of InSb radiation detector 4−58931
- ^{59}Co(n,γ)^{60}Co resonant behaviour of ground-state transition 4−43544
- ^{48}Cr energy level transitions, measured in ^{46}Ti(^{3}He, nγ) at E=10 MeV 4−77960
- Dy isotopes, A=160 to 164, transitions following ^{20}Ne and ^{35}Cl Coulomb excitations 4−55875
- ^{158}Dy populated in (^{12}C, 4n) and (^{18}O, 4n) meas. of multiplicity of unresolved γ-ray cascades 4−71942
- Er isotopes populated in (^{12}C, 4n) and (^{18}O,4n) meas. of multiplicity of unresolved γ-ray cascades 4−71942
- $Eu_xLa_{1-x}Rh_2$, charge fluctuations and local-environment depend. of ^{151}Eu 4f virtual localised level energy 4−79655
- Fe^{3+} in hydrated sulphoresin, hyperfine struct. line broadening obs. at 90K by γ resonance spectroscopy 4−57443
- ^{53}Fe, β-decay, ^{53}Mn energy levels, spin and parity assignment 4−51803

gamma-ray spectra continued
- ^{56}Fe(n,γ), 14.5 MeV neutrons, prompt gamma ray detection 4−46801
- ^{57}Fe, E2/M1 ratio meas. for 125 keV gamma transition *(Dutch)* 4−59709
- ^{69}Ga, populated in (α,$\alpha'\gamma$) and (αpγ) reactions at 13 MeV 4−55775
- ^{155}Gd, hyperfine interaction, 10-300K, DPAC meas. 4−57436
- ^{160}Gd(n,n'γ), 1.1-2.3 MeV, neutron and γ-ray cross sections, level struct. determ. 4−43465
- Ge, A=69, 71, 73, positive parity levels, prompt γ-ray transitions 4−59794
- Ge detectors, Monte Carlo program calc. 4−74148
- ^{73}Ge, Coulomb excitation by α-particles and ^{12}C, gamma-ray spectra, reduced transition probabilities *(Russian)* 4−77991
- ^{73}Ge coincidence meas. of gamma-rays emitting in Coulomb excitation *(Russian)* 4−51783
- ^{73}Ge(n,γ)^{74}Ge, radiative decay of n resonances 4−63173
- ^{74}Ge(p,γ), study of ^{75}As excited states 4−59759
- ^{75}Ge decay, ^{75}As level scheme 4−77998
- ^{1}H(n,γ)^{2}H, thermal, anal. of parity nonconserving amplitudes 4−63171
- ^{2}H(n,γ)^{3}H, thermal, anal. of parity nonconserving amplitudes 4−63171
- Hf isotopes populated in (^{12}C, 4n) and (^{18}O, 4n) meas. of multiplicity of unresolved γ-ray cascades 4−71942
- ^{166}Ho decay, gamma-ray intensity meas. for calibration use 4−63104
- ^{170}Ho decay to ^{170}Er, level scheme 4−47664
- ^{131}I → ^{131}Xe, ^{131m}Xe, log f_1t value for first forbidden β-transition, decay characteristics 4−59722
- ^{105}In, new isotope produced in nuclear reaction, half-life mol. gamma-ray spectra *(Russian)* 4−71811
- ^{115}In, for bremsstrahlung beam spatial distrib. determ. *(Russian)* 4−51186
- ^{116}In, decay after ^{115}In(n,γ)^{116}In reaction 4−59769
- ^{119}In, structure study through ^{119g,m}Cd β-decay, γ-ray and conversion electron spectroscopy 4−51788
- ^{116m}In → ^{116}Sn radioactive decay investig., γ-ray energies, intensities meas. *(French)* 4−47658
- ^{38}K populated in (^{16}O, pn) and (α,n) reactions, decay of isomeric state 4−63106
- ^{39}K, high-spin states populated in ^{24}Mg(^{18}O, pnn$\gamma\gamma$...) reaction 4−55736
- ^{77}Kr → ^{77}Br, electron conversion, Br isotopes level structure 4−66142
- ^{79}Kr decay, absolute gamma-ray intensity meas. 4−55779
- ^{175}Lu, produced in Yb(p, αn) reaction, anal. of rotational bands 4−47696
- ^{28}Mg populated in ^{26}Mg(t, pγ) at 2.5 to 3.2 MeV, gamma-ray meas. 4−55843
- ^{92}Mo, lifetimes and γ-decay of single particle states populated in (^{13}C,^{12}C) reaction 4−51790
- ^{95}Mo, attenuation of Doppler shift of γ-rays during Coulomb excitation *(Russian)* 4−51782
- ^{95}Mo populated in ^{95}Tc decay, gamma spectra obs. 4−55795
- ^{97}Mo, attenuation of Doppler shift of γ-rays during Coulomb excitation *(Russian)* 4−51782
- Mo(n,n'γ), A=92, 94, 96, 100, E=1.4 to 3.5 MeV, strong anisotropy, assignment of excited 0^+ levels 4−43460
- ^{15}N(p,γ)^{16}O, 6-19.6 MeV, excited states of ^{16}O 4−74750
- NaI (Tl) γ-spectroscopy of radioactivity in the atmosphere and soil of India 4−42901
- ^{22}Na(t, p), 2.8 MeV, lifetimes of ^{24}Ne levels 4−55848
- ^{23}Na(d,pγ)^{24}Na, 2.60 MeV, electromagnetic transition strengths 4−71821
- ^{95}Nb*, ^{95}Nb^g, weak β and γ transition meas. *(Russian)* 4−78007
- ^{135}Nd, ^{137}Nd, high-spin levels excited by (^{16}O,3n) reaction, in-beam γ-ray spectroscopic study 4−43456
- ^{22}Ne(d,pγ)^{23}Ne, using coincidence techniques, ^{23}Ne levels, Nilsson model 4−59786
- ^{58}Ni(α,2pγ)^{60}Ni, E=19.7 MeV, Ep > 3.3 MeV, proton-gamma coincidence spectra 4−47714
- ^{58}Ni(α,pγ)^{61}Cu, E=19.7 MeV, Ep > 3.3 MeV, proton-gamma coincidence spectra 4−47714
- ^{60}Ni(p,γ)^{61}Cu, $g_{9/2}$ isobaric analogue resonance 4−47630
- ^{61}Ni, coincidence meas. of gamma-rays emitting in Coulomb excitation *(Russian)* 4−51783
- ^{61}Ni, Coulomb excitation by α-particles and ^{12}C, γ-ray reduced probabilities *(Russian)* 4−71818
- ^{231}Pa α-decay, γ and X-ray spectra meas. 4−66158
- Pb n-deficient nuclides, production in (HI, xn) reactions, $T_{1/2}$ meas. 4−59799
- ^{208}Pb(γ, γ^1), resonance fluorescence from 7.08 MeV state 4−59737
- ^{208}Pb(n,n'γ), 3 to 5 MeV, cross-sections meas. 4−63175
- ^{154}Pm, decay to levels of ^{154}Sm, γ-ray meas. 4−59712
- ^{207}Po α-decay half-life and branching ratio meas. 4−63114
- ^{132}Pr, new isotope production, half life and gamma-ray spectra 4−71813
- ^{242}Pu(n, f), gamma decay of ^{242}Pu resonances to fission isomeric state in ^{242}Pu 4−55894
- ^{170}Re, new neutron-deficient isotope, half life, γ-ray spectra, γ-γ coincidences *(Russian)* 4−71815
- ^{172}Re, new neutron deficient isotope, half life, γ-ray spectra, γ-γ coincidences *(Russian)* 4−71815
- ^{184}Re^{m,g} → ^{184}W, level structure study from γ-ray and conversion electron meas. 4−43458
- ^{99}Rh ($T_{1/2}$=16.1 days) decay, level diagram *(Russian)* 4−78008
- Rn isotopes, atmospheric disequilibrium meas. by gamma spectrometry 4−55051
- ^{209}Rn decay to excited levels of ^{209}At *(Russian)* 4−51800
- ^{99}Ru, Coulomb excitation, excited state lifetimes *(Russian)* 4−77992
- ^{99}Ru(α,2nγ)^{101}Pd, 16 to 24 MeV, ^{101}Pd decay scheme 4−47725
- ^{100}Ru, Coulomb excitation, excited state lifetimes *(Russian)* 4−77992
- ^{100}Ru produced in ^{103}Rh(p, 4n), elec. monopole strength determ. 4−55782
- ^{34}S(α,pγ)^{37}Cl, 9.0 to 12.2 MeV, properties of levels below 5.3 MeV in ^{37}Cl 4−69225
- ^{34}S(p,γ)^{35}Cl, resonant states obs., expansion of reson. wave funcs. 4−59771
- ^{125}Sb → ^{125}Te, disputed γ-ray investigation 4−69220

gamma-ray spectra continued
- ^{75}Se, below 30 keV, recorded by Si(Li) guard-ring spectrometer 4−69226
- ^{28}Si + $\pi^{\pm}$, up to 100 MeV interaction and cross section determ. γ-spectra 4−43568
- ^{28}Si(α,pγ)^{31}P, levels below 7.5 MeV 4−69224
- ^{29}Si(n, γ)^{30}Si, thermal polarised and non-polarised n's, gamma-ray obs. 4−55826
- ^{30}Si, negative parity levels calc., polarisation direction correlation meas. 4−81453
- ^{30}Si(t,pγ), 2.5-3.3 MeV, transition spectra meas. *(French)* 4−69251
- ^{143}Sm, γ-ray spectra, ^{143}Eu decay, spin and parity assignment 4−51795
- ^{124}Sn(p,n γ-γ), meas. of ^{124}Sb level structure 4−66128
- ^{128}Sn → ^{128}Sb → ^{128}Te, gamma-ray spectra meas. level scheme determ. *(Russian)* 4−51797
- ^{88}Sr populated in ^{88}Y β^+ decay, level anal. 4−47666
- ^{88}Sr(^{16}O,3nγ)^{101}Pd, 56 to 64 MeV, ^{101}Pd decay scheme 4−47725
- ^{88}Sr(d,pγ)^{89}Sr, 7.00 MeV, cross section, γ-decay scheme 4−74735
- ^{181}Ta(α, 4nγ)^{181}Re, E=23-65 MeV, study of ^{183}Re levels scheme 4−77962
- ^{181}Ta(α,2nγ)^{183}Re, E=23-65 MeV, study of ^{183}Re levels scheme 4−77962
- Tb, A=146, 147, 148 decay, assignment of Gd levels 4−43494
- ^{93}Tc, γ-ray spectrum, conversion electron spectrum and positron spectrum, decay diagram *(Russian)* 4−78009
- ^{93}Tc*, γ-ray spectrum, decay diagram *(Russian)* 4−78009
- ^{113}Te, new isotope produced in nuclear reaction, half life and gamma-ray spectra *(Russian)* 4−71812
- ^{121}Te, electron-gamma directional correl., internal conversion processes of 212 keV transition 4−66140
- Th ores anal. using gamma-ray spectrometer with Ge(Li) detector 4−77286
- Th-U fuel elements, nondestructive determ. of ^{235}U and Th using passive γ-ray spectrometry *(German)* 4−63273
- ^{228}Th, elec. monopole transition meas. 4−71828
- ^{232}Th, grass fission products, γ-ray spectroscopy on unseparated samples 4−43572
- ^{50}Ti(t,pγ), study of ^{52}Ti excited states 4−59781
- ^{203}Tl(γ,γ'), 6419 keV, spectra meas. 4−66170
- ^{203}Tl(n,γ)^{204}Tl, low intensity spectra, level energies and decay modes of ^{204}Tl 4−66187
- ^{208}Tl, excited levels, γ-ray energies and rel. intensities following ^{212}Bi α-decay 4−47659
- ^{166}Tm → ^{166}Er electron capture, conversion electron and γ-ray spectra, reduced transition probabilities *(Russian)* 4−77995
- U ores anal. using gamma-ray spectrometer with Ge(Li) detector 4−77286
- ^{235}U(n$_{th}$, γf), ^{236m}U gamma spectrum from 200 keV to 1 MeV 4−78006
- ^{288}U(n,γ), 14.5 MeV neutrons, prompt gamma ray detection 4−46801
- ^{48}V, γ-decay of negative parity band from ^{34}S(^{16}O,pn)^{48}V 4−63203
- ^{183}W(n,γ)^{184}W, thermal and 2 keV neutrons, γ-ray meas., level struct. determ. 4−43459
- ^{120}Xe decay scheme determ. 4−55771
- ^{127}Xe decay, absolute gamma-ray intensity meas. 4−55779
- ^{89}Y(n,2nγ)^{88}Y, 14 MeV, γ-production cross-sections determ. 4−55836
- ^{89}Y(n,n'γ)^{89}Y, 14 MeV, γ-production cross-sections determ. 4−55836
- ^{90}Y, half-life of 202.5 keV level, $\gamma\gamma$ coincidence technique 4−51787
- ^{161}Yb, new isotope production, half life and gamma-ray spectra *(Russian)* 4−71814
- ZnSe, single cryst., halogen impurities, thermal neutron activation 4−73264
- ^{60}Zn energy level transitions, measured in ^{58}Ni(^{3}He, nγ), E=10 MeV 4−77960
- ^{88}Zr, populated in ^{88}Nb decay, multipolarity meas. and two-body state anal. *(Russian)* 4−51754
- ^{89}Zr populated in ^{89}Nb β^+ decay, energy levels determ. *(Russian)* 4−51796
- ^{91}Zr, lifetimes and γ-decay of single particle states populated in (^{13}C,^{12}C) reaction 4−51790
- ^{92}Zr(^{12}C,3nγ)^{101}Pd, 45 to 56 MeV, ^{101}Pd decay scheme 4−47725
- ^{95}Zr, weak β and γ transition meas. *(Russian)* 4−78007

gamma-ray spectrometers
- *see also gamma-ray spectra*
- aerosol identification, nuclear reactor applic. 4−47816
- air-borne, calc. of yield curves 4−61896
- airborne system, for nuclear power plant site surveys 4−51924
- Apollo, lunar surface comp., cosmic γ-ray flux 4−62538
- bore hole device, stabilization using injection diode 4−42910
- borehole radiometry using γ spectrometer with semicond. detector 4−58123
- energy of γ-quanta using spark spectrometry 4−42902
- Fribourg curved crystal spectrometer precise energy determ. of ^{169}Yb, ^{170}Tm and ^{192}Ir transitions 4−46844
- Mossbauer, employing γ-γ coincidences 4−46877
- neutron radiation, in vivo activation analysis *(Dutch)* 4−46477
- nuclear resonance type, null drift of source signal, tunnel diode discriminator 4−42930
- rocks, uranium concentration determ. using 93 KeV peak 4−45981
- satellite borne high-resolution Ge(Li) system, description 4−50726
- scintillation counter, intensity of exposed dose meas., 3mA/2g to 3pA/2g, working standard 4−51154
- scintillation counters, multi-strip, using binary-coded light pipe systems 4−62548
- scintillation detectors, gamma-ray attenuation determ. 4−80994
- summing Compton spectrometer based on Ge(Li) detectors 4−68794
- Venera-8, scintillation gamma ray spectrometer 4−80520
- ^{241}Am, terrestrial, in situ meas. by Ge(Li) spectrometer and FIDLER, comparison 4−46825
- CdTe detectors, time-dependent polarisation 4−46886
- CdTe detectors with MIS type contacts, continuous high-field operation 4−46888
- Ge, High-purity, low-temp. Hall effect anal. 4−53107
- Ge detectors, Monte Carlo program calc. of gamma-ray spectra 4−74148

gamma-ray spectrometers continued
- Ge(Li), comparison with NaI(Tl) for monitoring of environmental samples 4−51922
- Ge(Li), for low level in-situ meas. of radionuclides in soil 4−47812
- Ge(Li), low background detector systems for radioenvironmental studies 4−46884
- Ge(Li), position sensitive coaxial gamma-ray detector 4−46887
- Ge(Li), satellite-borne high resolution gamma-ray system, electronic, data handling and auxiliary sensor systems 4−54600
- Ge(Li), space-born spectrometer for gamma-ray astronomy 4−54601
- Ge(Li) counter, multireaction spallation detectors, flux and energy spectra of hadrons 4−74149
- Ge(Li) detector, background spectrum analysis 4−58920
- Ge(Li) detector, meas. of natural gamma-ray background at nuclear reactor 4−80995
- Ge(Li) detector, short lived radioactivity induced by neutrons 4−62544
- Ge(Li) detector, stable ADC development 4−46873
- Ge(Li) detector with pulse area analyser for high resolution spectroscopy 4−51162
- Ge(Li) detectors, meas. of finite solid angle correction factors 4−62542
- Ge(Li) detectors, neutron damaged, regeneration inside cryostat 4−55098
- Ge(Li) diode, energy calibration of quasi monoenergetic photon beam from positron annihilation 4−74122
- Ge(Li) meas. of spectra from (n,nγ) reactions at 0.1 to 3.5 MeV 4−55095
- Ge(Li)-Na(Tl) detector system for $\gamma\gamma$ ang. correlation meas. 4−62516
- ^{2}H(γ,n), gamma-spectra meas. from neutron time-of-flight meas. 4−42913
- HgI$_2$ radiation detectors, charge carrier transport anal. 4−51148
- NaI spectrometer, new design for 10 to 40 MeV gamma rays 4−55094
- NaI(Tl), comparison with Ge(Tl) for monitoring of environmental samples 4−51922
- NaI(Tl), trigger circuit for timing at low γ-ray energies *(French)* 4−77235
- NaI(Tl) scintillation, counter, calc. of efficiency and response functions for gamma rays 4−62543
- Si(Li) guard-ring spectrometer, ^{75}Se gamma spectrum below 30 keV 4−69226

gamma-rays
- celestial burst, interpretation of double struct. 4−58404
- cosmic gamma-ray emissivity and H$_2$ density rel. to extragalactic origin 4−73593
- cosmic ray background removal from nuclear emulsions 4−77193
- cosmic ray burst, satellite obs., 17 Jan 1972 *(Russian)* 4−65022
- ethylene-tetrafluoroethylene copolymers, structural changes, γ-irradiation *(Russian)* 4−72484
- galactic, celestial distrib. 4−73592
- galactic distrib. rel. to positron interstellar equilibrium spectrum 4−65010
- galactic electrons, e.m. radiation production rel. to X- and γ-ray astronomy 4−50419
- galactic gamma ray distrib. SAS-2 data 4−80425
- hard cosmic hard X-ray burst coincidence with gamma ray burst, Vela and OSO-6 obs. 4−50644
- initial gamma radiation, approx. procedures for calculating protection 4−81695
- initial gamma radiation doses in building structures, adjoint Monte Carlo calcs. 4−81694
- invariant imbedding theory of transport, book for nuclear engineers 4−59823
- solar atmosphere, neutron propagation and 2.2 MeV gamma-ray line production 4−80491
- structured acceleration on galactic scale, SAS-2 γ-ray line obs. 4−46137
- supernova early γ-rays from bremsstrahlung and inverse compton heated photons 4−46265
- ^{222}Rn decay products, gamma ray flux and ionization in atmosphere 4−58040

Gamow-Teller transitions *see beta-decay*

garnets
- *see also ferrimagnetic properties of substances*
- bubble domain, homogeneous LPE fluxed melt prod. 4−45426
- bubble domain material, rapid liq. phase epitaxy of high perfection films 4−57683
- bubble domain materials, liq. phase epitaxial, neutron irrad. effects on mag. props. 4−57309
- bubble film, double layer self-biasing, epitaxial growth and props. 4−70403
- bubble film, homogeneous nucleation, anisotropy effect 4−82591
- bubble film, l.p.e., from BaO-BaF$_2$-B$_2$O$_3$ solvent 4−70412
- bubble film anisotropy variation by rotation rate increase and quenching 4−53263
- bubble film uniaxial anisotropy and mag. moment rel. to rotation rate 4−49201
- bubble film uniaxial anisotropy rel. to substrate rotation rate 4−53262
- bubble films, optical sensing of bubble domains by reduction of Pb masking 4−53264
- bubble garnet film, dynamic response of domain walls to step change in bias field, −10 to 60°C 4−64248
- bubble garnet film, straight and wavelike domain wall motion, high speed photography obs. 4−64249
- bubble material, ion implanted, planar domains revealed by Ferrofluid 4−70177
- bubble material, rapid defect detection by stripe domain scanning 4−70190
- crystals, technique for grinding into smooth spheres, microwave appl. 4−68619
- double layer film, epitaxial, self-biasing rel. to bubble formation 4−70185
- epitaxial growth, CVD using single metal alloy source 4−70407
- ferrimagnetic compensation wall width and energy, field depend. 4−79535
- ferrite, randomly magnetised, laser radiation propagation 4−70283

garnets continued
- ferrogarnets, thermophysical props., transition pt. behaviour 4−45107
- film, controlled compensation walls and compromise compensation walls, Si annealing technique 4−60995
- film, epitaxial, dynamic conversion effects 4−60999
- film, epitaxial, microwave interaction, ring domain generation 4−57326
- film, hard bubble suppression, by N_2 annealing 4−70189
- film, hard bubble suppression by inert atm. annealing 4−64247
- film, ion bombard., optical absorption, hard bubble suppression 4−67409
- film, large area, prep. for bubble domain devices 4−70411
- film, liq. phase epitaxial, absence of hard bubbles 4−60991
- film, liq. phase epitaxial, hard bubble diameter, bias field and temp. depend. 4−60993
- film, liq. phase epitaxy, parameters affecting growth and mag. props. 4−57681
- film, liquid phase epitaxial growth from BaO-B_2O_3 fluxes 4−79872
- film, low-loss, domain wall dynamics 4−60997
- film, LPE bubble, local control of uniaxial anisotropy 4−76124
- film, LPE growth, rare earth species in PbO-B_2O_3 flux, diffusion coeff. 4−72647
- film, transparent, domain wall reson., optical diffr. obs. 4−64250
- film, uniaxial, domain patterns *(Japanese)* 4−79557
- film preparation, LPE, fast growth rates 4−72646
- film waveguide, quadratic magneto-optical effect on light propag. 4−76239
- flux growth, review 4−64491
- foreign phase determination, using electron microprobe raster system 4−62651
- garnet-Permalloy composite film, hard-bubble-free, bubble behaviour 4−60992
- grossular, in Allende meteorite 4−65124
- high density, production techniques, properties *(German)* 4−49879
- magnetocrystalline anisotropy, review 4−76100
- magnetoelectric behaviour, survey 4−76111
- magnetostatic modes, in single crystal, correlation with chemical and physical props. 4−64253
- rare earth, film, light diffraction by cylindrical mag. domain arrays 4−45144
- rare earth $Gd_{2.7}$IG, dynamical mag. characts., spin echo and h.f. mag. susceptibility meas. 4−64270
- rare earth $Y_{2.7}$IG, dynamical mag. characts., spin echo and h.f. mag. susceptibility meas. 4−64270
- rate earth iron garnets, Mossbauer ^{57}Fe isomer shifts 4−79658
- spessartite-almandine garnet, elastic constants and pressure derivatives 4−68077
- substituted, synthesis, distortion of coordination polyhedra of O_2 4−48576
- thin films, substituted, epitaxial growth by hydrothermal synthesis 4−49556
- wavelength modulated relfectivity spectra, exciton and charge transfer effects 4−61175
- YAG single crystal, dislocations, effect of growth factors 4−48631
- n-YIG:Si, elec. cond., thermoelec. power, Hall effect and magnetoresist. meas., mag. effects 4−79349
- $Ca_{2.7}Bi_{0.3}Fe_{3.65-x}V_{1.35}O_{12}$, ferrimag. resonance, mag. props. rel. to crystal field symmetry 4−64267
- $Ca_3Sc_2Ge_3O_{12}$, $Ca_3Sc_2Si_3O_{12}$, e.p.r. of V^{4+} 4−67444
- DyAl garnet, antiferromag., mixed phase region, microscope obs. 4−64204
- DyAl garnet, time reversed antiferromag. states, magneto-optical rot., magnetisation depend. 4−64361
- DyFe, far i.r. spectrum, line assignment 4−76248
- $Er_3(FeGa)_5O_{12}$ bubble-domain films and devices, neutron and γ irradiation tolerance, obs. 4−45154
- $Er_3Fe_5O_{12}$, epitaxial garnet film, organometallic chem. vapour deposition 4−73243
- $Er_3Fe_5O_{12}$, room temp. Mossbauer parameters 4−61068
- $Er_3Ga_5O_{12}$, cryst. struct., oxygen coords. 4−44519
- $(Eu,Y)_3(Fe,Ga)_5O_{12}$ mag. bubble films, rot. effects on isothermal growth by liq. phase epitaxy 4−45431
- $(Eu,Y)_3Fe_5O_{12}$, epitaxial garnet film, organometallic chem. vapour deposition 4−73243
- $Eu_3Fe_5O_{12}$, cryst. struct., oxygen coords. 4−44519
- $Eu_3Fe_5O_{12}$, epitaxial garnet film, organometallic chem. vapour deposition 4−73243
- $Eu_{0.6}Y_{2.4}Fe_{3.7}Ga_{1.3}O_{12}$ film, dynamic response of domain walls to step change in bias field, −10 to 60°C 4−64248
- $Eu_xY_{3-x}Fe_5O_{12}$ film, mag. anisotropy, effect of growth temp. and substrate orientation 4−57329
- $Eu_{0.5}Y_{2.35}Yb_{0.15}Fe_{3.8}Ga_{1.2}O_{12}$ film, dynamic response of domain walls to step change in bias field, −10 to 60°C 4−64248
- EuYbY garnet films, LEP, charact. 4−49202
- Fe, film, epitaxial, optical absorption and reflectivity obs. 4−49388
- $Ga_3Al_2Ge_3O_{12}$, e.p.r. of V^{4+} 4−67444
- $Ga_3Gd_5O_{12}$, refractive index at 1.15 μm 4−49321
- Gd-Ga, crystal defect mapping, luminesc. obs. 4−44547
- GdFe garnet, chem. transport with $GdCl_3$ *(German)* 4−49566
- $Gd_3Fe_{5-x}Al_xO_{12}$, room temp. Mossbauer parameters 4−61068
- $Gd_3Fe_5O_{12}$ film, magnetization processes involving planar compensation walls 4−60996
- GdGa, microwave phonon attenuation, temp and freq. depends. 4−79102
- GdGa, ribbon shaped crystal growth for bubble memory substrates 4−57688
- GdGa garnet, contrast of crystal defects under polarised light, calc. for isotropic material 4−56746
- $Gd_3Ga_5O_{12}$, cryst. struct., oxygen coords. 4−44519
- $Gd_3Ga_5O_{12}$, helical growth defects, X-ray topographic obs. 4−44498
- $Gd_3Ga_5O_{12}$, magnetothermodynamics, obs. along [111] axis 4−79512
- $Gd_3Ga_5O_{12}$:Nd laser, transition probability 4−81321
- $Gd_{2.1}Lu_{0.9}Fe_{4.4}Al_{0.6}O_{12}$, bubble domain memories, garnet comps. 4−73004
- $Gd_3Sc_xGa_{5-x}O_{12}$, distrib. coeff. of Sc in Czochralski grown garnets 4−66874

garnets continued
- $Gd_3X_5O_{12}$:B^{3+}, X=Fe, Ga, local vibr. modes obs., i.r. absorption spectra 4−69876
- $Gd_yY_{3-y}Fe_{5-x}Ga_xO_{12}$, film, domain wall mass and mobility, in plane mag. fields 4−70186
- $Ho_xY_{3-x}Fe_5O_{12}$, mag. anisotropy, field depend. *(Russian)* 4−72988
- $(LaY)_3Ga_{0.33}Fe_{4.67}O_{12}$, refractive index at 1.15 μm 4−49321
- LuAl, diamag., Mn^{2+} e.p.r. meas., temp. depend. 4−73020
- $Lu_3Al_5O_{12}$:Cr^{3+}, e.s.r. of Cr^{3+}, isomorphic substitution *(Russian)* 4−82609
- LuGa, diamag., temp.-depend. e.p.r. of Mn^{2+} 4−73020
- $LuGd_2Al_{0.6}Fe_{4.4}O_{12}$ film, epitaxial, dynamic conversion effects 4−60999
- $Mn_3Al_xR_{2-x}Ge_3O_{12}$, (R=Cr or Fe), i.r. spectra 4−49366
- $Mn_3G_xFe_{2-x}Ge_3O_{12}$, i.r. spectra 4−49366
- $Mn_3Ga_xR_{2-x}Ge_3O_{12}$, (R=Al,Cr,or Fe), i.r. spectra 4−49366
- $Na_{0.9}Ca_{2.05}Co_2V_3O_{12}$, refinement of cryst. struct., X-ray diffr. obs. 4−75505
- $NaCa_2Mg_2V_3O_{12}$, e.p.r. of V^{4+} 4−67444
- Nd^{3+}:YAG laser, continuous two-photon fluoresc. monitoring during alignment 4−46709
- $Nd_3Ga_5O_{12}$:Nd^{3+}, mag. moment anisotropy 4−64230
- $NdY_2Fe_5O_{12}$, saturation mag. moment at 0K 4−70147
- $PrY_2Fe_5O_{12}$, saturation mag. moment at 0K 4−70147
- $Sm_3Ga_5O_{12}$, cryst. struct., oxygen coords. 4−44519
- $Sm_{0.4}Y_{2.6}Fe_{3.7}Ga_{1.3}O_{12}$ film, dynamic response of domain walls to step change in bias field, −10 to 60°C 4−64248
- $Sm_{0.4}Y_{2.6}Ga_{1.2}Fe_{3.8}O_{12}$, variously oriented epitaxial films, growth-induced mag. anisotropy 4−53268
- $Sm_{0.4}Y_{2.6}Ga_{1.2}Fe_{3.8}O_{12}$ epitaxial films, magnetic bubble mobility meas. 4−53269
- $Sm_{0.4}Y_{2.6}Ga_{1.2}Fe_{3.8}O_{12}$ film, epitaxial, dynamic conversion effects 4−60999
- $Sr_3Sc_2Ge_3O_{12}$, e.p.r. of V^{4+} 4−67444
- TbFe, far i.r. spectrum, line assignment 4−76248
- $Tb_3Fe_5O_{12}$, cryst. struct., oxygen coords. 4−44519
- V, luminesc., spectral and temp. characts. *(Russian)* 4−82728
- V^{4+} ion, e.p.r. 4−67444
- $(Y, Eu, Tm)_3(Ga,Fe)_5O_{12}$, bubble dynamics, growth induced anisotropy 4−82585
- $(Y,Eu,Gd)_3(Ga,Fe)_5O_{12}$, film, bubble velocity, instability, temp. depend. 4−64251
- $(Y,Gd,La)_3(Fe,Al,Ga)_5O_{12}$ garnet magneto-optical memory based on compensation wall domains 4−49197
- $(Y,Gd,Tm)_3(Fe,Ga)_5O_{12}$ film, mag. bubble translation, effect of const. in-plane mag. field 4−61002
- $(Y,La)_3(Ga,Fe)_5O_{12}$ film, exchange const. and bubble domain wall energies 4−60973
- YAG, crystal parameters effect on laser radiation characts. 4−69059
- YAG, diamag., temp.-depend. e.p.r. of Mn^{2+} 4−73020
- YAG, stress-induced birefr., interferometric null meas. method 4−65450
- YAG, thermo-optical props., expansion coeffs. and refractive index, laser material appl. 4−70274
- YAG liq.-solid interface profile during Czochralski growth 4−78938
- YAG:Cr^{3+}, luminesc. nature, high temp. radiative efficiency 4−61211
- YAG:Mo^{3+}, spin-lattice relax. rates, e.p.r. absorpt. meas., 77 to 500K 4−79592
- YAG:Nd, microwave phonon attenuation, temp. and freq. depends. 4−79102
- YAG:Nd laser, $^4F_{3/2} \rightarrow {}^4I_{15/2}$, fluoresc. quenching by multiphonon relax. 4−74503
- YAG:Nd laser, h.f. pulsed pumping, output fluctuations 4−62845
- YAG:Nd^{3+}, luminesc. obs., use of laser rapid spectroscopy 4−65439
- YAG:Nd^{3+}, mag. moment anisotropy 4−64230
- YAG:Nd^{3+}, melts for single cryst. growth, quantitative analysis 4−70408
- YAG:Nd^{3+}, spectral conversion efficiency, excitation depend. *(Russian)* 4−82727
- YAG:rare earth, luminesc., charge transfer, radiation defects *(Russian)* 4−73203
- YAG:rare earth crystals, γ-irrad., thermolum. meas. 4−67669
- $YAlO_3$:$Er^{3+}(Eu^{3+})(Ho^{3+})(Pr^{3+})$, radiationless relax., coupling strength and band gap depend. 4−53499
- $Y_3Al_5O_{12}$:$Er^{3+}(Eu^{3+})(Ho^{3+})(Pr^{3+})$, radiationless relax., coupling strength and band gap depend. 4−53499
- $Y_3Al_5O_{12}$:Nd^{3+}, absorption and fluorescence spectra 4−53473
- $Y_{3-x}Bi_xFe_{5-y}Al_yO_{12}$ film, giant Faraday effect and optical Q-factor 4−49507
- $Y_{3-x}Ca_xFe_{5-x}Sn_xO_{12}$, Mossbauer spectra obs. of magnetically nonequivalent cation positions 4−53226
- $Y_{3-2x}Ca_{2x}Fe_{5-x}V_xO_{12}$, high Neel temp. system, n.m.r. of ^{51}V and ^{57}Fe 4−70221
- $Y_{3-x}Ca_x(Ge,Si)_xFe_{5-x}O_{12}$ based epitaxial films, for bubble device appl., characts. 4−57328
- $Y_{2.4}Eu_{0.6}Fe_{3.8}Ga_{1.2}O_{12}$ 4−57681
- $Y_{2.4}Eu_{0.6}Fe_{3.8}Ga_{1.2}O_{12}$ film, bubble dynamics, influence of in-plane field 4−61001
- $Y_{3-x}Eu_xFe_{3.9}Ga_{1.1}O_{12}$ film, liq. phase epitaxial, on $Gd_3Ga_5O_{12}$ substrate, misfit strain 4−57004
- $Y_{3-x}Eu_xFe_{5-y}Ga_yO_{12}$ single crystal, for bubble domain devices, mag. anisotropy and domain wall mobility 4−57314
- $Y_{2.4}Eu_{0.6}Ga_{1.2}Fe_{3.8}O_{12}$, bubble motion, vel. scatt. meas. 4−79536
- $Y_{2.14}Eu_{0.56}Tm_{0.30}Ga_{1.1}Fe_{3.9}O_{12}$, multiple film growth by liq. phase epitaxy 4−57682
- $Y_3(Fe,Ir)_5O_{12}$, anisotropy and magnetostriction, ferromag. reson. 4−45127
- $Y_3Fe_{5-x}Dr_xO_{12}$:Cr^{3+}, ferrimag. resonance, mag. props. rel. to crystal field symmetry 4−64267
- $Y_3(FeGa)_5O_{12}$ bubble-domain films and devices, neutron and γ irradiation tolerance, obs. 4−45154
- $Y_3Fe_{5-x}Ga_xO_{12}$, single crysts., losses during alternating magnetisation *(Russian)* 4−72991
- $Y_3Fe_{4.58}In_{0.42}O_{12}$, $Y_3Fe_{3.95}Sc_{1.05}O_{12}$, cryst. struct. oxygen coords. 4−44519

garnets continued
- $Y_3Fe_5O_{12}$, film, mag. circular and linear dichroism, absorption 4−73218
- $Y_3Fe_5O_{12}$, refractive index at 1.15 μm 4−49321
- YGa, diamag., Mn^{2+} e.p.r. meas., temp. depend. 4−73020
- YGdAlFe, saturation magnetis., mag. and dielectric loss, Fe content depend. 4−67407
- $Y_{3(1-x)}Gd_{3x}Al_{5y}Fe_{5(1-y)}O_{12}$, lattice parameter, Curie temp., cluster component method *(Russian)* 4−67364
- $(Y_xGd_yDy_{1-x-y})_3Fe_5O_{12}$, lattice parameter, Curie temp., cluster component method *(Russian)* 4−67364
- $(YGdTm)_3(FeGa)_5O_{12}$ bubble-domain films and devices, neutron and γ irradiation tolerance, obs. 4−45154
- $(YGdTm)_3(GaFe)_5O_{12}$, film, domain patterns in arbitrarily oriented field 4−76117
- YIG, CO^{2+} ion magnetoelastic coupling, f.m.r. obs. 4−73006
- YIG, chem. transport using YCl_3 as transport medium *(German)* 4−49566
- YIG, double-freq. meas. of phase relax. 4−57383
- YIG, epitaxial film, organometallic chem. vapour deposition 4−73243
- YIG, ferromag. reson., magnetostatic waves in normally magnetized disc 4−76165
- YIG, film epitaxial, optical absorption and reflectivity obs. 4−49388
- YIG, homogeneous mag. relax. near second order phase transition *(Russian)* 4−67373
- YIG, impurity distribution obs. by mass spectrography 4−64498
- YIG, laminar domain struct., switching, light diffr. 4−79549
- YIG, mag. anisotropy, elec. field effect 4−76103
- YIG, magnetized normal to surface, magnetoelastic Rayleigh waves 4−61010
- YIG, magnetoelastic Rayleigh wave propagation along tangential bias field 4−45158
- YIG, magnetostatic wave drag on electrons in adjacent InSb 4−53109
- YIG, magnetostatic waves, dispersion relations and propagation losses derived 4−45157
- YIG, n.m.r. of ^{55}Mn, site distrib. of Mn ions *(French)* 4−64268
- YIG, optical absorption, transitions identification 4−79750
- YIG, photoconductivity spectra obs. in bulk and film samples 4−49037
- YIG, surface vibrs., i.r. refl. spectra *(Russian)* 4−69954
- YIG, two-photon absorpt. in u.h.f. range, nonlinear susceptibility, spin wave excitation *(Russian)* 4−69093
- YIG, u.h.f. spin echo spectrometer for impurity studies 4−68755
- YIG and YIG:Ga, epitaxial film, chem. vapour deposition and thermodynamic analysis 4−53597
- YIG ferromagnetic phases of crystalline structures 4−70545
- YIG films, liq. phase epitaxy, Pb ions incorporation, radioactive chem. analysis 4−60705
- YIG films, Pb substitution effects 4−60706
- YIG magnetic bubble film, exchange stiffness temp. depend. 4−57325
- YIG single crystal preparation and properties 4−76388
- YIG single-crystal resonator, influence of thickness on ΔE effect 4−79564
- YIG sphere, excitation and propag. of transverse and longit. magnetoelastic waves 4−76134
- YIG:Ca(Mg), d.c. conductivity and Seebeck coeff. meas., 1200-1700K varying O press. 4−67214
- YIG:Ga, anisotropy, magnetostriction 4−82576
- YIG:Gd, Bloch domain boundary interaction with e.m. wave 4−79547
- YIG:Pb^{2+},Si^{4+}, film, elec. and optical props, liq. phase epitaxy 4−79420
- YIG:Pr^{3+}, ferromag. relax. mechanism, press. induced change 4−79605
- YIG:Si, magnetisation, temp. and field depends. 4−76118
- YIG:Si, positive isotropic magnetoresist. mechanism 4−75900
- YIG:Si^{4+}, photoinduced changes in mag. props. obs. 4−76122
- YIG:U, prep., some mag. props. 4−72986
- YInAl ferrite garnet, distortion of coordination polyhedra of O_2 4−48576
- $Y_{2.9}La_{0.1}Fe_{3.8}Ga_{1.2}O_{12}$ film, domain wall dynamics 4−60997
- $Y_{3-x}Lu_xFe_5O_{12}$, growth induced anisotropy 4−64232
- $Y_{3-x}Lu_xFe_5O_{12}$, growth-induced anisotropy, temp. and comp. depend. 4−57303
- $Y_{3-c}Pr_cScFe_4O_{12}$ garnet, structural variation investigation, reln. with mag. anisotropy and cryst. chemistry 4−60454
- $Y_3Sc_xGa_{5-x}O_{12}$, distrib. coeff. of Sc in Czochralski grown garnets 4−66874
- $Y_{3-x}Sm_x(Fe_{2-y}Ga_y)(Fe_{3-z}Ga_z)O_{12}$, effect of tetrahedral vs octahedral Ga site occupancy on props. 4−70183
- $Y_{2.5}Sm_{0.5}Fe_{3.7}Ga_{1.3}O_{12}$ film, controlled compensation walls and compromise compensation walls, Si annealing technique 4−60995
- $Y_{2.62}Sm_{0.38}Fe_{3.85}Ga_{1.15}O_{12}$, $Y_{1.92}Sm_{0.1}Ca_{0.98}Fe_{4.02}Ge_{0.98}O_{12}$, films, for bubble domain memories 4−73004
- $Y_{2.6}Sm_{0.4}Ga_{1.2}Fe_{3.8}O_{12}$, growth induced anisotropy, annealing effect, temp. depend. 4−76101
- $Y_3X_5O_{12}$:B^{3+}, X = Fe, Ga, local vibr. modes obs., i.r. absorption spectra 4−69876
- $Y_3[Fe_{2-x}Ga_x](Fe_{3-y}Ga_y)O_{12}$, saturation magnetisation 4−67398

gas *see gases*

gas analysis *see chemical analysis*

gas breakdown *see electric breakdown of gases*

gas bubbles *see bubbles*

gas discharge lamps *see discharge lamps*

gas-discharge tubes
- *see also ion sources; thyratrons*
- heat sources, 10000 to 18000K, null-modulation optical meas. 4−80850
- plasma, Ar and He, ionisation rate, freq., meas. *(Russian)* 4−75300
- Ne, tube wall cooling, effect on basic parameters 4−75397
- ZnO-plasma display, fabrication and characterisation 4−61236

gas discharges *see discharges (electric)*

gas dynamics *see aerodynamics*

gas ionisation *see ionisation of gases*

gas lasers
- *see also chemical lasers*
- autostabilisation of intermode pulse freqs. *(Russian)* 4−51580
- axial mode interactions, field in cavity with quasi-quarter wave plates 4−71562
- binary mixture based gas dynamic laser theory *(Russian)* 4−74497
- bistable, field fluctuations 4−55467
- capillary type, applicability of symmetric diffusion waveguide 4−71544
- cavity stability meas., laser warm-up time rel. to hologram recording 4−65923
- chemical, in visible region, general review 4−55469
- CO_2, lower frequency components 4−69046
- degradation, of laser medium, due to ionisation by laser pulse 4−43296
- direct discharge ion laser, collective processes *(Russian)* 4−65905
- discharge initiation by electron beam, ionis. and recomb. coeffs. meas. method 4−78853
- distributed feedback by space modulation, u.v. emission without resonator *(Russian)* 4−71542
- dye vapour, optically pumped, present status review 4−43314
- electron beam controlled, h.v. pulse generator and other design problems 4−59408
- electron beam generators for plasma heating and gas laser excitation 4−59881
- electron beam preionisation of discharge pumped gas lasers 4−43301
- emission from J = 1 → J = 0 transition, polarisation and statistical properties 4−71537
- energy extraction using inhomogeneous laser mirror, higher transverse mode energy 4−81308
- escape factor calc. at small optical depth 4−51578
- far i.r., review 4−77640
- fast flowing, with unstable resonators, free oscillating emission instability *(Russian)* 4−77663
- formaldehyde, far i.r. laser emission obs. 4−81302
- gasdynamic and chemical, linear theory, diffusion problems *(Russian)* 4−69051
- hydrazine vapour excited by CO_2 laser, stimulated emission of submillimetre waves *(Russian)* 4−59405
- inert gas, multiply ionized ion, Z-pinch discharge, u.v. laser oscills. 4−62834
- inert gas c.w. ion laser, high power, construction and test results *(German)* 4−55464
- inert gas excimer laser, dynamic model 4−77645
- inert gas ions, radiative lifetimes meas. 4−77650
- metal ion c.w. laser system, Penning reactions 4−74908
- metal vapour, charge exchange mechanism 4−74907
- mode interaction, longit. oscill., gas laser with rapidly decaying lower level 4−51562
- mode interactions, orthogonal and parallel polarizations 4−69048
- molecular gas, electron distrib., model 4−51554
- negative ion, electron bombard. at reson. energy 4−65894
- noble gas ion laser, use as standard in length measurement *(German)* 4−59406
- 2,2'-p-phenylenebis[5-phenyloxyazole], dye vapour laser, N_2 laser excitation 4−74485
- plasma, amplification in X-ray region 4−74495
- plasma, population inversion prod. by picosecond laser pulses 4−65903
- pumping by nuclear power 4−47337
- quantum electronics, conference, San Francisco, USA, (1974) 4−69036
- recombination laser with electron beam generated supercooled plasma 4−59400
- review and shock tube utilization in flowing gas laser 4−71545
- ring, nonlinear absorpt. and homogeneous broadening 4−74513
- ring, nonlinear interaction between opposite waves with various polarisations *(Russian)* 4−69070
- ring, unsynchronised two-mode lasing investig. 4−71563
- ring laser, theory of locking 4−51611
- ring laser, travelling wave amplitude, freq., spatial distrib. determ. 4−71560
- shock driven, high pressure 4−71546
- stability and coherence rel. to large field depth hologram recording 4−68706
- u.v., efficiency improvement by electron and light beam velocity matching 4−47339
- u.v., relativistic electron beam pumping 4−43302
- water vapour, frequency beats between orthogonal linear polarisations *(Russian)* 4−81313
- waveguide, optically pumped far i.r. and mm wave 4−74512
- wavelength meas., using Fabry-Perot interferometer, systematic errors 4−51082
- wavelength stabilisation, review of techniques 4−65904
- He, nuclear-radiation-induced excitation population inversion 4−81311
- Ar, c.w. emission in mag. field, l.f. beats 4−69044
- Ar, discharge, transient gain detection 4−74079
- Ar, laser discharge, excited state population densities 4−55468
- Ar, laser light modulator designing for photographic sound recording *(Russian)* 4−77117
- Ar, nuclear-radiation pumped association laser 4−81736
- Ar, plasma oscillations effect on emissiion parameters 4−59401
- Ar c.w. laser emission, polarisation in transverse mag. field 4−51559
- Ar II, high power, axial mag. field influence *(German)* 4−62827
- Ar II CW laser with 500 W output, description 4−47341
- Ar ion, large bore high power, mode struct. and beam divergence 4−43297
- Ar laser frequency stabilisation by saturated absorption or dispersion in I_2 4−65908
- Ar-H_2, Ar-N_2 mixtures, laser emissions obs. in u.v., prod. by transverse excitation laser *(French)* 4−43298
- Ar-ion laser, cavity dumped, excitation source for time-resolved fluorimetry 4−77644
- Ar-N_2, electron-pumped, emission at 3577 and 3805 Å 4−71525
- Ar-N_2, high-power transfer laser at 3577Å 4−62830
- Ar^+, laser plasma parameters, probe meas. 4−71531
- Ar^+, line selection using Littrow prism 4−51553
- Ar^+, wavelength stabilization, external $^{129}I_2$ absorption cell 4−47336

gas lasers continued
Ar^+, with CdS film, laser thermoprobe, thermal profile obs. in Al film 4−65392
Ar_2, molecular, electron beam stimulation 4−59385
As, vap., i.r. transitions obs. 4−77651
Ba, pulsed emission, reson. to metastable level transitions 4−69050
Ba vapour in He buffer gas, stimulated emission at 1.2478 μ 4−51566
CO, c.w. elec. discharge laser, kinetic modelling 4−62828
CO, determ. of absolute freq. of $^{12}C^{16}O$ and $^{13}C^{16}O$ lines 4−43285
CO, emissions obs. in u.v., prod. by travelling-wave transverse excit. laser *(French)* 4−43298
CO, gas-dynamic, output power depend. on CO conc., deceleration temp. 4−81309
CO, generating power depend. on gas mixture parameters at room temp. *(Russian)* 4−77661
CO, laser plasma, small signal gain, vibr. distrib. 4−71530
CO laser, temp. field 4−81306
CO-Xe-He mixture, pulsed stimulated emission due to CO mol. vibr. transition 4−77660
CO_2, 10 kW industrial welding system, performance 4−74537
CO_2, 15 atm. He-Co_2-N_2 mixture, electron-beam controlled, operation 4−74486
CO_2, 9.4- and 10.4 μm bands, line widths and intensity 4−56234
CO_2, 9.6 μ laser transition probability and optical broadening cross-section 4−43283
CO_2, amplification in electron beam controlled pulsed discharge 4−65893
CO_2, automatic freq. stabilized, control circuit parameters determ. *(German)* 4−43307
CO_2, c.w. and TEA laser discharges, mass spectroscopy of plasma 4−59398
CO_2, cold-cathode electron-beam-controlled, parametric expt. and theoretical study 4−59390
CO_2, decomp. instability of vibr. relax. *(Russian)* 4−59402
CO_2, double transverse discharge pumping limiting conditions 4−51561
CO_2, electric ionisation laser, gain of active medium 4−51565
CO_2, electrically driven 200 joule laser 4−81305
CO_2, electron beam controlled, 1 kJ and 10 kJ systems 4−59407
CO_2, electron beam spreading effect on sustainer current and field distrib. 4−65897
CO_2, electronically scanned waveguide laser array 4−69038
CO_2, excitation and gain calcs. 4−59389
CO_2, freq. stabilization by external nonlinearly absorbing SF_6 cell 4−69047
CO_2, heating of metals, calc. 4−47395
CO_2, high energy, styrofoam calorimeter applic. 4−51084
CO_2, high pressure pulsed elec. ionisation laser, threshold pumping energy 4−51571
CO_2, i.r. lasing emission investig., emissivity, radiancy calc. *(French)* 4−65900
CO_2, laser power calc. 4−81304
CO_2, method for output freq. stabilisation 4−51575
CO_2, multiline mode-locked u.v.-preionized 4−69040
CO_2, optical distortion of heated mirror 4−43331
CO_2, plasma, h.f. elec. field effect *(Russian)* 4−59387
CO_2, pulse prod. at 10.6μ by fast electro-optical gating 4−46706
CO_2, pulsed, increased press. with preionisation at cathode, construction 4−77652
CO_2, pulsed, with 150J radiation energy, construction and parameters *(Russian)* 4−71540
CO_2, pulsed laser, double discharge method excitation 4−51574
CO_2, pulsed operation, effects of foreign gases 4−74490
CO_2, quasistationary atm. press. laser with semi-self-maintained discharge *(Russian)* 4−69053
CO_2, rot. relax. effects on sequentially Q-switched transitions 4−65896
CO_2, rotational relax. in vibrational laser levels 4−51551
CO_2, sealed-off, methods of obtaining long lifetimes 4−71528
CO_2, single nanosecond pulse selection with GaAs Pockels cell 4−51083
CO_2, small signal light absorption 001-100 band, 300-615K 4−74988
CO_2, stimulated Raman scatt. due to rot. transitions 4−77718
CO_2, superatmospheric double discharge laser 4−55466
CO_2, system, use of gas calorimeter at 10.6 μm 4−65465
CO_2, TEA, actively mode-locked, multiline output 4−77656
CO_2, TEA, p-Ge saturable absorber, mode locked pulse prod. 4−47335
CO_2, TEA, variable beam attenuator, propylene or propane gas cell 4−46710
CO_2, TEA, with helicoidal electrode config., active mode selection *(French)* 4−65902
CO_2, TEA double discharge, anomalous gain coeffs. 4−77648
CO_2, TEA laser, actively mode-locked with high-power multiband output 4−51560
CO_2, TEA laser, small signal gain meas. 4−47342
CO_2, tunable resonator with variable curvature mirror 4−69069
CO_2, u.v. preionised laser, parametric study 4−69043
CO_2, u.v. preionised laser discharge, optical homogeneity, holographic interferometry obs. 4−74484
CO_2, u.v. sustained discharge pumping, high energy pulses 4−74488
CO_2, V-I characts. and efficiency, two temp. gas model 4−51554
CO_2, vibr.-rot. line selection by diffr. grating in resonator 4−69049
CO_2, with helical distrib. of electrodes, pulse shape and energy 4−51572
CO_2 10.6 μ emission with optical pumping at 9.6 μ *(Russian)* 4−71543
CO_2 c.w. TEA hybrid laser, single mode performances 4−71535
CO_2 laser, light velocity meas. 4−73972
CO_2 laser, wavelength meas. for 9.3 micron R(12) transition 4−74493
CO_2 laser discharge, electron beam spreading, effect on sustainer current and field distrib. 4−43303
CO_2 laser discharge, formative time lags, meas. 4−71524
CO_2 laser emission, spectral comp. during quality modulation *(Russian)* 4−59403
CO_2 laser stabilisation using plasma impedance variation as error signal 4−65910

gas lasers continued
CO_2 laser stimulated emission cross-section meas. by sidelight fluorescence drop 4−65911
CO_2 laser with ellipsoidal reflector system, silica fibre drawing 4−59458
CO_2 mixtures, gain in shock driven flow 4−71548
CO_2 population inversion by mixing with supersonic N_2 nozzle flow, N_2 4−71547
CO_2 sealed-off laser, output power depend. on discharge current, mixture ratio, total pressure *(German)* 4−81298
CO_2 TEA, and CO_2-N_2, operational principles *(Polish)* 4−65895
CO_2 TEA laser discharge, i.r. and mass spectroscopy *(German)* 4−77647
CO_2 transversely excited high pressure, discharge and oscillation characs. 4−55465
CO_2 using induced flow glowing discharge in closed loop with convection cooling *(Russian)* 4−51577
CO_2 waveguide laser, pressure-broadened highly tunable, design 4−43295
CO_2-He-Ne gas dynamic laser, shock tube meas. of gain 4−59386
CO_2-N_2, spontaneous 2.7 μ emission mechanism 4−71549
CO_2-N_2, supersonic stream, thermal excitation, optimal inversion modes 4−47343
CO_2-N_2, TEA adjustable output pulse length 4−43291
CO_2-N_2-He, sealed, catalysis, dissociation limit 4−65901
CO_2-N_2-He(H_2), plasma injection, uniform continuous discharge 4−62832
CO_2-N_2He-tri-n-propylamine, photoelectron distrib. 4−43288
CO_2+N_2 mixture, gas dynamic laser, nonequilib. flow 4−51570
$^{12}C^{16}O$ laser frequency, absolute meas. in 30-60 THz region 4−65932
$^{13}C^{16}O$ laser frequency, absolute meas. in 30-60 THz region 4−65932
$^{13}C^{16}O$ laser transitions, wavelength meas., 1500 to 1900 cm^{-1} 4−60073
Ca vapour in He buffer gas, stimulated emission at 0.3737 μ 4−51566
Co_2 laser radiation angular divergence and transverse intensity distribution meas. 4−80932
Cu vapour, rapidly pulsed, buffer gas effects 4−62833
Cu vapour, use in laser projection microscope 4−80904
DF, pulsed laser, 2.6 to 4.2 μ range emission 4−51567
H_2, high power, u.v., transverse discharge pumped, stimulated emission at 160 nm 4−81310
H_2, simple low-divergence laser at 160 nm 4−59397
H_2, vac. u.v., inversion mechanism 4−43292
H_2 emissions obs. in u.v., prod. by travelling-wave transverse excit. laser *(French)* 4−43298
H_2 laser, electron beam excitation, spectral line breadth 4−71538
H_2-F_2-He mixtures, population inversion behind blast waves 4−69041
HCN, c.w., 4m length, appls. 4−71529
HCN, c.w., output power stability 4−69045
HCN, c.w. 337 μ laser, gain saturation and oscill. linewidth, expt. results 4−51557
HCN, laser plasma, Faraday mode splitting meas. of electron density 4−48447
HF, pulsed laser, 2.6 to 4.2 μ range emission 4−51567
He-Ar, pulsed afterglow, laser oscillation at 4765 Å 4−43306
He-Cd, c.w. 4416 Å laser, noise and output power 4−43305
He-Cd, electronic collision induced CdII transition, $4d^95s^2$ config. 4−65898
He-Cd, metal-ceramic, hollow cathodes, output characts. 4−43299
He-Cd laser discharge, perturbation spectroscopy 4−59395
He-Cd^+, development and performance *(German)* 4−47345
He-Cd^+, noise generating processes 4−43290
He-Cd^+ two-anode, optimum operating conditions 4−55462
He-I mixtures, iodine ion excitation, population inversion *(Russian)* 4−77662
He-I_2, c.w., positive column discharge, output characts. 4−43294
He-Ne, 0.63 μ emission, He + Ne*, Ne + Ne* collisions 4−51568
He-Ne, 2 mode interactions, polarization depend. 4−69048
He-Ne, 3.39 μm, FM mode-locking using large locking signal 4−62835
He-Ne, amplification coeffs. of 4218, 5403, 7699 nm Ne transitions 4−62826
He-Ne, cone-shpaed discharge tube, power increase 4−69052
He-Ne, coupled laser mode locking by two-quantum interaction 4−71534
He-Ne, emission polarisation in mag. field, resonator anisotropy effect *(Russian)* 4−51579
He-Ne, freq. fluctuations at 0.63 μ in technical spectrum part 4−81307
He-Ne, freq. stabilisation at $\lambda=0.63\mu$ w.r.t generation freq. $\lambda=3.39\mu$ 4−55470
He-Ne, freq. stabilization by saturated absorption 4−43293
He-Ne, gas pressure effect on low-freq. beats 4−77657
He-Ne, internal and external mirror types of VEB Carl Zeiss JENA 4−74492
He-Ne, laser output rel. to high freq. excitation 4−51576
He-Ne, laser rangefinder, microwave freq. modulation, freq. conversion in photodetector 4−68611
He-Ne, lasing line shapes in $^3S_2$-$^2P_4$ and $^2S_2$-$^2P_4$ transitions 4−77658
He-Ne, length standards, coherence and stability *(French)* 4−42698
He-Ne, mass market applics., requiring low scanning power 4−51657
He-Ne, methane nonlinear absorbing gas as delay line 4−46708
He-Ne, multimode, freq. modulation effect *(Russian)* 4−59388
He-Ne, natural spatial coherence governed by spontaneous emission *(Russian)* 4−71568
He-Ne, optical variables ang. depend. meas. using c.w. laser 4−51018
He-Ne, ring, synchronized, axial mag. field effect on beat freq. 4−59437
He-Ne, ring laser, collision broadening meas. method 4−77659
He-Ne, stimulated emission due to 0.63 μ, 1.15 μ coupled transitions 4−51564
He-Ne, stimulated emission spectrum rel. to resonator tuning 4−51563
He-Ne, third-order intensity correlations in laser light 4−51621

gas lasers continued
  He-Ne, use in light-scatt. probe for turbulent diffusion obs. 4−46984
  He-Ne, wavelength stabilization for length measurement *(German)* 4−62837
  He-Ne, with active medium placed in mag. field, energy characts. of competing transitions *(Russian)* 4−59404
  He-Ne amplifier based on 3.39 μm line, nonlinear props. *(Russian)* 4−51581
  He-Ne compact plano-concave resonator design *(German)* 4−47344
  He-Ne laser, mode crossing signal, collisional effects 4−62836
  He-Ne laser, resonator length effect of coupled lasing channels on standing wave interaction 4−51612
  He-Ne laser, sharp resonances in two-freq. lasing regime investig. 4−71536
  He-Ne laser, stabilisation method investigation for twin-modex generation *(Russian)* 4−43310
  He-Ne laser stabilised by saturated absorption in I_2 4−65907
  He-Ne laser stabilised by saturated absorption in $^{127}I_2$, reproducibility 4−65909
  He-Ne popular design with cold-cathode tube 4−81299
  He-Ne ring laser, nonreciprocity of opp. travelling waves, diaphragming 4−51613
  He-Ne ring laser, stabilised, freq. reproducibility *(Russian)* 4−69071
  He-Se$^+$, development and performance *(German)* 4−47345
  He-Xe, improved unstable mode profiles, aperture shaping 4−74489
  He-Zn, charge exchange mechanism 4−74907
  He_2^+-N_2 mixture, stimulated emission from electron beam discharge, afterglow obs. 4−59384
  Hg, atom, electron impact cross sections, pot. laser appls. 4−74891
  I, discharge laser operating on 1315 nm transition *(Russian)* 4−74496
  Kr II, pulse-excited, 647.1 nm, waveforms 4−77655
  Kr-Xe, c.w., spontaneous emission, current depend. 4−81301
  Mg vapour in Ne, He buffer gas, stimulated emission at 0.9244, 0.9218 μ 4−51566
  $MnCl_2$ vapour, elec. discharge stimulation at 953K 4−55461
  N_2, coaxial, emission props. *(German)* 4−71539
  N_2, convertor attachment using organic dye soln., construction 4−77668
  N_2, high power, u.v., transverse discharge pumped, stimulated emission at 337.1 nm 4−81310
  N_2, high power pump for u.v organic liquid laser 4−51588
  N_2, high-power laser, characts. 4−51569
  N_2, laser emissions obs. in u.v., prod. by transverse excitation laser *(French)* 4−43298
  N_2, laser parameters, temporal variation calcs. *(French)* 4−81303
  N_2, low threshold coaxial laser with resonator 4−69039
  N_2, multiply ionized ion, Z-pinch discharge, ultraviolet laser oscillations 4−62834
  N_2, optically pumped elec. discharge u.v. laser 4−43286
  N_2, pulsed high-power laser 4−51573
  N_2, pulsed operation *(German)* 4−69037
  N_2, transversely excited, time-resolved analysis 4−51558
  N_2, triggering by dye laser 4−81317
  N_2 dual channel Blumlein laser, construction details 4−55472
  N_2 pulsed laser line splitting *(Russian)* 4−81312
  N_2-CO_2, discharge laser without helium *(Russian)* 4−43309
  N_2-CO_2 gas dynamic laser based on binary mixture *(Russian)* 4−74497
  N_2-He mixture, superradiance of nitrogen bands in discharge at high pressures *(Russian)* 4−71541
  NH_3, optically pumped, far i.r., transverse modes 4−51556
  NO, photoexcitation, transition identification 4−47338
  NO_2, photoexcitation, transition identification 4−47338
  Ne, laser freq. tuning, appl. of Xe discharge refractive index var. *(Japanese)* 4−43333
  Ne, nuclear-radiation pumped association laser 4−81736
  Ne, pulsed high-power laser 4−51573
  O III, afterglow character, high gain 4−81300
  O_2 multiply ionized, Z-pinch discharge, u.v. laser oscills. 4−62834
  OH i.r. pulse laser produced by electrical discharge in O_3-H_2 mixture 4−59399
  Sr vapour in He buffer gas, stimulated emission at 0.4305, 0.4162 μ 4−51566
  Tl, population inversion method, hyperfine filter 4−77081
  Xe, megawatt vacuum u.v., coaxial electron beam excitation 4−74494
  Xe, vacuum u.v. high press., diluent cooling, expt. 4−51555
  Xe ion laser, 82 kW peak power, construction 4−55471
  Xe-Ca, charge exchange mechanism 4−74907
  Xe_2 molecular laser, electron-beam-excited 4−71526
gas permeability *see permeability*
gas technology, natural *see natural gas technology*
gas turbines
  see also turbogenerators
  flow duct walls, acoustic impedance meas. technique, rel. to gas turbine environment 4−65385
gases
  atmospheric gases, refractometry in submillimetric wavelength region 4−65456
  equations of state of ideal gases and gas mixtures, numerical treatment *(German)* 4−78551
  ion-getter pumped system, residual gas kinetics, H_2O vapour chemisorption 4−50999
  light absorption coefficients, definitions and dimens. *(Russian)* 4−43914
  light scattering, mag. field effects on multiple scatt. lifetimes 4−69553
  mixtures, numerical method for composition analysis in vacuum network 4−42956
  selective stimulation of chemical reactions, by laser 4−50192
  statistical mechanics, new conception, cells of phase-space, capacity var., degeneracy depend. 4−77559
  temperature meas., high, rapidly changing, using thermocouple and resistance probe *(Czech)* 4−54847
  u.s. wave propagation, force parameters and energy produced calcs. 4−60145
Gaussian noise *see random noise*
gegenschein *see zodiacal light*
Geiger counters
  environmental γ doses, low level, meas. with thermoluminescent dosimeters and Geiger counters 4−51915
  portable four-decade logarithmic Geiger-Muller survey meter design 4−55088
  radiation indicator, conversion to acoustic impulses *(Czech)* 4−58930
  self-quenching, anode surface area and ageing 4−55084
  three electrode device with controllable sensitivity 4−42907
  $^3He(Br_2)$ filled Geiger counters for slow neutrons, efficiency and γ sensitivity 4−81018
  ^{85}Kr, thermal release detection with flow-type counter in G-M region *(Slovak)* 4−55043
Geiger Muller counters *see Geiger counters*
gelatin
  see also gels
  adsorption on AgI grains, competition with polyethylene-oxide 4−54068
  gel, conc. aqueous, mech. props. in low-strain conditions *(Russian)* 4−53922
  $CuSO_4$:gelatin, expt. attempts to confirm X-ray lasing 4−43278
gels
  chromatography of ^{99m}Tc radiopharmaceuticals 4−55142
  gelatin, conc. aqueous, mech. props. in low-strain conditions *(Russian)* 4−53922
  high-elastic, vibrational properties 4−64651
  polyacrylamide, isoelec. focusing of proteins 4−65590
  polyacrylamide, thin-layer isoelec. focusing, zymogram method 4−65588
  polyacrylamide gel electrograms, densitometry, microphotometer modification 4−46922
  polycondensates, critically branched, mol. wt. meas. by Archibald method, gelation theory 4−57786
  polymer, structural-morphological props. *(Russian)* 4−53924
  polysilicic acid ion-substituted gels, structure of adsorbed water determ. by spin-echo method 4−45854
  PVC plastisols and gels, rheological props. 4−64648
  silica aerogels, use on Cherenkov radiators 4−55054
  silica gel spheres in disperse electrorheological suspension, behaviour in electric field *(Russian)* 4−45855
  urania sol-gel, initial-state sintering mech. and rel. to temp. 4−78231
  $CuSO_4$:gel, X-ray laser expts., theoretical model, possible wavelengths 4−47332
  α-FeOOH formation, role of seeding sol 4−50040
  FeO(OH) gel as catalyst for ortho-para conversion of liquid H_2 4−73414
  SiO_2, adsorpt. of methyl alcohol, toluene and benzene, mag. study 4−69957
  SiO_2, macroporous, absorpt. of polystyrene, temp. effects on kinetics and equil. *(Russian)* 4−53923
  SiO_2, models of capillary-porous bodies, thermodynamics of moisture retained 4−45847
  SiO_2, porous, diffusion and adsorption of polyethyleneimine 4−53917
general relativity
  see also cosmology; gravitation; gravitational red shift; Schwarzschild metric; unified field theories
  algebraically special gravitational fields, complexifications 4−65771
  ang. momentum classical relativistic, behaviour in Minkowski space 4−65772
  anisotropic spheres, equations of state and quasars 4−50438
  asymptotically flat, static, vacuum space-times, condition on Weyl tensor 4−47196
  axisymmetric gravitating masses, space-time in strong magnetic field 4−65049
  Bergmann's theory, rel. to Sach's quaternion eqns. of gravitation 4−47202
  black hole decay, charge and particle conservation, Hawking's predictions 4−73719
  black holes, axisymmetric stationary horizons 4−47172
  capillary gravity waves, transient linear, second variational principle 4−77545
  causality violation by gravitational field of rapidly rotating infinite cylinder 4−68931
  charged dust spheres, soln. to Einstein-Maxwell eqns. in implicit form 4−55349
  charged dust spheres, solns. of Einstein-Maxwell eqns. for isotropic collapse 4−59274
  charged elastic media, solution of Einstein's interior field equations 4−74388
  charged perfect fluid, plane symmetric distrib. 4−51438
  charged radiating shells, eqns. of motion, Friedman states *(Russian)* 4−65777
  computer algebra systems applics., ALAM/CLAM and CAMAL systems 4−68935
  conformal invariance and origins of mass 4−51439
  conformal spinor fields 4−47197
  conservation eqns. and eqns. of motion in null formalism 4−65764
  constraints equations, global solns. on open and closed manifolds 4−47184
  continuous media, energy and momentum balance *(French)* 4−59256
  cosmological constant, type D soln. with double Debever Penrose vectors 4−65785
  cosmological effects of generalised field eqns. 4−73606
  cosmological interpretation in terms of substratum for energy propagation 4−70867
  curvature tensors, Riemannian manifold geometrical properties 4−68927
  curved Riemannian spaces globally embedded in pseudo-Euclidean space, basis vector formulation 4−59028
  de Sitter universe, coupling between time reversal and space-time symmetries 4−71403
  de-Sitter type metrics, redshift formulae 4−47190
  de-Sitter universe, geometry 4−47189
  differentially rotating configs., axisymmetric oscillations 4−65140

general relativity continued
direct interparticle action, stress energy tensors 4−65766
dispersion reln. for gravitational radiation in Schwarzschild background 4−65788
dust matter, elec. charged, class of gravitational fields *(Russian)* 4−77544
Einstein's equation, generalised Kerr-Schild solution 4−55357
Einstein's gravitational theory, second order approx. in flat space-time 4−47199
Einstein's stationary spherically symmetric cluster of particles 4−43158
Einstein's theory, book for undergraduate level use, includes spinar formulation and gravitational waves 4−59277
Einstein's theory, rel. to solar activity 4−54378
Einstein's theory, textbook in notation of differential geometry to Ph.D. level 4−62721
Einstein's vacuum field equations, exact solns. for spinning masses 4−65786
Einstein equations, complex structures and representations 4−81235
Einstein equations, exact time dependent with axial symmetry, numerical integration 4−74386
Einstein equations, strength calcs., comparison with other eqns. of physics 4−47039
Einstein equations modifications for description of elementary particles *(Russian)* 4−71595
Einstein field eqn. axially symmetric solns. *(Russian)* 4−55359
Einstein field eqns. for infinite uncharged rotating cylinder, exact solns. 4−59275
Einstein Maxwell equations, asymptotically flat soln. for system with mass, mag. moment, charge and ang. momentum 4−65787
Einstein system reduction using congruence of time lines on frame of reference 4−59270
Einstein vacuum field eqns., soln. in nonradiative algebraically special space-times 4−55354
Einstein-Maxwell equations, study of radiation solutions 4−65769
Einstein-Maxwell fields, complexification of class of null vector fields 4−65784
Einstein-Weyl equations, nonexistence of static solutions 4−59272
elastic scattering in Kerr metric including source rotation 4−65768
electric polarization near Schwarzschild limit due to electron gravitational mass effects 4−50442
energy-electric charge equivalence 4−77537
equivalence principle, implications derived from special relativistic presymmetry 4−65759
Estein's theory, development and contradictions *(Hungarian)* 4−81234
extended body dynamics, equations of motion calc. 4−77538
extension to complex field 4−74399
f gravity inclusion in Einstein's field eqns., gravitational singularities 4−58214
finite neutrino rest mass derivation 4−69203
five dimensional, scalar-tensor theory of gravitation *(Russian)* 4−55358
fluid sphere, static, exact soln. for interior Einstein field eqns. 4−59266
Friedmann metric, application of constraint and evolution equations of Cauchy initial value problem 4−55356
gauge transformations in slow motion approx. 4−65760
generalisation based on correspondence principle, divergence free theory of e.m., gravitational and short-range interactions 4−71408
generalised Lagrangian, implications of conformal mapping 4−59271
ghost neutrinos, soln. to Einstein-Dirac eqns. 4−47201
global analysis applications, linearization stability of Einstein eqns. 4−47185
gravitation theories of Whitehead and Einstein 4−59273
gravitational field generated by nucl. particle, soln. of field eqns. *(Italian)* 4−77535
gravitational radiation, calcs. for ultrarelativistic bodies in circular orbits 4−65796
gravitational Stokes parameters rel. to radiative transfer 4−50439
gravitational theories, review 4−55353
gravitational wave tails in linear theory, spin coefficient technique 4−55361
gravitonic mass rel. to cosmological const. 4−65804
group theory in nonlinear problems, conference, Istanbul, Turkey (August 1972) 4−47026
Hamiltonian system of two relativistic particles, canonical approach *(French)* 4−47181
horizon events in five-dimens. theory *(French)* 4−43157
Huggins term, existence in curved space 4−65774
hydromechanic-thermodynamical fundamental eqns., approx. for non-rel. velocities including conductive momentum density *(German)* 4−81233
interior metric of sphere, effective mass density as variable 4−74390
interior solns. stationary axially symmetric 4−47191
invariant noncanonical mappings of singular theories 4−74395
isotropic nonholonomic space-time manifolds invariance props. *(Russian)* 4−55360
isotropic universe models and de-Sitter geometry *(Italian)* 4−43155
Jordan projective theory of relativity gravitational collapse of star 4−80453
Kerr field, e.m. charge emission *(Russian)* 4−74396
Kerr metric, numerical calcs. for small perturbations 4−68323
Kerr Newman naked singularity, effective pot. 4−74393
Kerr solution, used for study of gravitational charge and mass quantisation 4−55364
Kerr-Schild metric, world line 4-accel. vanishing conditions 4−68928
Lienard-Wiechert solution for moving point mass and Sommerfeld radiation conditions 4−81236
light deflection by Sun as function of solar distance 4−59284
Liouville equation for relativistic collisionless gas, ellipsoidal solns. 4−47182
Lorentz transformations, local problems in general relativity 4−77543
macroscopic body eqns. of motion, using systematic approx. procedure of Synge 4−47186
Marzke-Wheeler method and Weyl's theory 4−51436

general relativity continued
master equation for coupled e.m.-gravitational perturbations, Reissner-Nordstrom geometry 4−65755
metrics, algebraically special, geometry of modified Gersh-Held-Penrose formalism 4−74385
metrics, algebraically special, new formalisms for investigation 4−74384
multipole moments of stationary space-times, properties, Kerr soln. 4−43160
naked shell crossing singularities in gravitational collapse of perfect fluid 4−59265
naked singularity, repulsive phenomena and energy emission 4−73704
neutrino descriptions, synthesis of particle and fields aspects 4−65765
neutron stars, relativistic non-rotating, stability of non-radial vibrational modes 4−73737
neutron stars, rigid and rapid rotation in general relativity rel. to Crab pulsar 4−80605
neutron stars, rot. mag., elec. and mag. fields 4−80576
nonsymmetric motion of perfect fluid, Cauchy problem 4−62724
null e.m. fields 4−65761
observables, Poisson brackets, commutator algebra 4−59276
perfect fluid, nonsymmetric motion 4−68926
plane gravitational condensor, positive gravitational constant, eqn. of motion 4−62722
precessional effects, source theory derivation 4−51434
principle of material indifference 4−74392
projective relativity theory, infinitesimal bundles 4−77539
projective theory of relativity, polytropic stellar models 4−80557
quadratic-Lagrangian based gravitational theory, viability 4−55341
quantisation, importance of using special canonical frame 4−68943
radiating star, external field 4−65756
Reissner Nordstrom naked singularity, stability 4−65775
Reissner-Nordstrom geometry, perturbation anal. for gravitational and e.m. radiation 4−59278
relativistic rotating star, theory of level surfaces 4−54460
Riemann tensor, algebraic symmetry props. 4−65605
Riemann tensor, new commutator identities 4−47192
Riemannian space-time, coordinate systems and transformations, Poincare group generalization 4−51441
Robinson-Trautman solns. of Einstein eqns. rel. to Lienard-Wiechert solns. of Maxwell eqns. 4−43159
rotating perfect fluid, flow-stationary and vortex-homogeneous solutions 4−71393
rotationally symmetric clusters with zero net angular momentum, exact solns. to field eqns. 4−47200
scaling motion for spherically symmetric system in special coords. *(Russian)* 4−65778
scattering of e.m., gravitational and scalar waves in weak gravitational field 4−68932
Schwarzschild gravitational field, motion of special observers 4−43156
Schwarzschild solution of Einstein eqn., quantum corrections 4−68930
second-order divergence conditons 4−71401
self-similar spacetimes, geometry and dynamics 4−74383
shear-free twisting Einstein-Maxwell metrics in Newman-Penrose formalism 4−47183
simulation of hadron interaction *(Russian)* 4−81434
single kink, form of corresponding stationary spherically symmetric metric 4−74389
singularities, discussion of meaning 4−59263
SL(2, C) symmetry of gravitational field 4−51440
solar eclipse 1973, June 30, relativity eclipse expt. 4−59286
space times of embedding class one 4−65762
space-time perturbations 4−77541
space-times admitting constant e.m. fields, solution to Einstein-Maxwell equations 4−71398
spherically symmetric static space-times admitting stationary Killing tensor of rank two 4−59268
spin precession effects in scalar vector and tensor fields 4−51435
spin-angular momentum of matter, dynamical manifestation in Riemann-Cartan geometry 4−51437
spinning test particles in Riemannian space-time, variational principle *(German)* 4−55351
spinor calculus in five-dimensional relativity 4−47193
spinor convections 4−65773
spinor field, quantum theory, invariant box method, de Sitter spherical universe example 4−59501
stability of systems, appl. to Dedekind like points of bifurcation 4−65780
static gravitational fields with naked singularities, equatorial circular orbits 4−74394
stellar masses, stability analysis in general relativity 4−73676
symbolic algebra, computer aided manipulation 4−65779
symmetric spaces in relativity and quantum theories 4−51259
symmetry groups including twistor theory 4−47203
Tachibana concircular curvature tensor props. 4−51272
test, relativistic rotation of Mercury's perihelion, solar oblateness obs. reviewed 4−68933
tetrad field eqns. and generalized Friedmann eqn. rel. to Robertson-Walker models 4−50445
Teukolsky equation, analytic props., stability of Kerr geometry 4−77536
thermodynamics, relativistic gradient of temp. concept *(French)* 4−47180
time, the grand illusion, elementary particle explanation, de Sitter's expanding universe concepts 4−71395
time delay of radar wave in rotating system 4−43161
time-delay expt. using Mariner spacecraft 4−43162
two body problem, covariant approach 4−65783
two-body problem, energy loss 4−65789
ultrarelativistic bodies and Einstein-Maxwell equations, conf. Warsaw, Poland (1974) 4−68322
Universe expansion and age, from general relativity and unitarian Einstein theory 4−50447
vector potential and Riemannian space 4−55352
world line of charged particle moving in e.m. field geometric features from Frenet-Serret formulae 4−59267

general relativity continued
Yang-Mills fields, reln. to connections of principal fibre bundles *(Chinese)* 4—77734
f-mesion strong gravity field mediation, and elementary particle masses 4—43403

generators, acoustic *see acoustic generators*

geochemistry
see also earth structure; geology
bottom sediments from Conception Bay, S.E. Newfoundland, geochemistry 4—76624
carbonate groundwaters in urban area, hydrogeochemistry 4—68117
diamond, natural growth by sulphide reduction of CO_2 4—54130
eclogites, compressional velocity depend. on mineral chemistry 4—73464
Fen alkaline complex, S. Norway, Sc, Co and Fe abundances 4—80228
goethite, Egyptian, Mossbauer spectroscopy, iron form, phys. props., rel. to geochemical conditions 4—83057
granitic rock, Halifax County, Nova Scotia 4—64761
groundwaters on Oahu, Hawaii, isotopic and chemical analysis 4—68143
igneous rocks from Eagle Mountains, Texas 4—83062
Kettleman North Dome, California, influence of geological membranes on subsurface waters 4—68140
mantle diapiric upwelling rel. to kimberlite pipes origin 4—54129
metalliferous ores in Britain, geochemical and geophysical prospecting techniques 4—61900
Norwegian Lower Palaeozoic basic volcanics, trace element geochemistry 4—64775
positive ion chemistry in strongly ionized mid-latitude nocturnal D-region, two-ion model 4—76743
positive ion chemistry in strongly ionized mid-latitude nocturnal D-region, ion transformation processes 4—76744
quench plagioclase, from Archean basalts 4—64765
Recent Icelandic tholeiites, compositional var. rel. to mantle hot spot 4—83059
stratosphere, OH + HCl, rate const. temp. depend. by flow tube reson. fluoresc., 224-460K 4—73410
X-ray fluorescence analysis, sample changer and fusion technique 4—62636
Ag deposits, stable isotope geochem., Great Bear Lake, Northwest Territories 4—64764
Cr-spinel peridotite xenoliths in basanitic lavas, textural types 4—83050
Th/U ratio and extinct ^{224}Pu in phosphates of St. Severin meteorite 4—80534

geochronology *see earth age*

geodesy
see also gravity
Adindan-African 12th Parallel Survey, datum shifts 4—83039
Antarctic gravity low rel. to Earth's equilibrium figure 4—73460
astrogeodesy, National Mapping complex 4—54613
astrogeodetic deflections of vertical at sea from bathymetric data 4—57896
atmospheric duct, effect on microwaves in geodetic meas. *(German)* 4—70752
cartography of geophysical fields 4—57894
Cauchy boundary values for Newtonian potential, surface and internal geometries 4—61652
conjugate gradient method for large geodetic triangulation system 4—46097
Cosmos 395 rocket (1971-13B), 15th-order resonance orbit and geopotential 4—70625
DAHLTA tacheometer, combined with KARTI plotting table 4—46112
density of simple layer from geoid heights 4—73459
Einstein's equation, generalised Kerr-Schild solution 4—55357
electro-optical telemeter, visual and distance ranges 4—46110
ellipsoid parameters, new mean estimates 4—83044
ellipsoidal problems, use of electronic pocket calculators *(German)* 4—68271
EOK 2000 telemeter, meas. accuracy 4—46109
EOK 2000 telemeter, testing on Potsdam base line 4—46107
Ethiopian rift 1973 geodimeter survey 4—61653
geodetic data, 1906 San Francisco earthquake reexamination, strain release mechanism 4—68097
geoid definition and determ. from satellite altimetry 4—54104
geoid improvement from GEOS-C altimetry 4—68038
geopotential, fifteenth-order harmonics determ. 4—57898
geopotential, least squares collocation 4—68037
geopotential of simple density layer at zero and low altitudes 4—68040
gravimetric geoid (1973) of Africa, undulation and deflection maps 4—68042
gravitational field, elementary point source determ. 4—54150
gravity reduction equivalence along perpendicular and plumb lines 4—61647
information theory approach, local adjustment by least squares filtering 4—61645
Japanese studies, review 4—54106
line length, California, effects of Bear Valley and San Juan Bautista earthquakes 4—61644
microwave sea path calc. *(German)* 4—70815
MOTS and SPEOPT station positions on North American Datum, GEOS flashing lamp obs. 4—61646
n-dimensional geodetic phenomena, mathematical modeling using polynomial weighting function 4—73462
odd zonal harmonics in geopotential from satellite orbit anal. 4—57899
optical distance measuring instrument, field testing 4—76756
planets, geodetic and dynamical props. 4—68355
precise levelling accuracy, statistical analysis 4—83040
radiogeodetic system, circuit of electromechanical phase meter *(Russian)* 4—57901
rangefinding, error function determ. for electro-optical and radio methods *(Russian)* 4—64986
Riemannian space time, geodetic interval in second post Minkowskian approx. perturbation expansion 4—65782
satellite altimetry, error equation with elliptic terms 4—70623

geodesy continued
satellite observations using cameras and lasers 4—54103
satellite-borne radar altimeters, S-193, objectives and preliminary results 4—50382
scattered relevelling, evaluation of vertical crustal movement 4—64976
series test method with coordinate system origin var., ambiguity *(German)* 4—70624
Skylab altimetry preliminary data, geodetic analysis 4—68039
spatial network combination using estimated covariance matrix 4—83042
statistical weight determ. rel. to systematic errors in geodetic adjustments 4—83041
strain following HANDLEY event, Nevada Test Site geodetic determ. 4—61660
theodolites, circle reading systems of VEB Carl Zeiss JENA Series A 4—54293
theodolites, climatic stability of VEB Carl Zeiss JENA Series A 4—54296
theodolites, functional and control elements of VEB Carl Zeiss JENA Series A 4—54290
theodolites, plotting table for VEB Carl Zeiss JENA Series A 4—54295
theodolites, reducing tacheometer, field tests 4—54289
theodolites, reducing tacheometer in VEB Carl Zeiss JENA series A 4—54288
theodolites, sighting telescope of VEB Carl Zeiss Jena Series A 4—54292
theodolites, supplementary units for VEB Carl Zeiss JENA Series A 4—54294
theodolites, system of axes of VEB Carl Zeiss JENA Series A 4—54291
theodolites, VEB Carl Zeiss JENA series A, properties and applications 4—54287
three-dimensional geodesy for terrestrial network adjustment, accuracy and comments 4—46099
tiltable reflector, for electro-optical telemetry 4—46108

geodetics *see geodesy*

geoelectricity *see terrestrial electricity*

geography
environmental quality, remote sensing 4—50389
land use, interpretation by remote sensor imagery, review 4—50387
regional analysis, remote sensing 4—50388
remote sensing, environmental anal., book 4—50384
remote sensing, review 4—50907
seismic and geographical regionalization of Earth's surface 4—80223

geology
see also earth crust; rocks
SW Afghanistan, quaternary deposits 4—68092
Archaean and Proterozoic regimes rel. to geothermal behaviour 4—54128
astroblemes in Brazil, Araguainha Dome and Serra da Cangalha 4—61680
Bourgas-Strandja area and adjacent shelf, deep geological structure 4—70627
Britain, geological settings of useful minerals 4—61692
late Cainozoic basalts, northern Israel, K-Ar dating, chronostatigraphic implications 4—61683
calcite rock, effect of temp., strain rate and interstitial water on deformation 4—61703
Caradocian, volcanicity, Ireland 4—76637
Eastern Alps basement, vertical distrib. of heat production 4—50244
epeiric sea shorelines from lithofacies plots of Devonian-Mississippian-Kaskaskia sequence 4—57904
ERTS data interdisciplinary analysis and interpretations 4—70825
ERTS-1 applicability for photogeologic and tectonic mapping 4—70827
SE Essex, England, Pleistocene chronology 4—68093
fold determ., use of lineation 4—45951
N central Gaspe, Canada, geology and age of plutons 4—64755
geomorphic-geologic mapping, remote sensing, review 4—50386
granitoids, natural geological structural types 4—64756
SW Greenland, origin of early Precambrian gneisses 4—50240
Highland Boundary Fault, Scotland, geological effects on geomagnetic var. 4—64820
Holocene, radiocarbon dating of climatic episodes 4—64924
Hunting Formation stratigraphy, Somerset Island, Northwest Territories 4—64760
hydrological servicing of geological survey on sea shelf 4—68296
igneous rocks from Eagle Mountains, Texas, geochemical study 4—83062
Ireland, central, sub-Palaeozoic basement 4—70645
Lake Maskinonge, Quebec, hydrogeomorphological study *(French)* 4—76670
Late Pleistocene loess deposits, New Zealand, palaeosols and soil horizons 4—64805
Late Precambrian mixtites, glacial or nonglacial origin 4—83047
Leinster Granite, Ireland, review of structural setting 4—57936
lithofacies and environments of Bed I, aduvai Gorge, Tanzania 4—54132
Loch Etteridge, late glacial site in central Grampian Highlands 4—61714
metals in surface deposits in Norway, map of natural pollution *(Norwegian)* 4—68098
Mid-Atlantic Ridge Rift Valley, first submersible study, FAMOUS programme 4—70644
mineral extractive sites, role in geological education and research 4—61698
Nashornet-Viddalskollen Area, W. Dronning Land Maud Land, Antarctica 4—80257
palsa and cryokarst formation conditions, Central Iceland 4—45966
Quaternary alluvium near Golden, Colorado, palaeohydrology 4—64806
Quaternary in S.W. Bulgaria, tectonics rel. to accumulation 4—57906
remote sensing, environmental anal., book 4—50384
remote sensing rel. to shoreline geology 4—61954
Riphean and Recent stromatolites 4—64737
Scardroy Mass, Lewisian age from Rb-Sr dating 4—61684

geology continued
- shelfbreak physiography, Mid-Atlantic states 4—80238
- Shungura formation magnetostratigraphy, fine structure of lower Matuyama polarity epoch 4—80264
- structural geology, nonlinear in-plane bending of plane stress-strain finite element model 4—54118
- thermokarst processes, E. Banks Island, W. Canadian Arctic 4—76625
- Troodos ophiolite complex, Cyprus, O, H isotope abundance rel. to serpentinisation 4—73463
- Witvlei, SW Africa, geology from black-and-white, colour and i.r. photographs 4—68095
- Woolgoola district New South Wales, structural analysis of palaeozoic sediments 4—50236
- Zangezur earthquake, 1968 July 9, seismogeological conditions 4—64790
- U mineralogical behaviour in form. of U-Mo deposits 4—61700

geomagnetic storms *see magnetic storms*

geomagnetic variations
- *see also micropulsations*
- 1972, August 4-9, rapid var. during severe magnetic storms 4—80271
- 1972, August solar-terrestrial disturbances 4—80473
- 1972 August 4, SC HF Doppler obs. 4—76741
- activity index vars., determ. of heliographic latit. depend. of interplanetary mag. field 4—80547
- anomalous DS-variation, equatorial latitudes during magnetic storms 4—64834
- apparent polar wander during Precambrian rel. to Australia 4—45984
- auroral absorption substorm development, statistical analysis 4—46057
- SE Australia, elec. cond. struct. from natural mag. variations meas. 4—64823
- Black Sea sediment core, geomagnetic variations in 7000-25000 yr B.P. interval 4—73489
- coastline structure effect on alternating geomagnetic fields 4—57954
- conjugation of long-period geomagnetic pulsations in polar cap 4—50254
- cosmic rays, synchronous variations in energetic electron flux and gamma quanta during magnetic perturbation *(Russian)* 4—80434
- depression of horizontal field during daytime due to westward equatorial electroject 4—50344
- diurnal var. rel. to field-aligned currents in vector magnetic field charge region 4—64832
- DS-field during magnetic storms, spherical harmonic analysis 4—73495
- Dst and solar wind merging electric field, theoretical relation 4—80265
- electron precipitation to auroral zone variations modulated by magnetospheric compression and expansion 4—64974
- free oscillations of rotating fluid bounded by concentric spheroids rel. to geomagnetic secular variation 4—70659
- Gothenburg magnetic flip, short magnetic event or magnetic excursion 4—76664
- Highland Boundary Fault, Scotland, geological effects on geomagnetic var. 4—64820
- horizontal intensity during quiet and disturbed periods, line and continuum spectra 4—54155
- international planetary index variations in solar-activity cycle (No. 19) 4—73618
- ionospheric Sq currents, rocket meas. over Kagoshima 4—61840
- ionospheric winds and electric fields from geomagnetic S_q-var. 4—61837
- Istanbul, solar and lunar influences 4—80269
- Kp index and f_0F_2 correl. 4—83122
- low freq. variations, errors in electroprospecting magnetometers *(Russian)* 4—54318
- magnetospheric electric field derivation from whistler data in dynamic geomagnetic field 4—70798
- magnetospheric field changes at sudden impulses and substorm onsets 4—54278
- Matuyama epoch, field oscillations 4—45990
- near Earth magnetic disturbance, scalar magnetic field disturb. Ogo 2, 4, 6 obs. 4—64826
- near-Earth magnetic disturbance in total field at high lats. Ogo 2, 4, 6 data 4—68115
- negative sudden impulses rel. to ionospheric absorption decreases 4—46067
- ocean and continental surface inhomogeneity effects 4—68110
- open drift shells, latitudinal distrib. and composition of charged particles 4—46084
- polar cap magnetic var., role of solar local time coord. system 4—64831
- polar cusp, magnetic field fluctuations and low energy particle meas. 4—83110
- polar cusp ionosphere, field aligned current system 4—83109
- Quaternary continuous magnetic field changes in Czechoslovakia 4—80262
- reversals, effect on climate rel. to faunal extinction 4—70661
- S_q^p field enhancement as component of polar magnetic disturbance 4—76667
- S_q^p analysis for 1970 May 10-11, very quiet day 4—76666
- SC magnetic storms, phase relation between freq. shift and geomagnetic variations in HF Doppler obs. 4—58082
- secular reduction of German geomagnetic survey for 1957.5 epoch *(German)* 4—70658
- secular var. data inversion for mantle electrical conductivity determ. 4—80393
- secular var. in oceans, randomization principle for error reduction 4—68293
- semiannual var. of geomagnetic activity, comments 4—45987
- solar activity effect on weather and geomagnetic activity 4—62032
- solar geomagnetic disturbance, response of circulation at 700 mbar 4—58035
- solar quiet daily var. at Sanae 4—80274
- solar-terrestrial disturbance, August 1972 *(Japanese)* 4—70795
- spectral composition, H component structure 4—68108
- spherical harmonic analyses for 8 epochs between 1600 and 1910 4—57953
- Sq phase variability, solar-terrestrial relationship 4—83066

geomagnetic variations continued
- substorm injected plasma boundary, correlation with Kp 4—83132
- sudden impulse, ionospheric electric field, surface magnetic field meas. 4—61858
- Tyrrhenian Sea, geomagnetic secular var. in recent sediments 4—64821
- ULF power near L=4, rel. to Fredericksburg K index 4—64828
- ULF power spectra in conjugate areas during December solstice 4—64827
- westward drift, phase lag rel. to earth's rotation 4—64814

geomagnetism
- *see also geomagnetic variations; magnetic storms*
- 1970 American World Chart model of geophysical field 4—54156
- 1972, August 4-5, magnetogram analysis of storms 4—80270
- accuracy of measuring magnetic field of earth, method of free nuclear precession *(Russian)* 4—70814
- activity, correlation with coronal green line intensity 4—58066
- activity indices rel. to long-period fading of l.f. radio navigation signal 4—50256
- aeromagnetic fields, two-dimensional power spectral analysis 4—76660
- aeromagnetic map, optical filtering 4—54279
- Alfven waves, long cylindrical satellites 4—52477
- algorithm for nonlinear statistical relationships in gravimetry and magnetometry *(Russian)* 4—54322
- anomalies and magnetic source types, equivalent simple models 4—68102
- anomalous field, statistical distribution on surface and in core and upper mantle 4—68112
- anomalous field distrib. in equatorial and south Atlantic, relation with oceanic structures *(Russian)* 4—80267
- ARAKS project, France-Soviet Union, conjugate points of earth's mag. field *(French)* 4—54298
- atmospherics, polarisation error in direction finding, Earth's mag. field effects 4—83114
- Automatic Magnetic Observatory System 4—68266
- Canadian Arctic, 3-component aeromagnetic survey 4—76665
- Canadian meas. of SANGUINE test transmissions 4—76655
- compressed geomagnetism field rel. to dipole tilt 4—57956
- data editing and evaluating at Canadian observatories 4—73574
- deep e.m. sounding, resolution in two-layer and multilayer models 4—68114
- dipoles, determination from field 4—54150
- earthquake magnetic field effect, Biot-Savart calc. *(Russian)* 4—59329
- ELF ion wave Poynting vector, rotation with geomagnetic field 4—50341
- e.m. axisymmetric induction in thin uniform sheets rel. to geomagnetic problems 4—64830
- e.m. induction in thin conductors, iterative methods of soln. 4—68106
- external origin, obs. at Earth surface 4—68104
- field correlation between geomagnetism and gravity 4—50255
- field meas., dip, hearing and intensity, by self-oscillating quantum magnetometer *(Russian)* 4—54325
- field meas., information available from gradient method 4—50376
- field survey in Faroe Iceland region and ocean bottom topography *(Russian)* 4—80268
- general study and description *(French)* 4—54157
- Gondwanaland breakup evidence in SW Australia from early Cretaceous marine magnetic anomalies 4—73485
- homogeneous ellipsoids with variable mag. susceptibility, magnetis. 4—50252
- horizontal field computation, differential formula for quartz H-magnetometer obs. 4—68113
- hourly mean values, determ. 4—70813
- inductive magnetisation of almost soft mag. bodies 4—50251
- intensity meas., theoretical determ. of external geomagnetic field 4—80398
- interplanetary magnetic field sector structure effects 4—68402
- inverse magnetic problem soln., stratified body approach 4—83043
- inverse magnetic problem soln. by magnetis. function determ. 4—68101
- inversion of magnetic anomalies with topography 4—54286
- Ivreazone magnetic anomaly, amphibolitic body *(German)* 4—80266
- longitudinal component in auroral activity 4—64931
- magnetic fields with source field considered, comments 4—57955
- magnetically soft bodies, numerical soln. of magnetis. problem 4—70657
- magnetolelluric recording, six-channel wide-band system 4—76751
- magnetometer, ^{3}He nuclear precession using optically polarised gas 4—70828
- magnetometer, proton precession type, compact bias coil system 4—61905
- magnetometer, using parametric resonance in optically pumped ^{4}He 4—70830
- magnetometer using miniature transducer, design and appls. 4—80963
- magnetometer with wideband sensitive element *(Russian)* 4—58131
- magnetopause, electric currents and geomagnetic dipole field 4—61860
- magnetopause, OGO-5 obs. 4—61863
- magnetopause reconnection rate 4—50364
- magnetosphere, use of solar electrons as probe of geomagnetic topography 4—61880
- magnetospheric boundaries 4—61861
- magnetospheric field model, neutral points coords., and last closed field line boundary 4—73567
- magnetotelluric data inversion by sequential layering, interactive programming 4—58118
- magnetotelluric sounding in polar regions, ionospheric effects 4—64825
- magnetotelluric sounding in White Russia, natural variable e.m. field research 4—83063
- magnetotellurics, recording technique principle and sample survey 4—64822
- marine gravity and magnetic anomalies, new modelling method 4—58116
- Mount Kenya, negative magnetic anomaly 4—70660

geomagnetism continued
E Pacific rise crest at 21°N, near-bottom magnetic anomalies 4−68116
perception, by electroreceptors, in Black Sea skates 4−50761
plasma sheet near $30R_e$, motion, magnetic field structure 4−58110
polar caps, interplanetary magnetic field azimuthal component rel. to geomagnetic field 4−62090
pole reversals, palaeomagnetic evidence for transitional behaviour 4−54151
potential field transformations, numerically stable solns. 4−61651
regional tectonomagnetic effects in seismically active areas 4−70651
reversals and crustal spreading rates during Miocene 4−76661
S-effect study of sedimentary limestone trough *(Russian)* 4−57957
scalar F, spherical harmonic analysis 4−73491
seamounts, nonuniform magnetization, estimation methods 4−61890
spatial power spectrum of main field, extrapolation to core 4−54153
SQUID magnetometer applic. 4−70829
sudden impulsive and sudden commencement events in magnetosphere rel. to interplanetary magnetic field 4−73569
variable e.m. fields, separation and identification 4−68264

geometrical optics
beam path multiplier using two roof reflectors, design eqns. 4−43238
chart for finding any two lens parameters from the other two 4−54783
conference, Washington, USA, Spring (1974) 4−46624
curved dielectric structs. and optical waveguides, radiation losses, generalized Fresnel's laws 4−59350
dielectric structure, lossless, ray attenuation, exact solns. 4−77611
fibre optics, Fresnel's laws, leaky ray losses 4−62799
fibre optics analysis, limitations, leaky ray attenuation 4−62800
glass fibre parameters determ. by light scatt. 4−74467
Goos-Hanchen and Imbert effects, explanation 4−47289
grating, concave, blaze wavelength change as surface position function 4−62798
guided modes in optical fibres 4−43239
laser transmitter, high power square aperture, absence of thermal blooming 4−51618
light patterns of off-axis spots, investigation for different optical systems *(Spanish)* 4−62815
light pipes, specularly refl., irrad. by obliquely inclined rays, transmission characts. calcs. 4−47292
nonlinear, two-dimens. problem of self-action of restricted wave beam *(Russian)* 4−65945
periscopes, mirror and mirror-prisms, ray tracing, design parameters 4−47302
rainbow, treatment for students 4−54798
ray kinematics and using Study's transform. *(German)* 4−77610
unification with classical mechanics, applications 4−74200

geometry
see also space time configurations
Cauchy boundary values for Newtonian potential, surface and internal geometries 4−61652
connections of principal fibre bundles, reln. to Yang-Mills fields *(Chinese)* 4−77734
differential, constraint and evolution equations for Gauss-Codazzi equations 4−55356
differential, general invariance of Lagrangian structures 4−51249
differential, generalised formalism of mechanics 4−81365
differential, of symmetric spaces, use in relativity and quantum theories 4−51259
differential reln. to Lie groups 4−65610
electron diffraction pattern determination and indexing, geometrical method 4−82848
geodesic and autoparallel curves in generalised metric space 4−59032
GF structure manifold 4−65617
Kahlerian projective symmetric and recurrent spaces 4−77331
Kahlerian spaces with parallel Bochner curvature tensor, theorems construction 4−77332
Lobachevskii's application to relativistic mechanics 4−51256
noncoplanar plate folded structure, appl. of finite element method *(French)* 4−81145
Riemanian, neutrino field source, neither positive nor negative definite energy density, conditions 4−65961
Riemanian, neutrino field source, positive or negative definite energy density, conditions 4−65960
Riemannian manifolds, n-dimensional with k-harmonic metrics 4−77343
Riemannian symmetric spaces of order k 4−81118
solid angle subtended by solid, right, circular cylinder seen from point in space, Monte Carlo calc. 4−58924
spheroconical coordinate system, separation of variables, appl. to Schrodinger eqn. for noncentral forces 4−55335
spinorial structures assoc. with embedding of pseudo-Riemannian spaces *(French)* 4−42988
trajectory deviation, differential geometry rel. to Keplerian motion 4−70860
Weyl, as a particle geometry 4−77540

geons *see gravitons*

geophones *see seismometers*

geophysical aspects of cosmic rays
α-particle flux at Earth during 1972 Oct 29-Nov 3 event 4−61963
albedo particles, motion in geomagnetic field 4−68253
atmospheric effects on variations, 3200 m. a.s.l., temperature and pressure corrections *(Russian)* 4−80437
atmospheric gamma-rays in 30-300 MeV range, three-dimensional study 4−50422
barometric coefficient of neutron component, new procedure for measurement *(Russian)* 4−80433
fluxes at different stratospheric depths, north-south anisotropy *(Russian)* 4−83161
Forbush effects, spectrographic analysis, geomagnetic cut off hardness *(Russian)* 4−80431
intensity behaviour at 510-4137 m altitude, barometric coefficients *(Russian)* 4−80436
isotopic anal. by Earth's magnetic field using Monte Carlo methods 4−65013

geophysical aspects of cosmic rays continued
latitudinal investigation of coupling coefficients *(Russian)* 4−80435
magnetic storms, geomag. cutoff for Forbush decreases, shock waves *(Russian)* 4−83155
magnetosphere, solar particle access rel. to magnetospheric diagnostics 4−61876
magnetosphere, solar proton trajectory comp. for 3 models 4−61879
magnetospheric solar proton entry, satellite data interp. 4−50368
magnetospheric solar proton entry, trajectory comparison for two models 4−50369
magnetospheric solar protons during substorm activity, cutoff and pitch angles 4−61845
magnetotail, access of energetic solar particles 4−61877
muons, absolute vertical flux spectra meas. at 0.76 to 1.25 GeV/c 4−68307
near-Earth magnetotail, solar proton meas. 4−61882
north-south asymmetry variations, long repetition cycle *(Russian)* 4−83159
proton flux at Earth during 1972 Oct 29-Nov 3 event 4−61963
proton propagation in Earth's magnetic cavity, 5-300 MeV 4−61878
sea level spectrum of soft-component electrons 4−68303
secondary electron fluxes, energy spectra at various atmospheric depths *(Russian)* 4−80443
solar electrons, magnetospheric access, use as probe of geomagnetic topography 4−61880
solar low-energy proton intensity profiles over polar cap, two-satellite study 4−50355
solar protons in 10-90 MeV range in magnetosphere, obs. in synchronous altitude region 4−50356
synchronous variations in energetic electron flux and gamma quanta during magnetic perturbation *(Russian)* 4−80434
μ intensity, azimuthal variation meas. using twin telescopes, coupling const., latitude effect 4−58190
^{14}C production by cosmic ray neutrons, variation by Box model calc. 4−76673

geophysical equipment
see also geophysical prospecting; geophysical techniques; seismometers
acoustic Doppler wind measuring system 4−50399
acoustic logging, for depths of 4 to 5 km and temperatures up to 120C *(Russian)* 4−54326
acoustic logging apparatus, increased precision, for transverse and longitudinal waves meas. *(Russian)* 4−54327
acoustic radar system for lower atmospheric probing, turbulence detect. 4−73577
after-stack multichannel filters without mixing effects 4−76754
astatic magnetometers, errors in magnetisation measurements 4−80394
astrogeodesy, National Mapping complex 4−54613
automatic buoy stations, Atlantic Ocean, optimal spacing, time frequency of meas. *(Russian)* 4−58149
automatic filter changer for short-period high-volume aerosol sample collection 4−68276
Automatic Level Ni 025 4−46106
Automatic Magnetic Observatory System 4−68266
balloons, tethered multi-stage 4−59081
beam and mixed signal processor, P wave coda suppression capabilities 4−68260
bearing, high thermal conductivity for rotating optical filter in front of rocket-borne spectroscope 4−58142
borehole apparatus, electrometric classification *(Russian)* 4−50391
borehole electrometric determination instrumentation *(Russian)* 4−54303
borehole e.m. apparatus for lining location *(Russian)* 4−54312
borehole instrumentation, survey of heat resisting apparatus *(Russian)* 4−54304
buoy technology 4−58148
CACTUS microaccelerometer, atmospheric density and radiation pressure meas. *(French)* 4−54338
cameras, bore hole, with compact holographic system 4−62479
channel switch using f.e.t.'s for digital seismic exploration instruments *(Russian)* 4−54314
chromathermograph, gas-logging system, characteristics 4−55161
coherence interferometer for atmospheric transfer function meas. 4−58464
combustion bomb for radiocarbon dating of organic samples, new safe design 4−50378
cryopumping system for balloon-borne mass spectrometer 4−42769
Cyclesonde, unattended ocean vertical profiler for scaler and vector quantities 4−80405
DAHLTA tacheometer, combined with KARTI plotting table 4−46112
diagram tacheometer, circle reading stabilisation 4−46111
differential rectifier, photographic, routine testing 4−46115
digital metering and storage of tension peak values in atomic absorption meas. *(German)* 4−65006
digital stereo plotter, test procedure 4−46114
dual magnetometer systems, signal enhancement, comment 4−70838
Earth Resources Technology Satellite *(German)* 4−54281
Earth strainmeters, 1025 m and 45 cm long 4−46100
electric shovel for digging 4−50374
electrical properties of geological media, probing with resonant linear antenna 4−68265
electro-optical telemeter, visual and distance ranges 4−46110
electrochemical release device for deep ocean equipments 4−68294
electromechanical phase meter for radiogeodetic system, circuit *(Russian)* 4−57901
electrometer, fair-weather electric field, short-period fluctuations 4−58037
electron gun, ARAKS project, conjugate points of earth's mag. field *(French)* 4−54298
environmental sensing systems, unattended ocean buoys 4−80407
EOK 2000 electro-optical telemeter, Antarctic glaciological motion meas. 4−46117
EOK 2000 telemeter, meas. accuracy 4−46109
EOK 2000 telemeter, testing on Potsdam base line 4−46107
fibreglass application, unidirectionally reinforced, mechanical properties obs. *(Russian)* 4−50390

geophysical equipment continued
- frequency convertor for processing borehole meas. *(Russian)* 4−54309
- generator for electroprospecting, 20 Hz-20 kHz *(Russian)* 4−54300
- GEOS waves experiment, magnetosphere meas. *(French)* 4−58143
- ground-based polarimeter for meas. of atmospheric particulate sizes 4−73583
- groundwater profile sampler 4−68297
- Heinze gas-volugraph for carbonate content determ. of rocks 4−64975
- high resolution, marine digital system, seismology 4−70818
- hydrology and hydrogeology, short-lived radioisotope generators *(German)* 4−80413
- inclinometer, with induction orientation sensor *(Russian)* 4−54328
- instrumentation for the environment, literature review 4−76757
- integrated hydrographic survey system for ocean charting 4−58152
- i.r. detector with preamplifier, auroral spectrum meas. 4−71166
- magnetolelluric recording, six-channel wide-band system 4−76751
- magnetometer, proton precession type, compact bias coil system for geomag. meas. 4−61905
- magnetometer, results expression w.r.t. B and H vectors 4−61895
- magnetometer using miniature transducer, design and appls. 4−80963
- magnetometer with wideband sensitive element *(Russian)* 4−58131
- magnetometers, suspended magnet type for electroprospecting, causes of temp. instability *(Russian)* 4−54318
- marine, modern seismic system, streamer with computer software 4−68273
- marine, modern seismic system, streams with computer software 4−68273
- marine seismology, digital quality seismic stream system, characts. 4−70821
- mass spectrometer, positive ion, for lower ionosphere studies 4−80399
- measuring apparatus, for soil resistivity *(Spanish)* 4−46104
- moored temperature sensor, fine-struct. contamination 4−65004
- Nimbus 5 i.r. temp. profile radiometer 4−46120
- oblique ionospheric sounding, recording equipt. for obtaining diffraction pattern 4−68279
- obstacle avoidance sonar for small manned submersibles 4−70845
- oceanographic, deep towed submersible, terrain following control system for 4−70846
- oceanographic, marine sediment acoustical properties meas., multichannel towed array for 4−70820
- oceanographic multichannel forward scatt. meter 4−46129
- oceanographic retrievable bottom-mounted current meter 4−54346
- oceanographic temp. and pressure recorder 4−46132
- oceanographic velocity sensor, microstructure, vertical profiling 4−50412
- oceanography, remote sensing 4−58147
- offshore surface waves, nine-channel wave recorder for space-time characts. *(Russian)* 4−80415
- oil borehole 2-probe gamma-gamma logging apparatus *(Russian)* 4−54305
- optical aerosol particle counters, response characteristics 4−70833
- optical distance measuring instrument, field testing 4−76756
- optoelectronic meter for contactless temp. meas. in boreholes *(Russian)* 4−54307
- orbital manned stations, role in weather service 4−61937
- particle size classifier, variable slit impactor with photo-counting 4−54331
- PG-1-A on Intercosmos 5, charged particle meas. 4−70835
- precision coordinatograph, geometrical checking and testing 4−46113
- pyrgeometer for terrestrial atmospheric i.r. radiation meas., evaluation 4−46103
- radiation sensor comparisons for GATE International Sea Trials 4−64992
- radiometer, photon-counting, polarising, sunlight meas. 4−46119
- radiometer, scanning, to monitor u.v. irradiance low levels, biological correlation 4−46118
- radiometer for remote atm. temp. profile meas. 4−83143
- radiometer to study atmospheric absorption at different wavelengths 4−46126
- rectifier, photographic, test methods 4−46116
- r.f. and d.c. probe comparisons for electron density meas. in low density plasmas 4−75306
- rock complex specific impedance meas. digital phase-sensitive unit *(Russian)* 4−54299
- rocket borne mechanical flying spot scanner for aurora imaging 4−65003
- Savonius rotor type flowmeter, effect of tilt in turbulent flow regime 4−54344
- seismic reflection system using moderate-power controlled source 4−76750
- shipboard nuclear-precession Z-magnetometer 4−50377
- Skylab S-193 radar altimeter experiment, objectives and preliminary results 4−50382
- snowfall ratemeter, using neutron moderation technique 4−83144
- SOFAR accuracy, underwater explosions North Pacific 4−46517
- spectrometer, remote Raman, variable focus, range independ. of signal 4−61922
- spectrometer for low latitude auroral studies *(French)* 4−73578
- spectrophotometer, filter wheel, rock spectral reflectance meas. in situ 4−61901
- spectrophotometer, light meas. in polar ice and snow 4−68259
- SQUID magnetometer for geomagnetic meas. 4−70829
- standardization of geophysical technology at experimental design stage in USSR *(Russian)* 4−54310
- stratospheric NO conc. meas. chemiluminescence spectrochemical analyzer 4−70839
- Sun photometer, aerosol extinction and precipitable water meas., 0.44-1.6 μm 4−70832
- superconducting quantum interference magnetometers, applications to geophysical prospecting 4−70809
- tacheometer, automatic recording, RegElta-14 4−64985
- tensioned quartz strainmeter, 1m length for solid tide obs. 4−61898
- theodolites, circle reading systems of VEB Carl Zeiss JENA Series A 4−54293

geophysical equipment continued
- theodolites, climatic stability of VEB Carl Zeiss JENA Series A 4−54296
- theodolites, functional and control elements of VEB Carl Zeiss JENA Series A 4−54290
- theodolites, plotting table for VEB Carl Zeiss JENA Series A 4−54295
- theodolites, reducing tacheometer, field tests 4−54289
- theodolites, reducing tacheometer in VEB Carl Zeiss JENA series A 4−54288
- theodolites, sighting telescope of VEB Carl Zeiss Jena Series A 4−54292
- theodolites, supplementary units for VEB Carl Zeiss JENA Series A 4−54294
- theodolites, system of axes of VEB Carl Zeiss JENA Series A 4−54291
- theodolites, VEB Carl Zeiss JENA series A, properties and applications 4−54287
- thermal conductivity probe for rapid meas. in rock 4−68629
- thermospheric wind profile, daytime, Li trail obs. with field-of-view scanner 4−61921
- thyristor square-wave generator application *(Russian)* 4−46760
- tiltable reflector, for electro-optical telemetry 4−46108
- time-dependent mathematical filter construction for geophysical processes *(German)* 4−64981
- twin beam gamma-gamma densitometer for oil and gas boreholes *(Russian)* 4−54306
- under-sea oil and gas prospecting device automatically controlled *(Dutch)* 4−58151
- undersea laboratory, for marine resource inventory, Puerto Rico 4−58146
- underwater, seismic source, STAGARAY, improved primary pulse/bubble ratio 4−70822
- underwater seismic source, implosion type, Simplon water gun 4−68272
- velocimeter, appl. to sloping beach wave motion 4−46134
- water droplet aerosol generator 4−61928
- γ-ray spectrometer, air-borne, calc. of yield curves 4−61896
- ^{3}He nuclear precession magnetometer, using optically polarised gas, for geomagnetic meas. 4−70828
- ^{4}He parametric resonance magnetometer, using optically pumped gas 4−70830
- Hg discharge u.v. source, portable, for geophysical field work *(Russian)* 4−54313

geophysical prospecting
- *see also minerals*
- aerial, use of marine proton magnetometer *(Russian)* 4−58135
- borehole apparatus, electrometric classification *(Russian)* 4−50391
- borehole electrometric determination instrumentation *(Russian)* 4−54303
- borehole e.m. apparatus for lining location *(Russian)* 4−54312
- borehole instrumentation, survey of heat resisting apparatus *(Russian)* 4−54304
- boreholes, side acoustic logging by refracted waves *(Russian)* 4−54302
- boreholes in water saturated sandstones optimal length for probe using (γ,n) reaction *(Russian)* 4−54315
- Brazilian space research 4−64983
- clayey oil and gas reservoir eval. in West Turkmenia *(Russian)* 4−54149
- coal, earth resistance diff. for spherical probe *(Russian)* 4−58127
- deep magnetotelluric sounding, White Russian massif, natural variable e.m. field research 4−83063
- dipole radiator application, use of half-wave sinusoidal pulse generator *(Russian)* 4−50381
- direct current electrical prospecting, models of conducting ore bodies 4−76658
- disseminated mineralization zone, transient voltage decay curves for various electrode arrays and configs. 4−64777
- Donets Basin, fractures rel. to mineral localisation *(Russian)* 4−68069
- Earth Resources Survey Systems, information extraction methodology and hardware developments 4−70823
- Earth Resources Technology Satellite, multispectral scanner performance degradation 4−54280
- electric dipole sounding, rock apparent resistivity meas. 4−83064
- electrical prospecting, near zone field build up *(Russian)* 4−54319
- electrical sounding, dipole to Schlumberger curve transformation 4−76753
- frequency convertor for processing borehole meas. *(Russian)* 4−54309
- generator for electroprospecting, 20 Hz-20 kHz *(Russian)* 4−54300
- hydrocarbon exploration, contribution of physicists 4−76747
- hydrocarbons, offshore, seismic indicators and models 4−64989
- hydrocarbons, offshore seismic detection, physical principles 4−64988
- induced polarisation, cultural metallic refuse collection 4−68270
- induced polarisation transients, manual and computer processing techniques *(French)* 4−61893
- layered media, resistivity signal partition 4−61888
- magnetised spherical ore deposit, total field anomalies 4−61674
- magnetite assays in taconite wire, magnetic susceptibility meas. 4−61887
- magnetolelluric recording, six-channel wide-band system 4−76751
- magnetometer with wideband sensitive element for electrical prospecting *(Russian)* 4−58131
- magnetometers, suspended magnet type for electroprospecting, causes of temp. instability *(Russian)* 4−54318
- magnetotellurics, recording technique principle and sample survey 4−64822
- marine, modern seismic system, streams with computer software 4−68273
- marine minerals, assay model for Massachusetts Bay 4−68299
- marine nuclear logging methods, review 4−61897
- marine seismology, digital quality seismic stream system, characts. 4−70821
- metalliferous ores in Britain, geochemical and geophysical prospecting techniques 4−61900
- microwave imaging of buried dielectric anomalies 4−83137
- Mise a la Masse surveys, electrical anisotropy effects 4−76657

geophysical prospecting continued
offshore exploration, geometric analysis of marine cable feathering in seismic exploration 4−64778
oil, North Sea, Navigational requirements 4−70816
oil, North Sea, navigational systems 4−70817
oil and gas, engineering-economic aspects of seismic prospecting *(Russian)* 4−58130
oil and gas bearing areas, locating inhomogeneities by electrical sounding *(Russian)* 4−61906
oil borehole 2-probe gamma-gamma logging apparatus *(Russian)* 4−54305
optoelectronic meter for contactless temp. meas. in boreholes *(Russian)* 4−54307
ore bed depth determ. by induced polarization method *(Russian)* 4−54321
petroleum content, residual, of productive beds, estimation from core samplers *(Russian)* 4−58137
porous formations study *(Russian)* 4−58132
reflection seismics by undershooting bodies with complicated tectonics 4−61891
resistivity surveying 4−54283
section migration and stack in oil prospecting 4−76752
seismic, direct hydrocarbon finding technique, lithologic parameters 4−68274
seismic reflected wave study of Kalmas gas-bearing formations *(Russian)* 4−57949
seismic reflection amplitude technique, rel. to hydrocarbon detection 4−70656
seismic reflection system using moderate-power controlled source 4−76750
seismology, high resolution, marine digital system, hydrocarbon detect. applic. 4−70818
standardization of geophysical technology at experimental design stage in USSR *(Russian)* 4−54310
superconducting quantum interference magnetometers, applications 4−70809
thyristor square-wave generator application *(Russian)* 4−46760
twin beam gamma-gamma densitometer for oil and gas boreholes *(Russian)* 4−54306
two-aircraft electroprospecting, instrumentation *(Russian)* 4−54301
two-dimensional residual gravity anomalies, separation using lateral density variation 4−61650
under-sea oil and gas, automatic control *(Dutch)* 4−58151
undersea laboratory, for marine resource inventory, Puerto Rico 4−58146
γ-ray spectrometer, air-borne, calc. of yield curves 4−61896
Cu determ. in boreholes and mine workings, X-ray radiometry *(Russian)* 4−54308
Ra content of ores determ. from γ-ray spectra borehole meas. 4−77287
U content of ores determ. from γ-ray spectra borehole meas. 4−77287

geophysical techniques
heading is late addition
see also geophysical equipment; geophysics; ionospheric measurement
activation analysis of rocks 4−46936
aerial i.r. colour photography, colour gamuts *(Japanese)* 4−51087
aerial photogrammetry, system calibration, Method of Mixed Ranges 4−58852
aerial photography, multispectral, exposure determination 4−58850
aerial photography, spectral reflectance determ., technique 4−58851
aeromagnetic map, optical filtering 4−54279
aerosol particle counters, optical, channel width determ. and electronic pulse processing losses 4−65537
airborne laser bathymetry system, N_2/Ne laser 4−61955
Aitken nuclei source intensity meas. and sources in SW France *(French)* 4−70834
algorithm for nonlinear statistical relationships in gravimetry and magnetometry *(Russian)* 4−54322
aluminium oxide water vapour sensor, time response characteristics 4−58139
anhysteretic remanent magnetization method for palaeointensity determ. 4−80388
ARAKS project, France-Soviet Union, conjugate points of earth's mag. field *(French)* 4−54298
astrogeodetic deflections of vertical at sea from bathymetric data 4−57896
asynchronous satellite data, variational adjustment 4−61938
atmospheric aerosol depolarisation meas. using LIDAR analogue 4−68282
atmospheric composition determination, optoacoustic method 4−54329
atmospheric electricity measurement with ion mobility spectrometer *(Japanese)* 4−61936
atmospheric in situ determ. method, refractive index of particulate matter 4−50394
atmospheric large-scale vertical motion determ., modified isentropic technique 4−46125
atmospheric particulate sizes from polarization meas. 4−73583
atmospheric radiation and remote probing, conference (Los Angeles, 28-30 August, 1973) 4−73554
atmospheric structure and wind velocity, statistical inversion for remote determ. 4−46020
atmospheric temp. probing by satellites, accuracy *(Russian)* 4−61939
atmospheric transfer function determ. 4−73557
atmospheric turbulent diffusion study using artificially produced electric space charge 4−80366
auroral infrasonic wave obs., in Antarctica, using 7 microphone system 4−83140
automatic nephelometric method for sulphate and SO_2 dosages determ. *(French)* 4−71127
automatic system for temp. fluctuations meas. at different heights over ground *(Russian)* 4−68280
aviation wind reports, optimum averaging time 4−64916
band-pass filtering of time series with red spectrum *(German)* 4−70807

geophysical techniques continued
bedding elements determination and physical props., analytical procedure *(Russian)* 4−57951
borehole radiometry using γ spectrometer with semicond. detector 4−58123
boreholes, side acoustic logging by refracted waves *(Russian)* 4−54302
charged particle meas. in lower ionosphere, sheath effects 4−46065
clinometric tides, perturbing influence of deform. of obs. cavities *(French)* 4−46093
close-range photogrammetric meas. techniques 4−58859
coal, borehole prospecting using earth resistance diff. for spherical probe *(Russian)* 4−58127
coal mine fires, remote sensing of thermal activity 4−61916
coastal and wetland environments, radar geomorphology 4−61920
conjugate gradient method for large geodetic triangulation system 4−46097
crustal vertical movement, evaluation from scattered geodetic relevellings 4−64976
D-region vertical electron density profile calc. using grid nomograms 4−68278
dendrochronological calibration curve irregularities 4−64984
depth point method, kinematic corrections for refraction *(Russian)* 4−58128
detection reliability of anomalies in surveying *(Russian)* 4−61956
drifter studies, helicopter launched surface and sea-bed drifters in Long Island Sound 4−83145
dust or sand storms over N.Africa, meteorological satellite TV pictures *(Russian)* 4−61940
Earth medium electrical characteristics, meas. techniques, results and applications 4−70808
Earth Resources Survey Systems, information extraction methodology and hardware developments 4−70823
Earth resources surveys, rocket photography 4−50380
earthquake control by fluid injection into rocks 4−50373
earthquake forecasts on basis of complex geophysical features 4−70649
earthquake precursor detection by pipeline current and strain telemetry to satellites 4−70824
electric dipole sounding, rock apparent resistivity meas. 4−83064
electrical prospecting, near zone field build up *(Russian)* 4−54319
electrical resistivity signal partition in layered media 4−61888
electrical sounding, dipole to Schlumberger curve transformation 4−76753
e.m. fields, from horizontal electric dipole antenna, laid on the surface of a two layer medium 4−68987
e.m. fields appl. *(Russian)* 4−81268
e.m. sounding, nomograms rel. to local specific resistivities *(Russian)* 4−54320
e.m. sounding, resolution in two-layer and multilayer models 4−68114
equatorial F_2-region, simplified calc. method for transequatorial electron flux effects 4−68281
ERTS data interdisciplinary analysis and interpretations 4−70825
ERTS imagery data, combined spectral and spatial processing 4−68268
ERTS-1 applicability for photogeologic and tectonic mapping 4−70827
external geomagnetic field, theoretical determ. from intensity meas. 4−80398
field meas., dip, hearing and intensity, by self-oscillating quantum magnetometer *(Russian)* 4−54325
field spectroscopy for multispectral remote sensing, analytical approach 4−61923
fission track dating, effect of progressive etching 4−83136
fission track dating, weathering effects on minerals 4−50232
fission track dating in zircons 4−46094
fission track dating of faults using epidotes 4−50231
f.m.-c.w. radar, with lidar, obs. of boundary layer 4−64999
fresh-water reservoir, phase characts. of spherical receiver of oscillatory velocities *(Russian)* 4−80414
gamma ray spectrometer for bore hole, stabilization using injection diode 4−42910
gamma-gamma logging, pulsed, approx. for time relationships 4−80986
geoelectric probing, resistivity factor in resistivity methods 4−80395
geographical remote sensing, review 4−50907
geomagnetic data editing and evaluating at Canadian observatories 4−73574
geomagnetic field meas., information available from gradient method 4−50376
geomagnetic profiling, use of S-effect study of sedimentary limestone trough *(Russian)* 4−57957
geomagnetic secular var. in oceans, randomization principle for error reduction 4−68293
geomorphic-geologic mapping, remote sensing, review 4−50386
geopotential, fifteenth-order harmonics determ. 4−57898
gravitational anomaly interpretation *(Russian)* 4−61707
gravitational influence of mountains compensation on gravimetric obs. *(Russian)* 4−58126
gravity and acoustic wave recording in upper atmosphere, optical method 4−58145
gravity anomalies, direct mapping using Doppler tracking between satellite pair, comments 4−46098
gravity data inversion for two-dimensional density distribs. 4−58117
gravity interpretation calculations, simplifying approx. 4−61889
ground stress determ. in Canada 4−80255
heat flux problems, topographic correction evaluation method *(French)* 4−50372
hourly mean values, determ. 4−70813
hydrocarbon prospecting offshore, seismic indicators and models 4−64989
hydrological servicing of geological survey on sea shelf 4−68296
hyetogram automatic digitisation using precision encoding and pattern recognition 4−80403
imaging, photographic and nonphotographic sensor systems 4−46730
incoherent scatter and satellite-borne mass spectrometer techniques for O I meas., comparison 4−50320

geophysical techniques continued
induced polarisation transients, manual and computer processing techniques *(French)* 4−61893
inertial navigation procedure for revolving uniform ellipsoid Earth *(Russian)* 4−80389
input to geophysical instruments realization, active RC filters synthesis, computer-aided *(Russian)* 4−46759
inversion of magnetic anomalies with topography 4−54286
ionospheric ion flow velocities using ion distribution technique 4−70837
ionospheric reaction rate coeffs. from electron density values 4−50327
ionospheric sounding, using coded pulse signals 4−80378
ionospheric wind determ. by Cs plasma cloud tracking 4−83118
i.r. remote sounding of atmosphere 4−73584
lake muds, sample prep. method for elemental anal. by optical emission 4−74163
laser sensing of cloud composition, backscattered polarisation technique 4−65000
lidar, meas. of atmospheric gases by differential absorption, error anal. 4−61927
lidar, with f.m.-c.w. radar, obs. of boundary layer 4−64999
Lidar applications to nocturnal atmospheric radiation inversion meas. 4−68275
light scattering detect. method of Hg air pollution 4−46122
logging anisotropic rock *(Russian)* 4−57952
logging data, use in studying density characteristics of sections *(Russian)* 4−58133
lower troposphere, vertical exchange meas. using ^{212}Pb and ^{222}Rn 4−61789
magetosphere, wave particle interaction, French-Soviet ARAKS project, 1975 4−68289
magnetic field meas. accuracy, free nuclear precession method *(Russian)* 4−70814
magnetic susceptibility high freq. meas. in rocks and minerals 4−80390
magnetosphere, contoured v.l.f. wave injection experiments 4−68286
magnetosphere, laboratory experiment, penetration of fast electrons and precipitation 4−68255
magnetosphere, laboratory experiments, partial scale model, plasma phys. processes 4−68287
magnetosphere, stimulation of v.l.f. amplification 4−68256
magnetosphere dynamics, use of artificial plasma clouds 4−68288
magnetosphere electric field meas. role of geostationary satellites 4−61943
magnetospheric simulation using superconducting magnet in earth orbit 4−68257
magnetotelluric data inversion by sequential layering, interactive programming 4−58118
magnetotelluric methods with source field considered, comments 4−57955
mantle electrical conductivity from geomagnetic secular var. data inversion 4−80393
marine gravity and magnetic anomalies, new modelling method 4−58116
marine nuclear logging methods, review 4−61897
marine sediment engineering properties, electrical resistivity technique 4−68298
marine seismic reflection profiling, data processing and computer techniques 4−80417
mascons, techniques in Doppler gravity inversion 4−58262
metalliferous ores in Britain, geochemical and geophysical prospecting techniques 4−61900
meteorological fields, deformed polynomials in objective analysis 4−80401
meteorological operations and research, radar applications 4−50403
microwave imaging of buried dielectric anomalies 4−83137
mineral grain boundaries in rocks, adhesion strength meas. 4−70812
minerals, general relationships among sound speeds 4−46101
Monte Carlo methods for solving radiative transfer theory probems 4−76762
multispectral photogrammetry for coastal currents, turbulent mixing studies 4−61951
natural resources, remote sensing 4−50385
natural sulphides, minor elements determ. by spectrographic anal., sulphide standards prep. 4−74164
neutron logging, pulsed, meas. accuracy *(Polish)* 4−58120
neutron moisture gauges, fast neutron absorpt. problem 4−58121
numerical integration techniques for aeronomic problems 4−83138
observation processing using statistical interpretation theory 4−68263
obsidian hydration profile meas. using nuclear reaction technique 4−61899
ocean current mapping, sythetic aperture radar methods 4−61950
ocean electric field measurement *(Russian)* 4−80410
ocean spatial-temporal fields, planning for measurements for construction of prediction charts *(Russian)* 4−80411
ocean surface waves directional spectra from oblique photographs 4−46133
ocean temp. and colour in NW African upwelling area, remote multispectral analysis 4−61949
ocean wave slope spectra determ. by airborne radar 4−80420
oceanographic impact of new technologies 4−68300
oceanography, ocean wave element definition using radar 4−50410
oceanography, remote sensing 4−58147
oceanography, selector channel with programmed control for exchange of hydrophysical data *(Russian)* 4−80412
oceanography, system for measuring and processing hydrophysical parameters on real time scale *(Russian)* 4−80409
oceanography, unified coding system *(Russian)* 4−80408
offshore seismology, hydrocarbon detection, physical principles 4−64988
oil and gas bearing areas, locating inhomogeneities by electrical sounding *(Russian)* 4−61906
Omega windfinding system for use in GATE 4−80397
optical methods of locating strata of high density in ocean *(Russian)* 4−54345
orbital remote sensing, applic. 4−50379

geophysical techniques continued
ore bed depth determ. by induced polarization method *(Russian)* 4−54321
permafrost subsurface conductivity and permittivity determ. 4−73575
photogrammetric, atmospheric refraction compensation, equation for 4−61903
photogrammetric cross sections using colour photography 4−61907
photogrammetry, extended definition 4−54297
photogrammetry, signalling for large terrain height differences *(Russian)* 4−64987
polar motion resonance effects, radio interferometry and laser ranging determ. 4−54122
power spectra of short sinusoids, estimation using maximum entropy technique 4−73572
Precambrian sedimentary rock macerates, SEM studies and preparation 4−80392
pressurised spherical cavity, stress calc. 4−64795
radar, h.f. over-the-horizon system, ocean surface conditions, tests 4−50413
radar observation, winds and turbulence in stratosphere and mesosphere 4−64995
radio-meteor wind data, 80-110 km, sources of scatter 4−58141
radiometric calibration for Earth radiation budget expt. 4−46121
rain charts, microfilmed, reading using precision encoding and pattern recognition 4−80404
rain microstructure and vertical vels. from vertically-pointed Doppler radar *(Russian)* 4−73576
reflection seismology for hydrocarbon exploration, contribution of physicists 4−76747
remote sensing, environmental anal., book 4−50384
remote sensing, environmental quality 4−50389
remote sensing, gamma, image contrast characteristics 4−61952
remote sensing, regional anal. 4−50388
remote sensing in oceanography, symposium, Lake Buena Vista, Florida (2-5 October 1973) 4−61945
remote sensing in resource inventory process 4−61917
remote sensing photography, corrections for particulate air pollution effects 4−61944
remote sensing rel. to shoreline geology 4−61954
remote sensor imagery, land use interpretation, review 4−50387
remote sounding of single cloud layer 4−54336
residential land use photography for intercensal urban population determ. 4−68269
resistivity data interpretation of two-electrode array meas. 4−76749
resistivity meas. using linear electrodes, depth of investigation 4−76748
rock hardness testing, Vicker's impression 4−64794
rock heat production meas. using gamma-ray spectrometer with Ge(Li) detector 4−64753
rock orientation data, analysis of principal components 4−70811
rock sample ultrasound absorption meas. at low temps. 4−80391
rocks, uranium concentration determ. by γ-ray spectrometry using 93 keV peak 4−45981
salinity determination, use of CTD sensors 4−65005
SANGUINE test transmissions, Canadian geomagnetic meas. 4−76655
satellite data application to 4-dim. numerical anal. of geopotential and wind fields *(Russian)* 4−83141
satellite indirect sounding, hyperbaroclinic zone of jet streak 4−65001
satellite ocean colour meas. 4−61948
satellites for air pollutants meas., feasibility consideration 4−62338
sea ice movement determ. by satellite imagery 4−73587
sea surveying by radio *(German)* 4−50416
sea swell meas. artificial satellite obs. *(Russian)* 4−70671
seamounts, nonuniform magnetization, estimation methods 4−61890
seawater turbulence structure meas. system *(Russian)* 4−65007
seawater turbulent stream structure obs. method *(Russian)* 4−65008
section migration and stack in oil prospecting 4−76752
seismic, direct hydrocarbon finding technique, lithologic parameters 4−68274
seismic data processing, wavelet shaping and noise reduction 4−76755
seismic reflection amplitude technique, rel. to hydrocarbon detection 4−70656
seismic refracted wave interpretation by reduced travel time curve method 4−70810
seismic wave phase correlations for stratigraphic correlation *(Russian)* 4−54317
seismogram scanning on PEPR system 4−80261
Semyenov earthquake prediction, central Aleutian Islands test 4−70648
separation of natural var. e.m. fields 4−68264
series test method with coordinate system origin var., ambiguity *(German)* 4−70624
short internal wave records, problems in spectral anal. due to end point jump 4−73586
sounding rocket electron beam, use in wave-particle interactions expt. 4−68285
spectral estimation of time delay for dispersive and non-dispersive signals 4−81129
spinner magnetometers, simplified meas. technique for time-saving 4−71219
spinning charged particle telescopes, energetic particle flux anisotropy meas. corrections 4−50400
stable auroral red arc properties from measurable parameters 4−46123
statistical tests for autocorrelated geophysical data *(German)* 4−70806
stereo photogrammetry of cumulonimbus clouds 4−76760
stratosphere, i.r. measurements 4−61754
stratosphere NO, NO$_2$, and HNO$_3$ concentration measurement methods 4−61753
stratospheric aerosols, measurement techniques 4−64871
stratospheric trace constituents, sampling methods 4−61925
tele-surveying natural resources by airborne equipment and satellites 4−64983
terrain recognition in ERTS-1 imagery by diffraction pattern analysis 4−61915

geophysical techniques continued
terrestrial photogrammetry, open-cast mine surveying 4−58119
three-dimensional geodesy for terrestrial network adjustment, accuracy and comments 4−46099
tropical beach mean high water position, interpretation and photogrammetric methods 4−61953
tsunami warning system, ionospheric acoustic wave Doppler technique 4−46135
two-aircraft electroprospecting, instrumentation *(Russian)* 4−54301
underwater imaging, video processing techniques 4−80416
underwater seismology, shear wave vel. meas. technique, marine foundation applic. 4−70819
upper atmosphere rocket expt. errors from desorption of water vapour by rocket surface coatings 4−50401
water droplet aerosol, above-micron range, production and characteristics 4−61928
water quality aerial photography, 'noise' effects 4−61919
water supply, capital expenditure planning, dynamic programming theorem 4−58124
water supply analysis, simulation of gamma distrib. first-order Markov chain 4−58125
water surface temperature airborne measurement, atmospheric corrections 4−70844
wave power, equipment to extract energy 4−58150
wells, hydraulic head determ. *(German)* 4−70663
wind measurement, acoustic Doppler shift system 4−50399
wind measuring system, optical propagation technique 4−64998
X-radiometric analysis of soil, Cl, Ca and S contents *(Russian)* 4−50392
X-ray radiometry, Cu determ. in boreholes and mine workings *(Russian)* 4−54308
zenith scanning, remote temp. sounding with cloud layers 4−70831
^{14}C dating, calibration between Washington and Miami Geosecs labs. 4−73571
Cs, in seawater, determ. by automatic flame emission spectrometry 4−71274
^{127}I, airborne concentration meas. using charcoal collector and neutron activation anal. 4−54334
K-Ar dating, orifice correction 4−64978
Rb, in atmospheric particulate matter, determ. by photon activation anal. 4−77268
Si, in atmospheric particulate matter, determ. by photon activation anal. 4−77268
Y, in atmospheric particulate matter, determ. by photon activation anal. 4−77268

geophysics
see also earth; geodesy; geology; geomagnetism; geophysical aspects of cosmic rays; geophysical equipment; geophysical techniques; meteorology; oceanography; radiation belts; rivers and lakes; rocks; seismology; space research; terrestrial atmosphere; upper atmosphere
American Geophysical Union, meeting, San Francisco (10-13 December 1973) 4−68036
analytic continuation to region out of N circles 4−59045
anomalies in Russian rock-step region *(Russian)* 4−61707
Australian-Antartic discordance, new geophysical data 4−68044
autocorrelated geophysical data, statistical tests *(German)* 4−70806
Black Sea depression, small amplitude structures from reflected wave explorations *(Russian)* 4−57948
cartography of geophysical fields 4−57894
course, in university, for physics students, introducing the subject 4−54769
crater classification by multivariate analysis 4−54108
craters, dimensional analysis of impact structures 4−61679
earth tidal strains, inhomogeneous, in Queensbury Tunnel (Yorkshire) 4−68041
environmental changes, rel. to human activity *(Russian)* 4−57897
geothermal energy production and hydraulic fracturation *(French)* 4−45974
German-English dictionary for geosciencies 4−80219
information retrieval system *(Russian)* 4−58154
observation processing using statistical interpretation theory 4−68263
observation system planning in detection and selection of geophysical objects 4−68262
satellite photography, reasons for New Mexico Texas state line appearance 4−54967
Space Shuttle applications 4−50225
tides, geometry and mechanics 4−54105
time series with red spectrum, band-pass filtering *(German)* 4−70807
Venetian lagoon, data digitisation using precision encoding and pattern recognition 4−80676
^{235}U naturally occurring reactors, search for traces of existing activity *(Russian)* 4−45980

geopotential *see geodesy*

germanium
absorption and optimum doping level for i.r. optics 4−46712
acoustic nonlinearity parameters and elastic constants, harmonic generation technique 4−52803
adsorption of Cu, influence on surface electron states 4−49057
adsorption of Hg from soln., surface props., p- and n-type 4−75707
adsorption of NH$_3$ on (111) and (100) surfaces, LEED obs. 4−72631
adsorption of noble metals, neutralization of surface states 4−60846
amorphization during ion bombardment, electron diffr. obs. 4−48657
amorphous, hopping cond., calc. and meas. 4−79359
amorphous, obs. of dielec. props. in untreated, heat treated and n irradiated samples 4−57183
amorphous, pseudogap struct., cond. meas. 4−79269
amorphous, relaxed continuous random network models 4−44471
amorphous, struct. characts. 4−75454
amorphous, structure factor for random stacking sequence 4−56616
amorphous, structure investigation, comparison with GaAs 4−82115
amorphous, tetrahedrally bonded, approach to incoherent limit in high Q inelastic neutron scatt. 4−52663
amorphous, thermoelectric power, prep. conditions depend. 4−79374
amorphous, transport props. 4−79360

germanium continued
amorphous film, defects and crystn., resist. obs. during annealing 4−75731
amorphous film, ideal random network 4−75987
amorphous film, internal stress 4−79887
amorphous film, i.r. vibr. spectra meas., disorder effects 4−45388
amorphous film, pure or alloyed, resistivity, tunnelling 4−60887
amorphous film, struct., ordering, elec. cond. 4−75745
amorphous film, substrate specific voids 4−75743
amorphous film, transport props., press. and temp. depends. 4−79423
amorphous structure, clathrate model 4−75456
atom, excited in Xe$^+$ bombardment, optical spectrum 4−74838
atom, imaging ideal transmission electron microscope calcs. 4−71239
Auger recombination rate, calc. 4−69984
band structure, nonlocal pseudopotential calc. 4−44849
bond-charge model of phonon dispersion 4−69870
charge splitting detector for gamma-ray camera system 4−54681
chemisorption of O$_2$, narrow energy gap, self consistent calc. 4−72639
compensated, cond. and photocond., influence of gas discharge treatment 4−72775
compensated, energy depend. of capture cross section and instability producing spatial charge-exchange waves 4−48997
Compton scattering cross sections meas., thermal diffuse scatt. contribs. 4−45386
conduction electron effective mass in field of excitons 4−57037
contacts on Si surface barrier detectors, rectifying props. 4−62541
crystal, electron-hole drops, optical props., absolute concs. determ. 4−76251
crystal growth by multiple pulling, technique for ultra-pure crysts. 4−49582
cyclotron resonance absorption peaks obs. under high excitation 4−60736
cyclotron resonance in quantised mag. field on inelastic scatt. by acoustic phonons *(Russian)* 4−82368
Debye temp. calc. 4−60580
decay kinetics of electron hole-drop and free-exciton luminescence 4−49445
defect formation on γ irrad., group V impurity doped Ge 4−75538
deformed, thermal cond. below 1K 4−79456
detectors, Monte Carlo program for gamma-ray spectra calc. 4−74148
diffraction of X-rays and neutrons, (2,2,2) reflection, anharmonicity 4−60462
diffusion of Ge in Si, dislocation model 4−79194
diode, local deformation, negative resist characts. 4−72862
diodes, gold bonded, anomalous second breakdown failure levels 4−82472
diodes, low temp. thermometric characteristics 4−70062
dislocation movement under stress, time and temp. depends. *(Russian)* 4−66916
dislocation multiplication relationships 4−75534
dislocation structure, effect of preliminary thermocyclic treatment *(Russian)* 4−44545
dislocations, hexagonal loop slip obs. 4−48638
disordered structure regime form. rel. to atomic displacement cascades 4−75548
donor e.s.r. spectral narrowing, phonon-induced tunnelling 4−79588
doped, exciton condensation, threshold phenomena and hysteresis, electron-hole drops 4−67654
doping of synthetic quartz, mechanism, DTA obs. *(French)* 4−48640
electric domain instability, cryogenic emission electron microscope obs. *(Russian)* 4−73068
electrical conductivity variation induced by shock wave produced on laser interaction *(Russian)* 4−77700
electrical properties, Fermi level, effect of substitutional impurities, interstitials and vacancies 4−44918
electrolytic amorphous film, growth, etching behaviour, optical and electron microscope obs. 4−82337
electron diffraction, effect of accelerating voltage on intensity of forbidden 222 refl. 4−48490
electron energy loss spectra of surface states 4−72840
electron hole liquid, thermodynamics 4−79319
electron surface states produced by adsorption of Rh 4−67270
electron-hole droplets, mag. field effect on i.r. absorption and luminesc. 4−73188
electron-hole drops, cohesive energy stress depend. 4−72729
electron-hole drops, drift due to negative charge *(Russian)* 4−64052
electron-hole drops, microwave dimensional resonances 4−57058
electron-hole drops, size distrib. 4−72732
electron-hole drops, vol. and surface effects in luminesc. decay 4−76304
electron-hole fluid, liquid-gas phase diagram, recombination luminescence 4−64045
electron-hole liquid, ground state energy calc. 4−75823
electron-hole plasma, θ pinch, current carriers increase *(Russian)* 4−67244
electron-hole plasma, high field domain 4−70032
electron-neutral donor complex form. in presence of indirect optical transitions *(Russian)* 4−72832
electroreflectance analysis, thermoreflectance analogy 4−45326
energy loss, straggling, 24.8 MeV electrons, thin single crystals 4−72503
epitaxial growth by solid-phase transport 4−70414
epitaxial growth of Si, Ge and Si-Ge, remarks on exptal. system design 4−57721
epitaxy, transport of Ge by iodine in flow system 4−61300
etching and growth in flow system with cyclic diffusion mass exchange 4−61302
exciton condensate density, absorpt. edge obs. 4−72734
exciton condensation, variation of electron-hole drop size with temp. 4−75834
far i.r. photoconductivity from majority and minority impurites 4−82454
film, absorption edges broadening, amorphous and crystalline structures *(Russian)* 4−76337

germanium continued
film, amorphous-polycryst. transition, influence on elec. cond. and optical density 4 — 60709
film, cryst. struct. and elec. props. 4 — 72657
film, elec. and optical props., impurity and defect effects 4 — 79419
film, heteroepitaxy on insulating substrate, review 4 — 49613
film, obliquely deposited, O uptake meas. 4 — 70415
film, sputtered, thermal triggering of shock-crystallisation 4 — 67136
film on Cr mirror, optical consts., ellipsometric meas. method 4 — 65447
film on W(110), LEED obs. of structure 4 — 72655
growth of shaped crysts. with low dislocation density, Bridgman method 4 — 49628
Hall coefficient, mag. field depend. 4 — 44943
Hall coefficient meas. for effects of dislocations introduced by deformation at 350°C and 600°C 4 — 49005
Hall effect, ang., conc. and temp. depends., p-type 4 — 57109
Hall effect and structure defects in samples irradiated with 30 keV Ga$^+$ ions 4 — 67236
Hall mobility, two probe method 4 — 46754
hardness of dislocation-free Ge *(Russian)* 4 — 66984
Harrison's first principle pseudopotential method appl., band struct. calcs. 4 — 79255
Harrison's first principle pseudopotential method appl., form factor calcs. 4 — 79254
h.f. modulation of 10μ radiation by field heating of carriers 4 — 72809
high-purity, anal. of chemical impurities and lattice defects 4 — 53608
high-purity, low temp. Hall anal. reln. to use as gamma-ray spectrometer 4 — 53107
high-purity, state of art reln. to radiation detector fabrication 4 — 53607
high-purity γ detector fabrication and handling reliability improvement 4 — 51149
highly excited, density-depend. luminesc. props. of electron-hole liquid 4 — 57623
hole scattering, cyclotron resonance obs. 4 — 64021
hopping conduction, multielectron correlation effects, 1-5K 4 — 48978
hot carrier relaxation time, microwave cond. meas. 4 — 44929
impurity compensation effect on elec. breakdown 4 — 73071
impurity meas. by Fourier transform spectroscopy 4 — 53609
indirect exciton, in presence of mag. field, energy levels calc. 4 — 57063
indirect exciton absorption spectrum 4 — 79742
interference absorption coeff. of X-rays, depend. on dislocation density 4 — 56750
internal photoeffect, quantum efficiency investigation 4 — 57140
intrinsic, quenched, annealing behaviour, elec. resistivity obs. 4 — 52754
ion implantation, atomic displacements, cascade theory 4 — 56791
ion implantation, nitride, oxide and oxynitride form., i.r. absorption 4 — 76396
laser damage, i.r., surface obs., threshold meas. 4 — 55504
light scattering, exchange excitation of nonequilib. carriers *(Russian)* 4 — 82460
liquid, diffusion of Ag, In, Sn, Sb, 930-1250°C 4 — 60636
magnetoreflectance, carrier conc. and diffusions length meas., 34 GHz 4 — 82767
microscopic optical fields and mixing coeffs. of X-ray and optical freqs. 4 — 73096
microwave complex conductivity due to hot electrons 4 — 60804
n-type, annealing of electron radiation induced defects, 360K, impurity effects 4 — 82201
n-type, carrier concentration, microwave transmission technique 4 — 57120
n-type, containing point defects, charge carrier scatt. mechanism *(Russian)* 4 — 75934
n-type, deformed, surface barrier instability of current 4 — 49087
n-type, electron bombard., recovery spectra of electrical cond. at 77K 4 — 64123
n-type, group V doped, low temp. recovery of irrad. defects, annealing investig. 4 — 63841
n-type, hopping conduction, influence of impurity conc. 4 — 48982
n-type, impurity-ion field effect on electron-phonon interaction 4 — 75814
n-type, in contact with Na$_2$SO$_4$:Au^{3+} soln., anisotropy of surface props. *(Russian)* 4 — 72855
n-type, instability of injected carriers subjected to strong electric fields 4 — 67226
n-type, magnetocond. tensor, electron-phonon drag effects 4 — 79368
n-type, many valley, charact. parameters of selected const. energy ellipsoid 4 — 75859
n-type, microwave cond. in high electric fields 4 — 64101
n-type, phase transition in impurity electron system, theory 4 — 79309
n-type, rate of production of vacancy-donor complexes resulting from electron irradiation, calc. 4 — 66939
n-type, with periodically inhomogeneous props., negative differential cond. 4 — 75875
neutron activation analysis, suppression of Compton background radiation 4 — 42884
neutron diffraction, flexural vibrating single cryst., Bragg case 4 — 60573
nuclear medical imaging cameras, delay line readouts 4 — 54680
optical absorption, low temp., theory of valence band transitions 4 — 49365
optical heating of carriers, photocarrier mobility and lifetime 4 — 72830
optical phonon interaction const., optical carrier heating method 4 — 72823
optical pumping, electron-hole drops or excitonic mols. 4 — 53061
oxidation, amorphous-crystn. comparison, u.v. refl. spectra meas. 4 — 48863
oxidation, thermoanalytical methods for GeO$_2$ determ. 4 — 51226
p-type, converted by electron irrad., transformation of simple defects at 200K 4 — 69801
p-type, elec. cond. in strong mag. field, deform. potential const. depend., calc. 4 — 60818
p-type, electrical cond. calc. in presence of strong non-quantising mag. field 4 — 67235

germanium continued
p-type, electron-hole drops due to laser irrad. 4 — 70352
p-type, field emission cathodes, microplasma bistable state in elec. breakdown 4 — 79857
p-type, film, mobility of carriers scatt. by acoustic phonons, temp. depend. 4 — 72877
p-type, impurity distribution by measuring d.c. hopping conductivity 4 — 75858
p-type, mobility, noise temp. and diffusivity of hot holes 4 — 44931
p-type, ohmic point contact, metal, current fluctuations, low freq. *(Russian)* 4 — 79410
p-type, photocond. due to inter-valence band transition 4 — 44958
p-type, piezoresist. and piezo-Hall effect 4 — 57119
p-type, plasma-electric effect in strong electric field 4 — 57127
p-type, Shubnikov-de Haas oscillations and longit. magnetoresistance obs. 4 — 75892
p-type film, elec. cond., Hall coeff. and hole mobility, 20K, two-layer model interpretation 4 — 82502
Pauli principle model, electronic stopping power of channelled ions 4 — 69836
phonon anharmonicity, 80-880K, neutron diffr. obs. 4 — 79120
photoconductivity, free carrier-free exciton-electron-hole drop interaction 4 — 72822
photoconductivity, temp. depend., shallow donor impurities 4 — 72824
photoconductivity and absorption in 2 to 0.25 mm, range using backward wave tube generators 4 — 53127
photoemission spectroscopy using synchrotron radiation, valence band struct. 4 — 64477
photoluminescence, polarisation due to deformations, 1.8-5K *(Russian)* 4 — 73190
photoluminescence, theory of radiative recomb. of excitons under vol. excitation 4 — 49456
photopiezoresistance, time depend. ambipolar obs. and calcs. 4 — 53120
planar detectors, amplitude risetime compensated timing 4 — 81016
plasma anodization, insulating film growth and characts. 4 — 45464
plasma generated by picosecond pulsing, picosec. ellipsometry meas. 4 — 53067
plasmon damping, ang. depend. meas. *(Japanese)* 4 — 44875
plasmon damping, loss peak meas., ang. depend. 4 — 57055
plastic deformation at room temp., uniaxial compression meas. *(Russian)* 4 — 79091
positron lifetime in n- and p-type single crystals, effect of compression deform. 4 — 56771
precipitation of Cu and Ni solid solns., with donor and acceptor impurities 4 — 73269
precipitation of Li, effect of heat treatment conditions 4 — 82825
pressure contact diode, I-V charact., base orientation depend. 4 — 70067
quartz:Ge, colour centres, heating effects 4 — 73141
radiative two-electron transitions in electron-hole droplets 4 — 49452
Raman second order reson. scatt., E$_1$, E$_1+\Delta_1$ edges 4 — 61162
Raman spectra, transmission, obs. of phonons and electronic impurity levels 4 — 53448
recombination radiation, free-carrier compression in crossed elec. and mag. fields 4 — 70359
rod-like samples, minority carrier bulk lifetime, mag. field depend., 5-77K 4 — 67229
saturable absorber, for CO$_2$ TEA laser mode locking 4 — 47335
screw dislocation, in twisted specimens, electronic states, carrier density and Hall mobility obs. *(German)* 4 — 69991
self-diffusion mechanism, theory 4 — 82291
semiconductor detectors, designs of constant fraction trigger with new integrated circuits 4 — 46876
shallow acceptors, high resolution Fourier transform spectroscopy 4 — 73118
solar abundance determ. from Ge I lines 4 — 70902
solid-state plasma, instability in elec. and mag. fields of arbitrary orientation 4 — 72811
splat-quenching and noncryst. phase form. 4 — 61419
sputter target, space distrib. of sputtered atoms *(French)* 4 — 70382
stacking fault energy, pseudopotential calc. 4 — 56761
submillimetre absorption and refraction, 293K, 12-50 cm^{-1} 4 — 73108
substrate, epitaxial deposition of Pb$_x$Sn$_{1-x}$Te, sputtering technique 4 — 61291
substrate, reactive nucleation of Mg film, mol. beam. obs 4 — 53012
surface, laser irrad., layer struct. obs. *(Russian)* 4 — 52969
surface energy, u.s. meas. *(German)* 4 — 51179
surface of single crysts., effects of voltage pulses *(Russian)* 4 — 70057
surface scatt. of ^{4}He atomic beams 4 — 56043
surface states, tight-binding calcs. for Ge(111) 4 — 64124
surface vibrational amplitudes, LEED obs. 4 — 56955
thermoreflectance, obs. of struct., 4-9 eV 4 — 53466
thick crystal, scattered intensity calc. for Bragg symmetry and any dislocation density, Zachariasen's eqn. 4 — 52662
valence band parameter investig. by cyclotron resonance in stressed crysts. 4 — 64023
valence band struct. investig. by quantum resonance techniques 4 — 64022
vaporization and growth, electron microscope obs. *(Russian)* 4 — 73257
X-ray emission L$_{2,3}$ bands 4 — 67671
X-ray multiple diffr., phase problem, Umweganregung plot 4 — 44436
X-ray scattering, degree of polarisation, dislocation density depend. 4 — 60383
X-ray scattering, K-edge anomaly, three crystal interferometric method *(Russian)* 4 — 66798
X-ray spectra, bombardment by S ions, target-thickness depend. 4 — 82780
X-ray structure factors, from half-widths of Bragg refl. curves 4 — 72460
π^- capture, intranuclear cascade model anal. of particle production spectra 4 — 63312
Al$_x$Ga$_{1-x}$As:Ge, electron diffusion length, comp. depend. 4 — 60810
Al$_x$Ga$_{1-x}$As:Ge epitaxial layer, elec. and optical props. rel. to semicond. lasers 4 — 57095

germanium continued
Au-Ge, Schottky barrier, photovoltaic effect in quantizing mag. fields 4–67277
CdS-Ge p-n heterojunction, elec. and optoelectronic props. 4–82482
Cu:Ge, vacancies and vacancy-impurity pairs, positron annihilation 4–63823
GaAs:Ge, compensation mechanisms investigation 4–67180
GaAs:Ge, electron lifetime and diffusion const. 4–75853
GaAs:Ge, LPE, electrolum., photolum. and minority carrier diffusion length, dislocation effects 4–53008
GaAs:Ge epitaxial layer, elec. and optical props. rel. to semicond. lasers 4–57095
GaP:Ge, photluminesc., pair emission bands, temp. depend. 4–53507
GaP:Ge, photocond. quenching by impurity levels 4–75923
GaP:Ge, photoluminesc., 80-180 K, conc. depend. *(Russian)* 4–45349
GaP:Ge, photoluminesc., pair emission band shapes 4–53506
Gap:Ge, cond. and photoluminesc., conc. depend. of Ge behaviour 4–79348
n-Ge, small signal characteristics at high fields 4–60802
Ge coaxial detectors, fabrication and performance 4–46813
Ge III, bulk modulus calc., pressure effect on structure 4–48668
Ge:^{12}B, depolarization through double quantum transition via resonance 4–53051
Ge:(Al$_1$P), donor-acceptor binding energy 4–44860
Ge:As,Sb, far i.r. recomb. radiation from impact-ionized donors 4–76315
Ge:As-In, tunnel junction, characteristic curves, proton irrad. effect 4–64138
Ge:As(P)(Sb), impact ionisation, far i.r. recombination spectra, electron transitions investig. 4–64442
Ge:Au, effect of heat treatment 4–67730
n-Ge:Au, photoionization cross sections of acceptor levels, photocond. obs. 4–57136
Ge:Ga, Czochralski growth, oscillatory interface stability 4–45455
p-Ge:Ga, d.c. magnetoresist. in hopping cond. range 4–75889
Ge:Ga, interface demarcation obs. of facet growth and dopant segregation 4–61314
Ge:Ga, photoelectric current emission into electrolytic solution of KCl 4–57670
n-Ge:Li, impurity interaction with disordered regions formed by fast neutrons 4–56780
Ge:Li, vacancy-Li atom interaction during γ-irradiation 4–66910
n-Ge:Ni I-V characts. at low photoexcitation levels, double injection and current instability 4–67260
Ge:P, Ga, heavily doped and compensated, resistivity, direction depend. 4–72773
n-Ge:P(As)(Sb)(Bi), γ-irrad., acceptor levels, annealing obs. 4–60761
Ge:S(P), impurity location using ion-induced X-rays, technique 4–53612
Ge:S(P), impurity location using ion-induced X-rays, expt. results 4–53613
Ge:Sb, absorption edge in direct transition region 4–73145
Ge:Sb, far i.r. photocond., intermediate impurity conc. region 4–82450
n-Ge:Sb, neutron irradiated, electrical props. investigation 4–67216
Ge:Sb, phonon cond., phonon-scatt. calcs. 4–63951
Ge:Sb(Ga), dislocation motion, surmounting of local obstacles *(Russian)* 4–79042
Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4–61309
Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4–61310
Ge/GaAs heterojunction, gas transport and vacuum condensation, struct. effects *(Russian)* 4–73258
Ge-^{238}Pu, X-ray source for Si detector thickness meas. 4–51157
Ge-Cu$_2$S heterojunction surface field effect in piezoreflectance spectra 4–76277
Ge-PbTe n-p heterojunction, elec. characts. and spectral response 4–53139
Ge-Si heteroepitaxial system, struct. perfection 4–67125
Ge(Li), low background detector systems for radioenvironmental studies 4–46884
Ge(Li), position sensitive coaxial gamma-ray detector 4–46887
Ge(Li) coaxial detector, timing information dependence on γ-ray intensity distrib. 4–46848
Ge(Li) detector, background spectrum analysis 4–58920
Ge(Li) detector, comparison with NaI(Tl) for monitoring of environmental samples 4–51922
Ge(Li) detector, correlation of local trapping with crystal defects by electron loss obs. 4–51167
Ge(Li) detector, meas. of ^{115}Cd decay spectra 4–46845
Ge(Li) detector, short lived radioactivity induced by neutrons 4–62544
Ge(Li) detector, stable ADC development 4–46873
Ge(Li) detector with pulse area analyser for high resolution spectroscopy 4–51162
Ge(Li) detectors, dead layers at surface *(German)* 4–81021
Ge(Li) detectors, gamma-ray efficiency calibration using ^{138}Xe and ^{138}Cs sources 4–46790
Ge(Li) detectors, meas. of finite solid angle correction factors 4–62542
Ge(Li) detectors, neutron damaged, regeneration inside cryostat 4–55098
Ge(Li) detectors, precision half-life meas. 4–46847
Ge(Li) detectors, triple constant-fraction discriminators 4–74141
Ge(Li) detectors use of ^{160}Tb, ^{182}Ta and ^{192}Ir as efficiency calibration standards 4–46791
Ge(Li) gamma-ray detectors, preparation 4–77184
Ge(Li) spectrometer, for low level in-situ meas. of radionuclides in soil 4–47812
Ge(Li) spectrometer, satellite-borne high resolution gamma-ray system, electronic, data handling and auxiliary sensor systems 4–54600
Ge(Li)-NaI(Tl) Compton suppression system, performance and cost comparison with larger Ge(Li) detector 4–51150
Ge(Li)-Na(Tl) detector system for $\gamma\gamma$ ang. correlation meas. 4–62516

germanium continued
Ge(^{3}P) + N$_2$O = GeO + N$_2$, product emission spectroscopy 4–76574
^{68}Ge-^{68}Ga generator ^{68}Ga prod. in ionic form 4–70615
^{71}Ge, diffusion in SiGe alloy 4–52938
LiD:Ge^{2+}, X-ray luminesc. *(Russian)* 4–70363
Mn-Ge alternating layer system, appl. as neutron monochromator 4–78867
p-type, Landau levels calcs. and effective mass stress Hamiltonian, effect of de Haas Shubnikov oscills. 4–48905
Se:Ge, liq., I-V characts., strong electric field effects 4–57103
Si:Ge, difference between absorption of longit. and transverse sound, calc. 4–72527

germanium alloys
Isotope Transmutation Alloying process feasibility 4–67766
Ag-Ge α-solid solns., chem. pot. of Ge 4–61324
Al-Ge, metastable phases 4–73284
Al-Ge(4%), struct. changes during decomp. *(Russian)* 4–67768
Al-Zn-Ge, Ge influence on Guinier-Preston zone formation rate 4–70468
As$_{0.15}$Ge$_{0.13}$Te$_{0.73}$, glass, visual effects of switching 4–75929
Au-Ge α-solid solns., chem. pot. of Ge 4–61324
Au-Ge(−Ni) eutectic alloy film evap. in vacuum on NaCl (100) substrate, microstruct., morphology, and elec. resistivity *(Japanese)* 4–45550
Bi$_x$Ge$_{1-x}$ film, amorphous, optical spectra and photocond. 4–53163
Bi$_x$Ge$_{1-x}$ film, amotphous, fabrication, struct. and elec. props. 4–53162
CoFeGe, B8$_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4–73057
Cu-Ge, dilute alloy, asymptotic region of charge density oscillation around impurities 4–67465
Cu-Ge α-solid solns., chem. pot. of Ge 4–61324
Cu-Ge-Ti alloy, decomp. processes, 400 to 700 degrees C *(Russian)* 4–73296
Cu-Ge(5 at.%), ang. distrib. of annihilation photons, recovery by annealing 4–72488
Fe-Ge, quenched from liq. state, struct. obs. *(Russian)* 4–79902
Fe$_3$-Ge, quenched and annealed, ordering, Mossbauer study 4–49270
FeGe, ferromagnetic, cubic, microwave reson. line shape investigation 4–67454
Fe$_6$Ge$_5$, cryst. struct. determ. *(French)* 4–75477
FeMnGe, B8$_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4–73057
Ga-P-Ge, ternary phase diagram calc., electronegativity data 4–56866
Ge-Au liq. systems, thermodynamic props., mass spectrometry obs. 4–45944
Ge-Co, liq., mag. props., conc.-temp. depend., 900-1700°C *(Russian)* 4–45091
Ge-Co(Cu)(Ni)(Sb) system alloy form. kinetics 4–70436
Ge-Cu, binary liquid, investigation of thermodynamic props. 4–45492
Ge-Cu liq. systems, thermodynamic props., mass spectrometry obs. 4–45944
Ge-Fe, liq., mag. props., conc.-temp. depend., 900-1700°C *(Russian)* 4–45091
Ge-Mn-Te dilute alloys, magnetisation and magnetoresistance meas. at low temps. 4–44902
Ge-Ni, liq., mag. props., conc.-temp. depend., 900-1700°C *(Russian)* 4–45091
Ge-Si, cryst. growth, interface stability criteria investig. 4–63776
Ge-Si, heavily doped, hot-pressed, thermoelec. figure of merit, theoretical optimization 4–72805
Ge-Si, impurity phonon modes, coherent pot. approx. 4–44621
Ge-Te, light induced amorphous to cryst. transform. 4–62855
Ge$_{0.3}$S$_{0.7}$, glass, i.r. and Raman spectra, optic modes 4–45307
GeTe, amorphous, atomic bonding, electron spectroscopy 4–44470
In-Ge-Te ternary system, phase equilib. 4–49643
Mg$_2$Ge, ht. of formation 4–64706
Nb-Al-Ge, metallography and supercond. 4–49109
Nb-Ge, sputtered film, supercond. with onset above 23K 4–60908
Nb-Ge, supercond., synthesis by thermolysis of volatile hydrides and organosmetallic compounds on glowing wires 4–57208
Nb$_3$(Al,Ge), A15 type, long range order behaviour 4–45528
Nb$_3$(Al,Ge), depression of supercond. transition temp. after neutron irrad. 4–60907
Nb$_3$(Al-Ge), A15 supercond. with high T_c, lattice instability and mag. susceptibility *(Russian)* 4–82837
Nb$_3$Al$_{0.8}$Ge$_{0.2}$, strong-coupling saturation of T_c 4–57200
Nb$_3$Al$_{1-x}$Ge$_x$, n.m.r. of ^{27}Al and ^{93}Nb *(Russian)* 4–70232
NbGe, supercond. film, sputtering prep., transition temp. 4–75994
Nb$_3$Ge, depression of supercond. transition temp. after neutron irrad., model 4–60907
Nb$_3$Ge, supercond. above 22K *(Russian)* 4–76007
Nb$_3$Ge, supercond. thin film, upper critical fields meas. 4–49111
Nb$_{3.3}$Ge$_{0.7}$, sp. ht., mag. susceptibility, supercond. transition *(Russian)* 4–60900
Nb−Al−Ge bulk samples, current carrying capacities in steady mag. fields 4–79451
Ni-AuGe-Ni, very low resistance contacts for n-GaAs 4–60860
Pd-Ge, constitution diagram and phase identification *(German)* 4–53667
Si-Ge, chill casting for hot pressed ingot prod. 4–61430
Si-Ge, diffusion meas. of ^{71}Ge 4–52938
Si-Ge, e.s.r. of surface centres 4–79600
Si-Ge, hot pressed ingots, reduction of chill cast alloy 4–64596
Si-Ge, neutron and proton induced defects, i.r. absorpt. meas. 4–61194
Si-Ge, solid soln. epitaxial films, crystallisation mechanism effects on B diffusion 4–82828
Si-Ge, thermoelectric, P precipitation, Lifshitz-Slyozov theory 4–67733
Si-Ge alloy ingots, hot-pressed, prep. and props. 4–49608
Si-Ge(20 at.%):B(P), hot-pressed ingots, prep., vacuum hot pressing 4–73336
Si$_x$Ge$_{1-x}$, Harrison's first principle pseudopotential method appl., band struct. 4–79255
V-Ge, constitution and properties *(Russian)* 4–70439

- **germanium alloys** continued
  - V-Ge, supercond., synthesis by thermolysis of volatile hydrides and organometallic compounds on glowing wires 4−57208
- **germanium compounds**
  - *see also germanium alloys*
  - Ge_3N_4, amorphous dielec. film, growth from $GeH_4 + N_2H_4$, 300-700°C, physicochemical props. 4−49586
  - germania, vitreous, structural studies using pulsed neutron source 4−56589
  - glass, chalcogenide and tetrahedral struct. 4−82120
  - methyltetrahalide, preresonance Raman intensity determ. on fundamentals 4−60069
  - $(As_{0.4}Te_{0.6})_{100-x}Ge_x$ glass, elec. and thermodynamic props., stepwise comp. depend. 4−75457
  - Cu_2GeSe_3 based alloys, nonstoichiometric, investigation of struct. and props. 4−44674
  - Ge-O-N, film on Ge, growth and characts., plasma anodization 4−45464
  - Ge-P-Pb system cross section, thermographic obs. 4−60591
  - Ge-S glasses, photoluminescence, laser excitation, structure sensitivity 4−73169
  - Ge-Se, amorphous film, growth and elec. props. 4−75988
  - Ge-Se, amorphous mixture, Raman spectra obs. at room temp. 4−49343
  - Ge-Se-Te system, glass form. and microstruct. *(Japanese)* 4−69732
  - Ge-Se(Te) system melts, absolute thermo-e.m.f., comp. and temp. depend. 4−60819
  - Ge-Sn-Se system, equil. between $GeSe_2$, $SnSe_2$ and SnSe, vitreous zone localization *(French)* 4−48729
  - $Ge_{10}As_{30}Si_{13}Te_{47}$, obs. of band gap energy levels by stimulated dielec. relax. currents 4−49301
  - $GeCl_4$, spectrographic determination of impurities *(Polish)* 4−58981
  - $GeCl_4$-HCl-H_2O system, water vapour meas., using static method *(Polish)* 4−68654
  - $GeCl_6^-$, valence force consts., Coriolis coupling, mean vibr. amplitude 4−56153
  - GeF, rot. struct. in higher excited states 4−72168
  - GeF_2 and $(GeF_2)_2$, matrix i.r. and Raman spectra, structure and normal coordinate analysis 4−48008
  - GeF_3^-, enthalpy of formation by electron impact dissoc. of tetrafluoride 4−48117
  - GeH_4, i.r. and Raman spectra of four solid phases, cryst. structure 4−49335
  - GeH_4 + F reaction, energy partitioning and D(H-GeH_3), i.r. chemiluminescence of HF 4−45899
  - GeH_2X_2, (X=F, Cl, Br), Urey-Bradley force constants normal vibr. 4−56160
  - Ge_2N, GeSiN, mass spectrometric determ. of heats of form., atomisation energies 4−61579
  - Ge_3N_4, form. by ion implantation in Ge, film 4−76396
  - GeO, true pot. energy curves, dissoc. energies and r-centroids 4−81765
  - GeO films, physicochem. characteriz. 4−69968
  - GeO_2, adsorption of fluorobenzene, interaction with OH groups 4−69959
  - GeO_2, elastic parameters from u.s. meas. 4−45967
  - GeO_2, form. by ion implantation in Ge, film 4−76396
  - GeO_2, hexagonal-tetragonal transform., 760-900°C *(Japanese)* 4−82270
  - GeO_2, K absorpt. edge obs. of bonding 4−82764
  - GeO_2, on Ge powders, thermoanalytical methods 4−51226
  - GeO_2, vitreous and cryst., sp.ht., 1.4-25K 4−48772
  - GeO_2, vitreous state, cryst. struct. determ., pair distrib. separation anal. *(French)* 4−56619
  - GeO_2, vitreous study of local order from neutron spectra and X-ray diffr. *(French)* 4−44472
  - GeO_2 meas. of enthalpy and sp. ht. at high temp., method of mixtures 4−69913
  - $GeO_2:Cr^{3+}$, e.s.r. meas. at 295K and 92K, spin-Hamiltonian parameters 4−49225
  - GeO_2-Bi_2O_3 and GeO_2-Sb_2O_3-Bi_2O_3 system glasses, depolymerisation by Bi_2O_3 4−60414
  - GeO_2-La_2O_3-Ga_2O_3(Ta_2O_5) system glasses, viscosity and elastic props. correl. with phase diagram 4−67897
  - GeO_2-Sb_2O_3-KF-H_2O hydrothermal system, crystn., 400, 450, 500 and 550°C 4−48741
  - GeO_2-SiO_2 glasses, synthesis i.r. spectra, and refr. index 4−45284
  - GeO_x, metastable phase, form. at GeO_2 surface 4−60700
  - $Ge_xO_yN_z$, form. by ion implantation in Ge, film 4−76396
  - $(GeO_2)_3.(PbO)_5$, growth from melt, optical and elec. props. 4−82829
  - GeP, X-ray spectra, valence band electron distrib. *(Russian)* 4−49478
  - GeS film, on Ge, interface struct., LEED obs. 4−56949
  - GeS-GeS_2-PbS, glass form., struct. and props. 4−75461
  - GeS-GeS_2-SnS, glass form., struct. and props. 4−75461
  - GeS_2 K absorpt. edge obs. of bonding 4−82764
  - GeS_x, struct. and glass forming regions 4−82119
  - GeS_x whiskers, naturally occurring VLS growth under conditions present at burning culm banks 4−48880
  - $GeSI_2$, vitreous, X-ray exam. of atomic struct. 4−44477
  - $GeS(Se)_x$, x=1,2, positron annihilation rel. to bonding and defects on vitrification 4−44838
  - $GeSb_4Te_7$, single crystals, high purity, six valley model of const. energy surface 4−44922
  - GeSe, amorphous, between Al electrodes, relax. processes, model 4−67272
  - GeSe, cryst. and amorphous, far i.r. absorp., h.f. and l.f. dielec. consts. detn. 4−45289
  - GeSe, $GeSe_2$, amorphous, local struct., EXAFS 4−82116
  - $GeSe_2$, vitreous, X-ray exam. of atomic struct. 4−44477
  - $GeSe_2$ K absorpt. edge obs. of bonding 4−82764
  - Ge_xSe_{1-x}, film, refr. index, transparency 4−76339
  - Ge_xSe_{1-x}, glass, optical absorpt. edge and Raman scatt., variation with x 4−45304
  - GeSe(Te) films, amorphous-polycryst. transition, influence on elec. cond. and optical density 4−60709
  - $Ge(Se_{1/3}Te_{2/3})_2$, localized states, carrier transport mechanism, glassy bulk, sputtered film 4−64009
  - GeTe, amorphous, a.c. Hall mobility and cond. 4−75902
- **germanium compounds** continued
  - GeTe, amorphous, energy band tailing, localisation of states 4−76269
  - GeTe, amorphous and cryst., density of valence states 4−82790
  - GeTe, anisotropy in elec. resist. meas. 4−79352
  - GeTe, sp. ht. enhancement between 1 and 5 K 4−44678
  - GeTe application, exponential photocond. edge, spectral response 4−67245
  - $Ge_{15}Te_{80}As_5$ glasses, surface nucleated crystn. 4−60416
  - $(GeTe)_{1-x}(MnTe)_x$, pseudobinary alloy, magnetisation meas., RKKY theory 4−57316
  - $(GeTe)_{99}(MnTe)_1$, exchange scatt. obs. 4−45105
  - GeX, (X=S,Se,Te), matrix isolated i.r. spectra 4−52165
  - $GeXTe_{1-x}$, amorphous film, photocond., temp. depend. 4−75916
  - Mo-GeSe-Mo sandwiches, obs. of blocking contacts, temp. depend. of conductance and capacitance meas. 4−53146
  - PbO-GeO_2 glassy system, X-ray diffr., i.r. absorpt., dielec. const. and intrinsic absorpt. 4−44479
  - Si-Ge, epitaxial growth, and Si and Ge, remarks on exptal. system design 4−57721
  - Y_2O_3-GeO_2 system, below 1700 degrees C, liquid miscibility 4−69896
- **getters**
  - *see also vacuum techniques*
  - ion-getter pumped system, residual gas kinetics, H_2O vapour chemisorption 4−50999
  - phosphosilicate glass, for Si wafer, ion scatt. impurity determ. 4−45461
  - HCl, for high power Si devices 4−45468
- **GeV nuclear reactions and scattering** *see high-energy nuclear reactions and scattering*
- **giant pulsations (earth)** *see micropulsations*
- **giant stars**
  - *see also dwarf stars*
  - A-type supergiants in Magellanic Clouds, abundances rel. to galactic evolution 4−73733
  - asymptotic giant branch stars, envelope models 4−70963
  - B9-A2 supergiants use of Si II doublet $\lambda\lambda$6347 6371 as luminosity indicator 4−46221
  - 22 Bootis, spectrophotometric, photometric obs. *(French)* 4−70995
  - α Bootis (Arcturus), high spectral resolution meas. of H I 1216 A, Mg II 2800 A emission 4−50587
  - Cepheid strip, comparison of variable and nonvariable stars 4−50572
  - cool giants, i.r. fluxes, spectral types and temps., 0.55-10.2 μ photometry 4−50567
  - ι Draconis, model atmosphere analysis of metal-rich giant spectra 4−50607
  - eclipsing binaries with undersize subgiant secondaries, multicolour photometry 4−62160
  - F supergiants, OI 7774A equivalent width and absolute mag. 4−58295
  - F-type southern supergiants, from Coude spectra 4−54495
  - G8-K3 giants, metal content and microturbulence from narrow band photoelectric photometry 4−73700
  - G-type, luminosity and velocity distrib. 4−62152
  - HR 4050, K supergiant, Ba I lines and Ba abundance 4−46223
  - i.r. stars in supergiant binary systems 4−65152
  - IRC sources, 2.3-18 μ obs. 4−71027
  - JHKL photometry of late-type supergiants in LMC 4−73712
  - K type, CO band strengths, $^{12}C/^{13}C$ ratio 4−70975
  - LMC, 8 high-luminosity M-type supergiants 4−70992
  - luminosity function field LF 15, M giant space distrib. 4−50593
  - M67, old open cluster, intermediate band photometry 4−62179
  - M-type, spectrophotometry in 3900-4660 Å range, curve of growth analysis 4−65179
  - mass loss, model atmosphere calculations 4−50552
  - nonspherical thermal instability in red giant stars 4−46230
  - β Orionis, hot supergiant, corona detection attempt with intensity interferometer 4−71005
  - ε Pegasi, K supergiant, Ba I lines and Ba abundance 4−46223
  - Puppis region, distrib. of M-type giants and C stars 4−80636
  - red giants, dense clouds, chemical evolution 4−46297
  - red giants in four globular clusters, i.r. photometry 4−76854
  - red giants in old galactic cluster M67, physical properties 4−73714
  - relaxation oscills. in red giant envelopes and symbiotic stars 4−54472
  - FG Sagittae, He shell flashes 4−62117
  - FG Sagittae, s-process episode 4−62116
  - BM Scorpii and six i.r. sources near M6, obs. at i.r. wavelengths 4−80610
  - SMC and LMC young clusters, colour-magnitude diagrams in BV system 4−50680
  - speckle interferometry obs. at Mt. Palomar *(French)* 4−83209
  - spectra, detection of i.r. electronic transition of AlO 4−80594
  - spectrographic absolute magnitude system, independent calibration on 562 G and K stars 4−54591
  - strong-line k-type giants, absolute spectrophotometric photometry 4−70983
  - strong-line k-type giants, chemical abundances from model atmosphere analysis 4−70984
  - subgiants in binary systems, undersize problem solved 4−80578
  - supergiant stars, chemical composition indicators, evolutionary models 4−62106
  - 47 Tucanae, globular cluster, CN band strengths in giant stars 4−62112
  - unidentified IRC stars, near i.r. photometry 4−80571
  - DL Virginis, eclipsing binary, spectrum shows triple system with G8 giant 4−80592
  - yellow supergiants, spectral line strengths rel. to Cepheids 4−70988
  - CN strengths of giants in M67 and NGC 188, old galactic clusters 4−50685
  - Fe I line formation in models of solar-type giants and dwarfs 4−46234
- **Gibbs function** *see thermodynamic properties*
- **Ginzberg-Landau theory** *see superconductivity*
- **glaciers**
  - Antarctic, use of EOK 2000 electro-optical telemeter 4−46117
  - Antarctic 10-m snow core at Grunehogna base, W. Dronning Maud Land 4−80280

glaciers continued
- Antarctic ice shelf near Sanae, borehole temp. profiles 4−80279
- Baffin Is., northern Cumberland Peninsula, Late Quaternary glacial and climatic history 4−54167
- Colorado Front Range, chronology of Holocene cirque glaciation 4−54168
- Decorah Ice Cave State Preserve, Iowa 4−54165
- WDronning Maud Land 1971, radio echo sounding of ice sheet 4−80281
- W Dronning Maud Land 1972, radio echo sounding of ice sheet 4−80282
- geological, 2×10^5 year cycle, rel. to solar neutrino problem *(French)* 4−68328
- late glacial site in central Grampian Highlands 4−61714
- Late Precambrian mixtites, glacial or nonglacial origin 4−83047
- Lys, Monte Rosa (Italy). surge of water *(Italian)* 4−80277
- motion, internal heating, sliding conditions 4−50259
- polar pack ice, under-ice melt pond evolution, double diffusion at freezing pt. 4−64852
- surface strain rates meas. using embedded wire strain gauges 4−46095
- Susquehanna Great Bend area, glacio-periglacial landforms 4−54169

glass
- *see also amorphous semiconductors; glass industry; glass-metal seals; vitreous state*
- acoustic emission generation, microstruct. aspects 4−64695
- adhesion of rubber, relaxation props. effect 4−57774
- adsorption of water and organic vapours, elastic moduli determ., adsorped phase struct. determ. 4−67103
- alkali aluminosilicate glass, alkali ion exchange *(German)* 4−76543
- alkali borate glass melts, comp. variation of optical basicities 4−64397
- alkali borate glasses, Cu, Cl effects on colour, absorpt. spectra obs. 4−70335
- alkali borosilicate, structure determ. by n.m.r., Mossbauer spectra, and positron annihilation 4−45214
- alkali germanate glasses, soln. calorimetric approach to struct. *(Japanese)* 4−69731
- alkali glasses, self-diffusion and elec. cond. empirical relation 4−52936
- alkali metaphosphate mixed systems, internal friction 4−60553
- alkali metaphosphates, interionic vibrs., glass transitions investig. 4−66832
- alkali silicate, form. by ion exchange and H_2 treatment, elec. cond. 4−60843
- alkali silicate, quantum chem. analysis of structural units 4−60413
- alkali silicate binary glass systems, miscibility gaps, thermodynamic interpret. 4−67948
- alkali silicate glass:Er^{3+} multiple sites evidence 4−45332
- alkali silicate glass:Er^{3+} sixfold coordinated site evidence 4−45320
- alkali-borate glass:S^{2-}, blue binary, optical absorpt., emission and excitation spectra 4−70328
- alkali-borates, theoretical analysis of miscibility gaps 4−75631
- alkali-lead silicate glasses, viscosity meas. in softening region *(Japanese)* 4−70573
- alkaline earth metaphosphates, interionic vibrs., glass transitions investig. 4−66832
- alkaline glasses, trapped electron decay, apparent activation energy 4−76611
- aluminium borosilicate, fibre, contact angle of wetting by polyethylene 4−49928
- aluminophosphate glasses, fluorine effect on microstruct., γ-irrad. induced e.p.r. line intensities 4−67423
- aluminosilicate, quantum chem. analysis of structural units 4−60413
- apochromats, thin three-colour, made of three different glasses, basic characts. 4−68669
- atmospherically transported volcanic glass in deep-sea sediments 4−73519
- bead models, thermal conductivity, moisture content depend. 4−53926
- benzenediazonium ion, in frozen acidic solns., photodecomp., photoselection effects 4−80203
- borate, Pr^{3+} activated, cathodolum. and induced absorpt. bands *(Russian)* 4−53539
- borate glasses, X-irrad., e.p.r. of Cd^+, g-tensor distrib. and anisotropy *(French)* 4−61026
- borosilicate, Eu^{3+} fluorescence excitation, emission and absorption spectra obs. 4−49432
- borosilicate, sintered film, Vickers microhardness characterisation 4−76547
- borosilicate, structure, n.m.r. and Mossbauer spectra with thermal shock 4−52695
- borosilicate, viscous flow during phase separation, structure development 4−66833
- borosilicate E glass fibre strand, tensile failure in resins and waxes 4−49927
- borosilicate films, i.r. obs. of H_2O adsorption 4−56967
- breakage due to sonic booms, probability 4−58664
- Brillouin spectra of glass systems of various fictive temps., config. changes 4−61150
- brittle fracture dynamics, wave fractographic investigs. 4−48677
- brittle fracture relation to stress pulses, review of recent work 4−49858
- calcium metasilicate glass, i.r. spectra, structure and crystallisation *(Russian)* 4−66835
- Cer-Vit, reflectance and optical consts., 250-1050 Å 4−79694
- ceramic, β-spodumene, containing ZnO, bending strength rel. to heat treatment *(German)* 4−45733
- ceramic, containing ferrite phase, suitability as memory material 4−49194
- ceramic, creep testing method 4−80156
- ceramic, microstruct. chracteriz. by cathodolum. 4−49892
- ceramic, prestressed, fracture and strain energy release 4−73364
- ceramic, residual glass phase behaviour 4−64598
- ceramic, stressed, dicing, calorimetric technique for strain energy release meas. 4−61479
- ceramics, controlled crystallisation, theory and practice 4−76525
- chain vibration model of glass-like disorder, frequency spectrum calc. comparison 4−72544
- chalcogenide, acousto-optic. characts. 4−49325

glass continued
- chalcogenide, small angle X-ray scatt., absence of voids 4−69794
- chalcogenide, switch, threshold, obs. of current channels in chalcogenide film devices 4−53131
- chalcogenide films stoichiometry using low energy proton X-ray excitation 4−58999
- chalcogenide semiconductors, glass form., conductivity 4−82416
- chalcogenides, recording holograms, diffr. efficiency time depend. 4−58834
- colorant detectors for ionising radiation dosimetry 4−73912
- composite, brittle matrix type, with metal inclusions, thermal shock and wear resist. *(German)* 4−53839
- conference, Jena, Germany (Jun 1973) 4−73380
- crack front curvature and fracture surface markings in transitional fracture vel. region *(German)* 4−76545
- crack propagation, slow 4−61547
- crack tip temperature rise problem 4−44596
- crystallisation statistics, thermal history 4−44483
- detectors for high-energetic heavy ions, energy resolution-chemical composition relation 4−77200
- devitrification detection by elec. conductance meas. 4−45838
- dielectric mixtures, DTA characterization technique 4−44478
- dielectric properties, effect of thermal treatment and stress *(Polish)* 4−82957
- diffusion of gases, temp. depend. 4−60644
- 1,2-diphenylbenzene, related compounds, crystallisation behaviour 4−66836
- dosimeter using glass plates, radiation detect. at 10^9 rads 4−72010
- dust cloud, electrification, struct. changes 4−80150
- electrical conductivity, temp. depend. of glasses and glass melts, free vol. theory *(German)* 4−44910
- electron irradiated, vol. elec. charge, relax. rel. to struct. 4−52782
- etching, solubility in aq. HF 4−80882
- ethanol, photoconversion of solvated electrons to trapped electrons at 6K 4−73439
- ethanol, protiated and deuterated glasses, γ-irrad., photobleaching of trapped electrons, kinetics 4−70612
- F9, surface striae solubility in melt, for optical blanks 4−80884
- fabric reinforced epoxy resin, mech. anisotropic optically sensitive, development technology 4−49991
- fabric reinforced plastic, static and vibr. creep in shear in reinforcement plane 4−45771
- fabric reinforced plastic rings, climatic loading effect on residual stresses and carrying capacity 4−53844
- fabric reinforced plastic shells, initial imperfections and buckling modes under hydrostatic press. 4−53841
- fabric reinforced plastics, creep characts. rel. to instantaneous stress/strain curves 4−45772
- fabric reinforced plastics, fracture characts. in cyclic tension-compression 4−45773
- fabric reinforced polyester resin laminates, macroscopic fracture mechanics 4−76532
- fabric reinforced textolite, thermal effects in uniaxial tension 4−45770
- faint colour measurement, by spectrophotometry 4−46648
- fibre, apparent viscosity meas. below vitreous transition temp. *(French)* 4−49964
- fibre, hybrid carbon and glass fibre composite technology 4−80072
- fibre, impregnation with polymer dispersions, advancing contact angle determ. 4−82993
- fibre, in Nylon 6, notched specimen, crack propag. by bending fatigue *(Japanese)* 4−49922
- fibre, tensile fragmentation 4−67956
- fibre, tensile stress effect on rupture mode 4−45801
- fibre materials, scatt. effect on heat transfer 4−64642
- fibre or sphere reinforcement, in thermoplastic, tensile stiffness 4−64625
- fibre reinforced epoxy laminate, unidirectional, tensile creep 4−49924
- fibre reinforced epoxy resin, deform. characts. 4−49932
- fibre reinforced epoxy resin, thermally activated deform. 4−49933
- fibre reinforced plastic, bending of cantilevered plate, transverse shear effect 4−45778
- fibre reinforced plastic, damage accumulation under cyclic tension/compression 4−45781
- fibre reinforced plastic, extremal directions determ. 4−45779
- fibre reinforced plastic, failure due to stress conc. 4−61530
- fibre reinforced plastic, flexural fatigue strength *(Japanese)* 4−57767
- fibre reinforced plastic, SVAM-type, anisotropy effect on cyclic deform. and heating 4−45782
- fibre reinforced plastic composites, acoustic emission rel. to tensile failure mechanism *(Japanese)* 4−45766
- fibre reinforced plastic cylindrical shells, creep buckling 4−45776
- fibre reinforced plastic cylindrical shells in axial compression, buckling mode and crit. load 4−45784
- fibre reinforced plastic ring with unidirectional struct., friction and bending effect on perimeter strain distrib. 4−45785
- fibre reinforced plastic rings operating under press., carrying capacity 4−53843
- fibre reinforced plastics, adhesion effect on tensile props. *(Japanese)* 4−80082
- fibre reinforced plastics, anisotropy and resist. to interlayer shear and compression perpendicular to fibres 4−49946
- fibre reinforced plastics, matrix interaction with short reinforcing fibres 4−49942
- fibre reinforced plastics, oriented, creep and long-time strength in interlaminar shear 4−49941
- fibre reinforced plastics, oriented, long-term strength criterion in interlayer shear 4−49947
- fibre reinforced plastics, oxygen etching for supermol. struct. investig. 4−50004
- fibre reinforced plastics, shear moduli determ. using ring specimens 4−50086
- fibre reinforced plastics, stress relax., model using disc with metal rod 4−49944
- fibre reinforced plastics, unidirectional hollow fibres, compressive creep relations 4−45780
- fibre reinforced polyethylene, residual stresses, axial and radial components 4−45777

glass continued
fibre reinforced polyethylene, stress relax. *(Japanese)* 4−80083
fibreglass-plastics, high-modulus fibre reinforced, mech. props. 4−80084
fibres, liquation struct. investigation using internal friction and electron microscopy 4−48512
fibres in glass microsphere-reinforced epoxy resin composite, mech. props. 4−80070
film, spin-on, Auger determ. of O_2/Si ratio 4−58992
flat, optical distortion, melt prep. conditions effect 4−53796
flat, optical testing *(German)* 4−74042
flint, i.r. spectra meas., 1300-300 cm^{-1} region, optical consts. *(Russian)* 4−61169
flint, i.r. spectroscopic investigation of microstruct. 4−48511
fracture by laser light, spectral emission meas. 4−74518
fracture mirror meas. 4−67917
germanate:Er^{3+}, absorption and fluoresc. spectra 4−45333
glass:Pr_2O_3, CoO, colorant effect on light absorpt. 50000 to 5000 cm^{-1} 4−49397
glass reinforced gypsum, strength and stiffness properties 4−67931
glass reinforced plastic, fracture toughness 4−61531
hardening, diathermancy, kinetic factors 4−67941
high temperature microphotometry and microdilatometry of inhomogeneous materials 4−80852
h.v. power transistors, silicate glass passivation 4−49589
inert gas diffusion in lunar soil particles and implanted glasses 4−62057
inhomogeneity, quantitative meas. by Shelyubskii method 4−49318
internal friction, rel. to water content of glass 4−75573
ion-exchanged, elastic modulus effects localized near surface, acoustic surface waves obs. 4−52978
laminated glass-cloth panel, cutting technique *(German)* 4−49926
laser damage 4−77698
laser damage due to metal film coating 4−43344
laser damage dynamic characts. 4−77699
laser glass, damage threshold depend. on nonmetallic inclusion size 4−69075
laser pulse self-focusing, Kerr effect 4−55525
laser radiation destruction, thermal mechanism 4−47369
laser surface damage, inclusion mechanism 4−55492
lead phosphate glass, prep., density, Young's modulus and viscosity 4−49968
lens, laser damage development 4−77696
light absorption, continuous meas., visible and i.r., calorimetric method 4−64365
light scattering of laser beams by random microinhomogeneities 4−69073
liquating, paramag. ions behaviour 4−53868
low-temperature, decay of trapped electrons by tunnelling to scavenger mols. 4−80193
lunar glass spherules, magnetic susceptibility of antiferromagnetic inclusions 4−46188
macroporous glasses, structure control 4−66831
manufacture for scientific optics 4−46638
manufacturing process, physics 4−70584
mat reinforced plastics, rheological model 4−49993
mechanical strength, possibilities and limits for increase 4−76550
melt, homogeneity study using simple stirrer 4−49971
melt, natural convection, steady state flow pattern 4−48206
metallic glasses, fracture topography 4−61420
metallic glasses, mech. characts. 4−76453
metallic glasses, plasticity and strength 4−53769
metallic glasses, strength and fracture characts., temp. depend. 4−61400
metallic glasses, T_g rel. to atomic sizes and heats of mixing 4−78926
methanol, protiated and deuterated glasses, γ-irrad., photobleaching of trapped electrons, kinetics 4−70612
mica glass-ceramics, fracture energy and thermal shock resist. rel. to microstruct. 4−73345
microcraters in glass rel. to lunar sample bombardment 4−73664
microflaw origin and detection 4−64694
molten, impregnation of porous Fe compacts 4−49871
Monte-Carlo model, atomic and mol. arrangements 4−44484
Newton's rings, prod. using two glass plates 4−65870
obsidian hydration profile meas. using nuclear reaction technique 4−61899
optical, indentation hardness and lapping hardness 4−45796
optical cements, for joining of large thermal expansion coeff. difference glasses 4−58788
optical dispersion formula coeffs. and refractive index calcs., oxygen free glass 4−61130
optical flat, obs. on long-term stability 4−62452
optical quality, ultrasonically assisted stabilization and thermal treatment effects on refr. index 4−61125
organic glasses irrad. at 4.2 and 77K, deferred isothermal luminescence 4−57600
oxide, Ce doped, low temp. paramag. props. 4−53208
oxide, composition-property relations 4−78930
passivating glass film formation by ion implantation 4−64513
PbO-SiO_2 system glasses, thermal expansion, comp. depend. 4−60630
penetration viscometry, empirical eqn. 4−59016
phase separated, relaxation processes 4−76552
phase separated particles, elongation, spheroidisation 4−78931
phase separation, microphase structure and microphase additional component distribution *(German)* 4−76549
phosphate, optical absorption of Co(II) and Ni(II), fictive temp. effect 4−76284
phosphosilicate, form. to remove Na from SiO_2 thermally grown on Si 4−57705
phosphosilicate, Si wafer gettering, ion scatt. impurity determ. 4−45461
phosphosilicate, water adsorption, film struct. determ. 4−44760
phosphosilicate glass films with high P_2O_5 conc., chemical vapour deposition and i.r. spectroscopic characterisation 4−49597
photochromic, appl. to optical components 4−53385
photochromic, relax. process consts., wavelength depend. 4−82684
photochromic glasses, luminescence *(Russian)* 4−70362
phototropic glass systems, phototropic phases rel. to structure *(German)* 4−75459
plate, subjected to transverse surface impact, wave propag. 4−45800
polar, model of pre-existing electron traps 4−57858
polishing quality, laser radiation resistance 4−80881
porous, water adsorption, p.m.r. relax. meas., pore size depend. 4−52991
powder-filled epoxy resin composite, thermal cond., obs. between 2 and 300K 4−53835
production technique, for optical fibre communication system 4−49972
protective glass compositions selection w.r.t. effect of electron displacements of ions on absorpt. spectra *(Polish)* 4−45837
Pyrex, He, D and N migration, chemical interaction 4−61535
pyrex capillary viscometer, absolute gas viscosity meas., classical slip correction 4−65599
quartz, changes in surface struct., ion bombard. 4−67090
quartz, elec. cond. and depend. on heat treatment 4−44913
quartz glass, effect of gas saturation rel. to density of disperse silica 4−53798
quartz glass, high strength, hydrolytic mechanism of fracture under load 4−75565
quartz glass with Nd, successful lasing 4−47352
quenched, delayed fracture induced by water vapour, gas adsorption effect *(German)* 4−53795
rare earth oxide, laser spin melting, free fall cooling 4−45802
refractory glass chondrule, in Vigarano chondrite 4−65126
reinforced plastic, crack growth relns. and their appl. to design 4−53834
reinforced plastic, stress and strain conc. around circular hole 4−80085
relaxation processes in glasses and glass-forming liquids 4−73381
relaxation times and viscosity, calc. of corresponding functions *(German)* 4−76551
scribing with pulses from Q-switched laser 4−47385
self-focusing threshold, effect of microinhomogeneous struct. 4−51646
silica, fused, optical fibres and preforms, refractive index wavelength depend. 4−57494
silicate, luminescence of Eu^{3+} and Tb^{3+}, effect of thermal history 4−53486
silicate, Pr^{3+} activated, cathodolum. and induced absorpt. bands *(Russian)* 4−53539
silicate, role of Mg ions from density and viscosity meas. *(German)* 4−45798
silicate, static fatigue rel. to surface treatment 4−49970
silicate glass, liquation and volume crystallisation, effect of OH^-, Cl^-, F^- and SO_4^{2-} anions 4−66830
silicate glass containing Sn of different valences, synthesis 4−69727
silicate glasses, eight-component, structure and electron struct., Mossbauer investig. 4−53349
silicate glasses, quantum efficiencies and transition probabilities of Eu^{3+} 4−64432
silicates, Cu determ. using cathode ray polarography 4−42959
soda lime glass surface, polystyrene melt spreading 4−56960
soda zinc borate, radiation colour centres 4−66932
soda-lime, adhesion of Cr film, investigation using film peeling technique 4−75734
soda-lime, sliding friction behaviour, chemomech. control 4−61489
soda-lime-silica glass, u.s. intensity rel. to stress release *(German)* 4−49974
sodium borosilicate glass, effect of subcritical microstructure on the viscosity 4−60632
sound velocity, temp. dependence *(Russian)* 4−44604
specific heat, low temp. anomaly, lattice vibr. model 4−69920
spectra, vibr. freq., in two-dimens. glass model, disorder effects 4−67571
spinodal concept, explanation from Gibbs heterogeneous equilibria theory, impact on glass technology 4−45836
ST-50-1 glass ceramic substrates phase composition 4−70541
standard, viscosity-temp. reln. *(German)* 4−49973
structural analysis, appl. of n.m.r. 4−75458
substrate, Sb thin film growth, struct., low and high vac. 4−72654
substrate, stability of amorphous Bi films *(Russian)* 4−67128
surface, adsorption of Cs and CsCl, Van der Waals forces 4−63977
surface layers, multiple internal refl. spectra, quartz fusion with moisture in presence of OH groups *(Russian)* 4−53405
surface strengthening by hydrolysis in silica soln. 4−61546
tellurite:Er^{3+}, absorption and fluoresc. spectra 4−45333
tensile strength of K8 glass, effect of sample size 4−54880
thermally toughened, NiS induced cracking *(German)* 4−76544
thermo-optical characteristics of optical glasses 4−54875
torsional strength under hydrostatic press., stat. approach *(Japanese)* 4−79094
transparent structural materials for submersibles 4−80406
Vicker's hardness, rel. to chem. comp. calc. 4−61541
viscoelastic response during forming 4−45797
Vycor glass, neutron diffr. exam. of Pb particle struct. and props. 4−48824
Vycor porous glass, He II superfluid proportion 4−63959
wetting by sodium disilicate glass 4−80066
wound glass reinforced plastics, residual stress calc. for thickness varying material characts. 4−45775
zinc phosphate glass, prep., transformation temp., viscosity 4−49969
$AgAsS_2$, prep. and optical transmission, 0.6-20 μm range 4−57510
AgCl containing glasses, u.v. induced darkening and fading *(Japanese)* 4−53484
AgTlS, prep. and optical transmission, 0.6-20 μm range 4−57510
Al_2O_3-$(Nb,Ta)_2O_5$-$(K,Li,Na,Cs)_2$, (Pb,Ba)O, form. conditions, struct. 4−63764
$2Al_2O_3 \times 5B_2O_3 \times 3BaO$:Ce, Ba aluminoborate, irradiation, colour centres, growth and decay 4−69805
As-S and As-S-Te glasses, bond-structural approach to thermal props. *(Japanese)* 4−69917
As-S-I, i.r. transmission spectrum, 0.75-25 μm, temp. depend., 77-413K *(Russian)* 4−82703
As-S-Se system glasses, dielec. consts., freq. and comp. depend. *(Japanese)* 4−49293
As-S(Se), cond. dielec. props., comp. depend. 4−75866
As-S(Se) system glasses, stress relax. *(Japanese)* 4−50028

glass continued
- As-Se, i.r. spectra, comp. depend. 4−45295
- As-Te, As-Te-I, devitrification effect, elec. cond. meas. 4−64083
- As-Te-Se system, binary glasses, elec. and optical props. 4−79345
- As_2S_3, acoustic anharmonic props., acousto-optical appl. 4−70279
- As_2S_3, As_2Se_3, struct. anal., X-ray and neutron diffr. 4−60415
- As_2S_3-Ag, i.r. absorption spectra, O impurity bands 4−61151
- As_2Se_3, obs. of band gap by stimulated dielec. relax. currents 4−49301
- As_2Se_3-CdO, photocond., conc. depend., struct. effect 4−44960
- As_6Se_4, light irrad., hardness and transmission changes 4−59447
- $As_2Se_3Mn_x$ and $As_{30}Te_{48}Ge_{10}Si_{12}$ glasses, prep., elec. cond. at high temps. 4−70055
- $As_2Se_3(S_3,Te_3)$, photoluminesc., 0.4-1.8 eV 4−45355
- $As_2(Se_{1-x}Te_x)_3$, vireous, crystn. mechanism 4−60418
- $As_2(Se_{1-x}Te_x)_3$, vitreous, crystn. study by radial distrib. functions method 4−60419
- As_2Te_3, gaps and localised states 4−75768
- As_2Te_3-As_2Se_3, electric breakdown reversibility conditions 4−73070
- As_xTe_{1-x} glass forming ability and elec. props 4−78927
- AsTeSe amorphous system, binary mol. struct. evidence 4−63763
- B_2O_3, isothermal compressibility, 550-800K, light scatt. in glass melt 4−57517
- B_2O_3, light scatt. through glass transition 4−61146
- B_2O_3-CaO glass:Fe^{3+}, heat-treated, ^{57}Fe Mossbauer and X-ray photoelectron spectra meas. 4−73054
- B_2O_3-P_2O_5 glasses, radiation electron-hole centres ratio, controlled change 4−67449
- B_2O_3-PbO glasses, elastic consts. and Vickers hardness *(Japanese)* 4−70575
- BaO-Al_2O_3-SiO_3, lattice constants, anisotropic thermal expansion coeff. *(German)* 4−44684
- BaO-SiO_2 containing ternary glass systems, struct. and optical characts. 4−75460
- BaO-ZnO-V_2O_5 system, glass forming regions and phys. props. *(Japanese)* 4−48515
- 3BaO.5SiO_2 glass-ceramics, mech. props. w.r.t. microstruct. 4−49894
- 90$Ba(PO_3)_2$.10BaF_2 glass, γ-irradiated existence of tetrametophosphate radical, e.s.r. obs. 4−57379
- Bao-Al_2O_3-SiO_2 system cpds., anisotropic thermal expansion and solid soln. obs. *(German)* 4−52911
- Bi^{3+} and Pb^{2+} in glasses, ultraviolet spectra 4−61181
- Ca metasilicate, γ-irrad., e.p.r. spectra, paramag. centres 4−53295
- $Ca(NO_3)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4−69729
- CaO-Al_2O_3-CaF_2 system, glass form., electron microscopic, i.r. spectra obs., liq. zone 4−69730
- CaO-CuO-P_2O_5, i.r. absorp. spectra 4−61144
- CaO-Na_2O-SiO_2, etched glass, tensile strength meas., thickness depend. 4−57777
- CaO-SiO_2 system glasses, radiation paramag. centres in liquation phases 4−61034
- CaO-V_2O_5-P_2O_5:Cu_2O glass, elec. cond. reln. to exchange interaction between V^{4+} and Cu^{2+} ions 4−75862
- CaO.Al_2O_3.MgO.SiO_2, melilite, glass and polycryst., viscosity curve during heating 4−44693
- 3CaO.CaF_2.2SiO_2, cuspidine, glass and polycryst., viscosity curve during heating 4−44693
- CaO.P_2O_5, ortho-para positronium quenching by transition metal ions 4−60518
- CaO.SiO_2, glass and polycryst., viscosity curve during heating 4−44693
- $CaSiO_3$-$CaGeO_3$ solid solns., i.r. spectra 4−45281
- $Cd(NO_3)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4−69729
- CdO-B_2O_3-SiO_2 glasses, photochromism 4−64408
- CoO-Fe_2O_3-B_2O_3 system glass-ceramics, mag. characteriz. 4−79545
- Cs_2O-SiO_2, e.p.r. spectroscopic investigation of struct. at high press. 4−48510
- Cu/glass target, co-sputtering, secondary electron emission effects 4−79829
- CuMn spin glass, low temp. resist. 4−79331
- Ge in chalcogenide and tetrahedral glasses, struct. 4−82120
- Ge-S glasses, photoluminescence, laser excitation, structure sensitivity 4−73169
- Ge-Se-Te system, glass form. and microstruct. *(Japanese)* 4−69732
- $Ge_{10}As_{30}Si_{13}Te_{47}$, obs. of band gap by stimulated dielec. relax. currents 4−49301
- GeO_2-Bi_2O_3 and GeO_2-Sb_2O_3-Bi_2O_3 system glasses, depolymerisation by Bi_2O_3 4−60414
- GeO_2-La_2O_3-$Ga_2O_3(Ta_2O_5)$ system glasses, viscosity and elastic props. correl. with phase diagram 4−67897
- GeO_2-SiO_2, synthesis, i.r. spectra, and refr. index 4−45284
- $Ge_{0.3}S_{0.7}$, i.r. and Raman spectra, optic modes 4−45307
- $GeSe_2$, $GeSI_2$, vitreous, X-ray exam. of atomic struct. 4−44477
- Ge_xSe_{1-x}, optical absorpt. edge and Raman scatt., variation with x 4−45304
- $Ge_{15}Te_{80}As_5$ glasses, surface nucleated crystn. 4−60416
- Hg accommodation coeff. on glass 4.2-300 K 4−48838
- $Hg_3Tl_4As_8S_{20}$, prep. and optical transmission, 0.6-20 μm range 4−57510
- K_2CO_3, 5M trapped electron photobleaching, scavenger effect 4−79760
- $xKF-(1-x)B_2O_3$ glasses, e.p.r. and opt. spectra of VO^{2+} ion 4−61032
- KNO_3-$Ca(NO_3)_2$, melt, glass-forming, elec. relax. investig. in liq. and vitreous states 4−76214
- $KNO_3 + Ca(NO_3)_2$ system, molten, diffusion coeffs. of Ag^+, Cl^-, Br^- ions meas. 4−52920
- K_2O-B_2O_3-SiO_2, demixed, elastic and viscoelastic behaviour, Brillouin scatt. obs. *(French)* 4−49338
- K_2O-BaO-V_2O_5 system, glass forming regions and phys. props. *(Japanese)* 4−48515
- K_2O-SiO_2, e.p.r. spectroscopic investigation of struct. at high press. 4−48510
- K_2O-ZnO-V_2O_5 system, glass forming regions and phys. props. *(Japanese)* 4−48515
- $K_2OB_2O_3$-SiO_2 system glasses, demixed, Young's modulus evolution with texture *(French)* 4−49965

glass continued
- K_2TeO_3, e.p.r. spectra of radiation centres 4−49228
- $LaAl_2$:Gd, mag. glass system, sp. ht. meas. in temp. range 0.55 to 10K 4−53234
- Li_2O-Al_2O_3-SiO_2 partially crystallized glass, boundary layer existence 4−44481
- Li_2O-Al_2O_3-SiO_2 system glasses, water content influence on crystn. and spherulite growth *(French)* 4−78929
- Li_2O-Al_2O_3-nSiO_2, sp. ht., 1.5-6K, comp. and struct. depend. 4−60621
- Li_2O-K_2O-SiO_2 system, ESR spectra, radiation capture centres 4−70214
- Li_2O-SiO_2, activated by Dy, luminescence of two types of centre, effect of alkali metal oxide content *(Russian)* 4−45347
- Li_2O-SiO_2, e.p.r. spectroscopic investigation of struct. at high press. 4−48510
- Li_2O-SiO_2, liq. phase separation and cryst. growth 4−63766
- Li_2O-SiO_2 glasses, Dy^{3+} activated, luminesc. centre types 4−70343
- Li_2O-ZnO-SiO_2 glass, ceramics, high temp. plasticity, model based on dilatancy and dissolution 4−49890
- Li_2O-ZnO-SiO_2 glass-ceramics, high temp. plasticity, const. strain rate tests 4−49889
- Li_2O-ZnO-SiO_2 glass-ceramic, dynamic fatigue 4−61497
- $0.5Li_20 \times o.5K_2O \times 2SiO_2$, mechanical properties, effect of melting time and atmosphere 4−73341
- MgO-P_2O_5, crystn. kinetics *(Japanese)* 4−48513
- MgO-SiO_2 system glasses, radiation paramag. centres in liquation phases 4−61034
- $Mg(OAc)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4−69729
- Mn silicate, semicond., elec. cond. rel. to comp. 4−49023
- MnO-Fe_2O_3(-PbO)-B_2O_3(-SiO_2) system, glass form. boundaries and crystn. tendency 4−53817
- MnO-P_2O_5 glass, amorphous antiferromag., magnetisation as function of temp. and mag. field 4−57320
- Na_2-B_2O_3-SiO_2, ion exchange, iterative deconvolution technique applic. 4−69821
- $Na_2B_4O_7$, crystn. in glass melt 4−66834
- Na_2O-3SiO_2, Na diffusion, anomalous effects of water 4−53813
- Na_2O-$Al_2O_3(TiO_2)$-SiO_2 systems, stress-optical coeff. rel. to comp. 4−45266
- Na_2O-B_2O_3, optical absorption, electron irrad. dose depend. 4−70330
- Na_2O-B_2O_3, thermal diffusivity, comp. depend. 4−60651
- Na_2O-B_2O_3-SiO_2, sodium borosilicate glasses, ion exchange 4−72481
- Na_2O-CaO, polymeric coatings effect on strength 4−73359
- Na_2O-NaBr(Cl)-B_2O_3:Ni^{2+} glasses, Ni(II) optical absorpt. meas., ligand field theory 4−70327
- Na_2O-SiO_2, ammonium ion diffusion *(Japanese)* 4−49916
- Na_2O-SiO_2, deformation mechanisms under microindentation 4−79092
- Na_2O-SiO_2, e.p.r. spectroscopic investigation of struct. at high press. 4−48510
- Na_2O-SiO_2, surfaces, ion bombard., partial disintegration, change of conc. profiles 4−72499
- Na_2O-SiO_2 binary glasses, fracture mechanics 4−73367
- Na_2O-TiO_2-SiO_2 glasses, i.r. absorpt. spectra rel. to composition 4−61137
- NaOH, 8M, trapped electron photobleaching, scavenger effect 4−79760
- NaOH, trapped electron tunnelling, isothermal luminesc., 4 and 77K, phenol doping 4−49473
- NaOH alkaline ice glass, α-substituted, γ-irrad., e.p.r., ENDOR studies of trapped electrons 4−70197
- $(Na_2O)_{0.5}(Li_2O)_{0.5}(SiO_2)_2$, thermoluminesc. centres nature 4−61237
- $Na_2O.Li_2O.B_2O_3.Fe_2O_3$ glass system, Mossbauer effect obs. of struct. and mag. props. 4−67497
- $X(Na_2O.P_2O_5)yWO_3$ glass, Eu^{3+} fluorescence obs. 4−49433
- $Na_2O.3B_2O_3$:Fe_2O_3, u.v. absorpt. temp. depend. *(Russian)* 4−45344
- Na_2SiO_3-$CaSiO_3$ system, phase equilibria 4−60598
- $Na_2Si_2O_5$, wetting of refractory titanium hard metals 4−80066
- Na_2TeO_3, e.p.r. spectra of radiation centres 4−49228
- Nd:glass single freq. t.w. laser using active Q-switching *(Russian)* 4−77679
- Nd-glass lasers, control of self-focusing 4−74517
- P-Se, influence of added Tl on physical parameters 4−69728
- P_2O_5-Al_2O_3-MeO:MnO, (Me = Be, Mg, Ca, Sr, Ba), absorpt. spectra and e.s.r., depend. on Mn conc. 4−70326
- P_2O_5-Al_2O_3-MgO:MnO, fluoresc. and thermoluminesc., depend. on Mn conc. and temp. 4−70338
- PSe_x, microstruct., elec., mag. and chem. props. of different compositions 4−44474
- Pb^{2+} and Bi^{3+} in glasses, ultraviolet spectra 4−61181
- PbO-B_2O_3, thermal diffusivity, comp. depend. 4−60651
- PbO-B_2O_3 cryst. forming glasses, i.r. spectra, crystn. products identification *(Russian)* 4−61170
- PbO-B_2O_3-SiO_2 system, phase separation in frits, i.r. refl. obs. *(Japanese)* 4−48514
- PbO-In_2O_3-GeO_2 system, physical properties 4−61156
- PbO-SiO_2, glassy system, Raman spectra meas. 4−49344
- PbO-SiO_2, molten glass, interdiffusion *(Japanese)* 4−52923
- PbS-GeS-GeS_2, glass form., struct. and props. 4−75461
- $PbSiO_3$, i.r. spectroscopic investigation of microstruct. 4−48511
- $PbSiO_3$:Fe_2O_3, u.v. absorpt. temp. depend. *(Russian)* 4−45344
- Rb_2O-SiO_2, e.p.r. spectroscopic investigation of struct. at high press. 4−48510
- Rb_2TeO_3-TeO_2 system, phase diagrams, and props. of rubidium polytellurites 4−48733
- Sb-S-I, vitrification region, elec. props. 4−44476
- Sb-Se system, splat cooling, memory switching 4−75931
- Se, heat capacities of trigonal cryst., glass and supercooled liq., 5-360K 4−63928
- Se and Se-Te glasses, DTA *(French)* 4−63765
- Si-As-Te system, i.r. spectra, struct. anal. 4−79722
- SiO_2, silica, low temp. sp.ht. anomaly 4−60622
- SiO_2, struct. transitions under high press., positron annihilation 4−60615
- SiO_2-Al_2O_3 glasses, rapid crystn. phenomena 4−53804

glass continued
- SiO_2-Al_2O_3-MgO-CeO_2-TiO_2, effect of heat treatment during crystn., phase transitions 4−44475
- SiO_2-Al_2O_3-MgO-TiO_2 system, liquation 4−69726
- SiO_2-B_2O_3-Na_2O-Al_2O_3, comp. fluctuation kinetics 4−63767
- SiO_2-Fe_2O_3-K_2O glasses, Fe-leucite formation rel. to high thermal expansion *(Japanese)* 4−70558
- SiO_2-K_2O melts, interdiffusion coeffs. 4−53811
- SiO_2-MO_2, M=Li, Na or K, quantitative anal. of struct. using i.r. reflection spectroscopy 4−58976
- SnS-GeS-GeS_2, glass formation, struct. and props. 4−75461
- Tb^{3+} activated glass, 15 wt. % Na_2O and varying conc. of Al_2O, CaO and MgO, luminesc. 4−70344
- $Te_{2.0}Br_{0.75}I_{0.25}$, crystn. and glassy, prep., thermal, struct. and photoelec. props. 4−56620
- TiO_2-SiO_2 glasses, e.p.r. of Ti^{3+} and Ti^{4+} ions 4−61033
- $(TiO_{2-x})_{4.5}(P_2O_5)_2$, a.c. cond., 77-300K, polaron mechanism 4−64082
- $Tl_xAs_{2-x}S_{3-x}$, $(0 \leqslant x \leqslant 1)$, glass-transition temp. depend. on composition, DTA 4−78928
- $TlAsSe_2$, $TlAsSe_3$, $TlAsS_2$, prep. and optical transmission, 0.6-20 μm range 4−57510
- Tl_2O-B_2O_3:Co(II), light absorption, coordination depend., ligand field 4−64396
- V_2O_5-KPO_3, evidence of hopping cond. among localized states 4−70021
- ZnO-B_2O_3:Mn^{2+}, devitrification, optical, X-ray and e.p.r. meas. 4−60417

glass fibres *see fibres*

glass industry
- diameter control for solder glass canes production 4−45799
- manufacturing process, physics 4−70584
- solder canes production, control of diameter 4−45799
- thermocouples, design and applic. 4−80841

glass-metal seals
- No entries

glassy state *see vitreous state*

glossaries
- German-English dictionary for geosciencies 4−80219

glow discharge lamps *see discharge lamps*

glow discharge microphones *see microphones*

glow discharges
- acoustic wave amplification in partially ionized gases 4−44426
- brass, sputtering in glow discharge lamp, burnt-spots anal., investig. 4−55156
- cataphoresis, positive glow discharge 4−52644
- cathode sputtering rate, discharge parameter depend. *(Russian)* 4−82053
- collimated electron beam prod. using hindered discharge 4−75338
- current density distribution in discharge plasma *(Russian)* 4−66788
- flip-flop transition between glow and arc discharges, meas. 4−56553
- glow to arc transition, review 4−48459
- gridded Penning discharge, electron distrib. meas. 4−69680
- hollow cathode, h.v., electron refl. effect on V-I characts. 4−78851
- h.p., electron density, i.r. absorpt. technique 4−82073
- ion mass meas. using Langmuir probes in a gas discharge 4−56560
- negative glow, plane probe behaviour 4−44388
- optical spectroscopy for monitoring sputter deposition 4−75330
- plasma detectors for microwave holography 4−51073
- polymer deposition in glow discharge using triode system 4−73246
- positive column, amplification of sound waves 4−60353
- preionisation requirements of atm. pressure discharge, physical model 4−75329
- radial ionisation waves in cathode area of contracted discharge *(Russian)* 4−66791
- r.f. glow discharge sputtered ionic species, mass spectrometric analysis 4−51218
- spectral emission analysis with glow discharge source and fluoresc. detection 4−62627
- spectroscopy, optical sputter deposited film thickness monitor 4−42955
- switching current below arcing minimum, discharge development *(German)* 4−75332
- transition from glow-like discharge mode to thermionic emission controlled mode 4−75370
- transitional region, props. of discharge 4−52647
- for uniform charging in electrophotography 4−54965
- Wood discharge source of at. H, design, operating conditions 4−81737
- Ar discharge changing characteristics phenomena under the influence of illumination *(Russian)* 4−75340
- Ar-O_2-N_2, anal. for Ta sputtering 4−75331
- H_2, electron energy distrib. and elec. characts., chlorine addition influence 4−75337
- H_2, positive column, radial electron energy distribution 4−60358
- H_2-H_2O, positive column, radial electron energy distribution 4−60358
- He, cathode fall region electron distrib. Monte Carlo study 4−75402
- He, normal current density, gas press depend., metastable interactions *(Russian)* 4−82052
- He-Hg glow discharge, cataphoresis 4−52644
- He-Ne(N_2) mixtures, electron energy distrib. in positive column 4−75369
- Hg vapour, abnormal characts., theoretical description 4−66784
- I_2, sparks, discharge stages obs. with time resolved photography 4−75363
- N, low-temp., effect of A $^3\Sigma_u{}^+$ metastable level on step-wise excitation processes *(Russian)* 4−43729
- N_2, population of state $C^3\pi_u$, electron conc. *(Russian)* 4−56554
- N_2, positive column, electron vel. distrib. *(German)* 4−63713
- N_2-CO_2-He, transient glow discharge 4−75398
- NH_3, glow and h.f. discharges, electrical characteristics comparison 4−52645
- Ne, tube wall cooling, effect on basic parameters 4−75397
- Ne + 1% Ar composition, striking and running voltages, Hg addition effect 4−60340
- Xe, abnormal characts., theoretical description 4−66784

gold
- adsorbed Au on W, broad resonance, field emission spectra obs. 4−63985
- adsorbed on W, substrate surface struct. effect on work function 4−63979
- adsorption on Ge, neutralization of surface states 4−60846
- atom, inner shell ionisation of $N_{6,7}$ level, electron induced, anomalous threshold behaviour 4−66330
- atom, N+O+ shell photoelectric cross section of gamma rays 4−63345
- atom, photoelectric effect of linearly polarised 1368 keV photons 4−78349
- atomic electron scatt., atomic field bremsstrahlung, cross section coincidence meas. 4−59954
- band structure model, rel. to photoemission spectra 4−45409
- channelling of He^+ and N^{3+}, failure to observe coherent effects 4−79082
- clusters, on NaCl (100) surfaces, size distrib., quantitative image analysis obs. 4−53019
- coating of organic compounds to reduce irradiation damage in electron microscopy 4−82094
- condensation on sapphire, contact angles determ. by thin film techniques 4−75686
- contact mass transfer by short arc on switching 4−44413
- contact resistance in liquid N 4−70061
- crystallite indexing, computer simulation of ion images 4−63732
- Debye-Waller factors, modified de Launay ang. force model 4−56847
- decoration of NaCl, contamination effects 4−75716
- density of states determ., X-ray and u.v. photoemission obs. 4−57026
- determination in cupellation prill by combined fire-assay at. absorpt. procedure 4−51204
- determination in precious metal concentrates by activation anal. using ^{241}Am-Be source 4−46962
- diffusion bonding, Au to Au 4−73337
- diffusion in $Cd_xHg_{1-x}Te$, p-n junction displacement obs. 4−48806
- diffusion in $CdGeAs_2$, glassy and cryst., temp. depend. and activation energy 4−56913
- diffusion in glassy $CdGeAs_2$, temps. near onset of crystn. 4−56914
- diffusion in Si, influence of dislocations 4−79187
- diffusion of slow positrons 4−64069
- diffusion through SiO_2 film on Si, m.o.s. and neutron activation analysis obs. 4−60864
- discontinuous film, deposition on cold substrate 4−67292
- discontinuous thin film, deposited on NaCl substrates, obs. of cond. mech. 4−57009
- elastic constants, third order, calc. 4−73314
- elastic constants, third order, calc. by long waves method 4−72516
- electron bombardment induced defects, substruct. of stage III annealing *(Russian)* 4−48650
- electroreflectance at oblique incidence, theory and expt., metal-electrolyte interface study *(French)* 4−64401
- electroreflectance spectra, phenomenological interpretation 4−53467
- epitaxial growth on PbSe films, summary 4−76374
- equilibrium solubility in heavily doped Si, calc. and obs. 4−53620
- Fermi surface, hydrostatic press. effects 4−79271
- film, (001) to (111) recrystn. on NaCl(001), grain boundary model 4−60712
- film, cond. change due to low energy He^+ bombard. 4−67290
- film, condensed on NaCl and amorphous C, quantitative Auger spectroscopy 4−61269
- film, d.c. sputtered, growth process and surface topography 4−82805
- film, diffusion of Pt from underlying film, resist., X-ray and electron microscope obs. 4−48878
- film, discontinuous, switching phenomena obs. by liq. cryst. technique 4−75972
- film, effect of disorder on optical relax., two band model 4−61258
- film, electron spectra, ultrahigh vacuum electron spectrometer 4−51169
- film, e.m. to acoustic wave conversion efficiency 4−45050
- film, escape depth of secondary electrons *(French)* 4−73232
- film, evaporated, annealing behaviour, 373-873K, electron diffr. obs. 4−53017
- film, evaporated, grain boundary self-diffusion, 117-177°C 4−48879
- film, freq. depend. of Drude relax time, two-carrier model 4−45022
- film, ion plated on Cu, composition profile anal. by AES and SIMS during Xe ion bombard. 4−74174
- film, laser-induced damage, temporal development of optically etched gratings 4−59441
- film, light refl., aggregation effect, Maxwell Garnett theory 4−76332
- film, on quartz, acoustic surface wave refl. obs. 4−48825
- film, optical absorption coeff., 20 to 120 eV, electron energy loss calcs. 4−53387
- film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
- film, photoemission in Ne and Ne-Ar mixture, obs. 4−57665
- film, r.f. triode sputtered, elec. and optical props. 4−75973
- film, single crystal, electron backscattering orientation depend. 4−57661
- film, sputtered on Si substrate, growth obs. using electron microscope 4−76375
- film, sputtering yield using double resonator technique 4−67706
- film, surface plasmons, decoupled optical excitation at two surfaces 4−49054
- film, temp. modulated thermoreflectance spectra, synchrotron source 6 to 35 eV 4−73132
- film, ultra thin, electron beam evap. on Pt nucleating layer 4−45421
- film, vapour deposition on SiO_2 and C, growth mechanism 4−72659
- film, wire, laser beam damage, microscopic obs., mechanism 4−59445
- film backing for radioactive material, conductivity effect on radionuclide standardization 4−80996
- film condensation kinetics from electron micrographs 4−53014
- film crystallisation, effect of Si substrate temp. *(Russian)* 4−72650

gold continued
- film growth, form. of bridges at initial stages *(Russian)* 4−63999
- film specimen on mica, diffr. pattern intensity meas. 4−75428
- foil, 3.3-165.8 keV photon attenuation, photoelec. cross sections 4−80985
- foil, multiple scatt. of protons and N ions 4−57654
- grain boundaries, high-angle, faceting in coincidence site lattice, obs. for thin film bicryst. 4−48636
- Gruneisen constant, volume depend. calc. 4−67008
- Hall coefficient rate of change, estimation using Fermi energy 4−60784
- heterodiffusion in Al, neutron irrad. effect *(French)* 4−44699
- in vivo meas. by X-ray fluorescence 4−50835
- interstitial diffusion mechanism in Al, neutron induced *(French)* 4−81637
- ion beam studies of H and He impurities, reln. to CTR 4−78247
- ion source, high current 4−80979
- magnetic impurity conc. determ. by resistivity and thermopower meas. 4−57073
- mass absorption coefficients for CK$_\alpha$ line *(Japanese)* 4−45382
- mass spectrometer ion source insert, exposed to atomic oxygen beam 4−48112
- matrix isolation spectral rel. to sputtering 4−51951
- Mossbauer spectroscopy, appl. of integrating counting method 4−55087
- neutral atom, electron bremsstrahlung cross section calcs. 4−72085
- neutron sputtering yields and patterns 4−78241
- nucleation kinetics, mica substrates 4−75739
- nucleation on carbon layers *(German)* 4−75742
- nuclei, radial distrib. func. for condensation on clean KCl surface 4−57011
- ORMAK vacuum liner, Au-coated, passivation with Pt film 4−56546
- Pauli principle model, electronic stopping power of channelled ions 4−69836
- phonon dispersion relations, calc. 4−75594
- phonon drag thermopower obs. in high mag. field 4−67204
- photoelectric cross section for 279.1 keV and 411.8 keV γ-rays 4−74857
- photoelectron cross-section, γ-ray attenuation coeff. meas. 4−72068
- photoemission spectra and band struct., f.c.c. interpolation schemes 4−45407
- photoionization in d-band, cross section determ. 4−74863
- piezoreflectance spectra obs., 1.7 to 6.5 eV 4−82714
- plastic deformation of quench-hardened single crystals 4−73330
- positron lifetime, effect of thermal expansion, 100-300K 4−56773
- positron trapping at quenched vacancies, temp. depend. 100-300K 4−44872
- reactor material, neutron damage obs. by transmission electron microscopy 4−52790
- reclamation from citrate electrolytes by ion exchange liquid extraction *(Russian)* 4−83029
- rolled single crystals, high elec. d.c. densities influence on grain boundary migration 4−49722
- self-diffusion along isolated dislocations, theory 4−75646
- solution kinetics in aqueous chlorinated solns. *(Russian)* 4−45488
- sputtering, ang. distribs. of particles which experience blocking during Ar$^+$ and N$_2^+$ bombard. 4−73230
- sputtering, fine struct. due to blocking 4−76355
- sputtering by Kr and ^{4}He, stress buildup, enhanced surface contamination 4−78246
- sputtering in glow discharge lamp., burnt-spots anal., investig. 4−55156
- sputtering yields in 14 MeV neutron irradiation 4−81640
- stopping power for 7.2 MeV protons 4−60528
- structural analysis, paths of protons through thin films *(Russian)* 4−79081
- substrate, stability of amorphous Bi films *(Russian)* 4−67128
- surface, (111) and (110), adsorpt. and surface alloying of Pb monolayers 4−52992
- surface, adsorption of Cs and CsCl, Van der Waals forces 4−63977
- surface atomic steps, direct resolution by transmission electron microscopy 4−82338
- surface plasma oscillations, anisotropic model 4−44982
- thermal resistivity and Lorentz number, free electron approx. calc. 4−48954
- thermally activated tensile deform. of single crysts. 4−45655
- thin film on KCl (100), coalescence by intercrystallite collisions *(French)* 4−67139
- thin films, thickness calc., from X-ray intensity using Gaussian distrib. *(German)* 4−46566
- thin films, variance of X-ray diff. maxima obs. of microstructure 4−64000
- vacancy parameters determination, electron microscopy and calorimetry 4−57740
- wall conditions in ORMAK plasma device 4−78273
- X-ray emission spectra, L-subshell ionisation cross section by H$^+$, He$^+$ impact 4−49495
- X-ray mass attenuation coeffs. between M$_\text{I}$ and M$_\text{V}$ absorpt. edges 4−77295
- X-ray spectra, L-M-shell ionization on fast α-particle bombardment 4−76330
- Ag matrix, atom transfer calculation, modelling calibration graphs, spectral analysis *(Russian)* 4−68847
- Au clusters, on NaCl (100) surfaces, spatial distrib., quantitative image analysis obs. 4−53020
- Au:^{170}Yb, Mossbauer effect mechanism, electronic relax. 4−49276
- Au:^{57}Fe, recoilless reson. γ-ray emission or absorption probability, force constant change determ. 4−61084
- Au-CdS thin film Schottky diodes, obs. on heat treatment 4−49069
- Au-GaAs contact, barrier height, semicond. surface layer thickness depend., interpretation 4−53144
- Au-Ge, Schottky barrier, photovoltaic effect in quantizing mag. fields 4−67277
- Au-SiO$_x$-Au, a.c. dielec. props. *(French)* 4−75970
- Au−n-GaP surface barrier structure, photoelectric properties in u.v. spectrum 4−72866
- ^{79}Au, atom, inner shell ionisation by relativistic electrons, calc. 4−51988

gold continued
- CdInGaS$_4$:Au, photoconductivity obs., 105-300K, recomb. scheme, forbidden band 4−67254
- Ga:Au, liq. tracer impurity diffusion 4−56901
- n-Ge:Au, photoionization cross sections of acceptor levels, photocond. obs. 4−57136
- He-Au mixture prep. by co-deposition using d.c. bias sputtering and electron beam evaporation 4−79864
- I$^+$ + Au, mol. orbital X-ray emission spectra 4−69433
- KCl/Au, charging effect of specimen in scanning electron 4−69699
- MgO/Au, charging effect of specimen in scanning electron 4−69699
- NaCl:Au, void form. by vacancy precip. 4−79032
- Si:Au, level props., constant capacitance obs. in p-n junc. and Schottky barrier depletion layer 4−82376
- Si:Au, optical props. of donor and acceptor levels 4−67246
- Ta-Au thin film couples, interdiffusion and cpd. formation obs. 4−60711
- Ti/Mo/Au, composite film interface control by sequential sputtering 4−79865

gold alloys
- *see also gold compounds*
- dilute, anisotropic de Haas-van Alphen lifetimes, calc. 4−53031
- rare earth hexaaurides, RAu$_6$, cryst. struct. 4−60428
- Ag-Au, charge transfer calcs. 4−78943
- Ag-Au, dilute, backscattering coefficients calc. 4−60756
- Ag-Au, electron scatt., virtual crystal model 4−72746
- Ag-Au, sp. ht. below 30 K, Debye temp. 4−44680
- Ag-Au, work function, comp. depend. 4−75946
- AgAuPd multilayered thin film microcouples diffusion 4−60641
- Al-Au(2 wt.%), growth kinetics of platelike precipitates 4−76430
- Au-Ag, X-ray photoelectron spectra 4−49528
- Au-Ag solid solns., elastic consts. 4−67853
- Au-Ag(0.37 at.%), thermocouple wire, thermopower in transverse mag. field, Au-Ag/Au-Fe couple 4−82393
- Au-Ag(10%), cold-worked, lattice thermal cond., 0.5-4K 4−44640
- Au-Al couples, diffusion form. of intermetallic cpds. using evap. Al films *(Japanese)* 4−45502
- Au-Bi-Te system, phase diag. 4−82839
- Au-Cd(47.5 at.%), nucleation dynamics and growth of thermoelastic martensite 4−76410
- Au-Cu-Ag, atomic ordering influence on decomp. processes *(Russian)* 4−61335
- Au-Cu-Zn, thermoelastic martensite, pseudoelasticity obs. 4−82936
- Au-Cu(4 wt.%) solid solns., resist. obs. of decomp. processes *(French)* 4−49727
- Au-Fe, dil., press. effects on impurity-impurity interactions, resist. obs., 1.2-30K, 0-60 kbar 4−53214
- Au-Fe, neutron irrad. effects on mag. order, Mossbauer obs. 4−64287
- Au-Fe, thermocouple wire, thermopower in transverse mag. field, Au-Fe/Au-Ag and Au-Fe/Cr-Ni couples 4−82393
- Au-Fe (60%), film, amorphous struct. above room temp. 4−72661
- Au-Fe solid solns., discontinuous precip. controlled by vol. diffusion *(German)* 4−70458
- Au-Fe solid solns., discontinuous lamellar precip. kinetics *(German)* 4−82841
- Au-Fe(15at%), mag. ordering, spin glass behaviour 4−53242
- Au-Ge α-solid solns., chem. pot. of Ge 4−61324
- Au-Ge(−Ni) eutectic alloy film evap. in vacuum on NaCl (100) substrate, microstruct., morphology, and elec. resistivity *(Japanese)* 4−45550
- Au-In liquid system, activity meas. *(Japanese)* 4−67762
- Au-Mn, dilute, local d-spin interaction effect 4−57259
- Au-Mo-Ni filler, brazing of graphite, microstruct. of brazed joints *(German, English)* 4−49866
- Au-Ni, elec. resist. and magnetization,4.2K-room temp. 4−64056
- Au-Ni, electrical resistance, magnetisation, temp. depend. 4−72743
- Au-Ni(Fe), liq. spin susceptibility, theory 4−72951
- Au-Pd, thin film photosource, for mobility meas. in liquids 4−46737
- Au-Pd, virtual bound levels model approach to electronic struct. *(French)* 4−72680
- Au-Pt(2%), cold-worked, lattice thermal cond., 0.5-4K 4−44640
- Au-Sb liquid system, activity meas. *(Japanese)* 4−67762
- Au-Sn and Cu-Au-Sn α-solid solns., solute-solute and solvent-solute interactions 4−61323
- Au-Tb(0.05 at.%) hyperfine interaction parameters, nuclear orientation obs. 4−79653
- Au-Ti melt/Al$_2$O$_3$, intermediate phase formation on adhesion and wetting 4−67930
- Au$_{0.6}$-Pd$_{0.4}$:Fe(Co), detection of palladium clusters *(Russian)* 4−73313
- Au$_x$Ag$_{1-x}$, film, effect of disorder on optical relax., two band model 4−61258
- AuCu$_3$, positron annihilation effect of ordering 4−82199
- Au$_2$Ga, cryst. struct. and lattice consts. *(German)* 4−72443
- AuIn$_2$, AuIn$_2$:Fe, thermoelectric power obs. between 2 and 5K using SQUID device 4−60785
- AuMn, dilute, mag., thermoelectric power, interacting spin pair description 4−60783
- Au$_2$Mn, antiferromag. spiral and ferromag. phases, sp. ht., 0.3-4K 4−53233
- AuNi, dilute, optical props. exam. in terms of Anderson model 4−82712
- AuPb$_2$, de Haas-van Alphen effect, approx. sum rule, Fermi surface 4−48896
- AuPb$_2$, high field magnetoresistance in oriented crystallites, open orbits obs. 4−48966
- AuPb$_3$, energy gap, supercond. transition temp. 4−67315
- AuSb$_2$, forbidden spots in electron diffr. *(French)* 4−69753
- AuSb$_2$, magneto-acoustic attenuation obs. 4−82353
- AuSn, energy bands, Fermi surface, augmented plane wave calc. 4−72687
- AuYb, nuclear orientation expts. on ^{175}Yb and ^{169}Yb 4−67498
- Cu-Au, bulk and thin film, X-ray microanalysis in TEM 4−77294
- Cu-Au, dil., f.c.c., phonon self-energy in high symm. directions, theory and expt. 4−79127
- Cu-Au, formation and growth of Cu$_3$Au$_\text{II}$ in deformed matrix 4−61365

gold alloys continued
- Cu-Au-Fe(Cr) dil., magnetoresist., validity of calc. using field-depend. infinite-U Anderson model 4−53083
- CuAu alloy, order-disorder reaction, photoemission electron microscopy obs. 4−79897
- Cu_3Au, ^{197}Au Mossbauer line shape and recoilless fraction, temp. and lattice order depend. 4−64310
- Cu_3Au, disordered, atomic force const. determ., expt. 4−44616
- Cu_3Au, ordered, discontinuous yielding mechanism and dislocation locking 4−79974
- Cu_3Au, ordered, strain ageing yield drops 4−79975
- Cu_3Au, ordered and disordered, refl. spectra and band struct. 4−45323
- Cu_3Au, Portevin-Le Chatelier effect 4−53697
- Cu_3Au, rolling texture 4−82868
- Cu_3Au, shear modulus interaction and flow stress interpret. 4−53770
- $Fe_{0.5}Au_{0.5}$ alloy, mag. hyperfine field at Au nuclei, Mossbauer spectra 4−49266
- Ge-Au liq. systems, thermodynamic props., mass spectrometry obs. 4−45944
- Ni-AuGe-Ni, very low resistance contacts for n-GaAs 4−60860
- Pb-Au, internal friction peaks obs., relaxation effects 4−66988
- Pb-Au, internal friction phenomena 4−66987
- Pd-Au-H(D), high supercond. transition temp. 4−53177
- $SmAu_6$, cryst., automatic X-ray absorpt. correction using intensity meas. from azimuthal scans 4−56575

gold compounds
- *see also gold alloys*
- Au complex, bis(dialkyldithiocarbamato)gold(II), e.s.r., in corresponding Ni complexes, orbital ground state symm. 4−79583
- Au complex, bis(maleonitriledithiolato)gold(II), e.s.r., in corresponding Ni complexes, orbital ground state symm. 4−79583
- Au complex, elec. cond., crystal struct. depend. 4−57091
- Au complexes, AuX_4^- where $X=Cl^-$ or Br^-, u.v. charge transfer spectra 4−52125
- AuCl cryst., vapour-transport growth and struct. 4−76371
- $AuTe_2Cl$, cryst. struct. determ. 4−60457
- $AuTe_2I$, cryst. struct. determ. 4−60457

goniometers
- double tilting goniometer stage, Siemens Elmiskop 1b, calibration 4−78871
- Kratky small angle, determ. size, weight of bacteriophage DD2 4−83276
- measurement of ang. depend. of optical variables, apparatus 4−51018
- oblique cutting at small angles 4−46561
- particle interactions with single crystals, equipment details 4−44427
- radiospectroscopic, for e.p.r. studies with anisotropy complications 4−51117
- rubber band goniometry, telemetric method for biomechanical meas. 4−81050
- Weissenberg rheogoniometer, torque and normal thrust meas. system 4−42978
- X-ray film glancing angle determination *(German)* 4−52657

government administrative data processing
- intercensal urban population determ. from residential land use photography 4−68269

grain boundaries
- allotriomorph growth and dissolution, collector plate mechanism 4−53692
- alloy, precipitate nucleation, high angle boundaries role 4−79961
- alloy, precipitate nucleation, high angle boundaries role 4−79962
- apparent coalescence of grains, twin form., migration *(Russian)* 4−67772
- b.c.c. polycrystal, microcrack propag., stat. criteria 4−49852
- b.c.c. system, mechanism of passage of cryst. dislocations through tilt boundaries 4−52764
- α-brass, strain hardening, slip band generation at dislocation pile up 4−57750
- β-brass bicrystal, deform. at grain boundaries 4−45646
- cavitation creep, review 4−61425
- cellular precipitation theory 4−45507
- ceramic, effective grain boundary width and boundary diffusion coeff., separation 4−61377
- ceramic, grain boundary phenomena, interpret. concepts 4−53809
- ceramic, solute segregation and grain boundary diffusion 4−64605
- cubic crystal, mechanism of passage of cryst. dislocations through tilt boundaries 4−52764
- cubic crystals, Burgers vectors of grain boundary dislocations 4−82175
- cubic crystals, Burgers vectors of grain boundary dislocations, a correction 4−82176
- cubic metal grain boundaries, dislocation Burger's vectors 4−82177
- diffraction effects, relationship between dislocations and Moire patterns 4−44544
- diffusion creep measurement from marker line displacements 4−49774
- dislocations and associated faults, models 4−76435
- eutectoids, aligned, discontinuous coarsening obs. 4−53673
- feldspar, exsolution boundary orientation, coherent elastic model 4−44536
- glass dust, electrification effects 4−80150
- grain boundary diffusion, grain size effect 4−56904
- ice, cryst. imperfection studies using divergent X-ray technique *(Japanese)* 4−66922
- Inconel, X-750, creep fracture at 700°C 4−64584
- inhomogeneous nonisometric structure, anal. by directed sections 4−67782
- kaolinite, coincidence twist boundaries 4−69817
- low-angle, limiting configuration *(Spanish)* 4−52758
- metal, deformed state, recrystn. nucleation 4−70460
- metal, effective grain boundary width and boundary diffusion coeff., separation 4−61377
- metal, grain boundary migration induced by d.c. *(French)* 4−60642
- metal system, mobility, rel. to oriented growth 4−49732
- metal systems, Hall-Petch relation, boundary ledge struct., yield stress 4−64570

grain boundaries continued
- metallic materials, grain boundaries influence on deform. and fracture at high temps. *(Japanese)* 4−70509
- metallic materials, grain boundaries influence on deform. and fracture at high temps. *(Japanese)* 4−70510
- migration, shear deform. of polycrysts. *(Russian)* 4−66960
- migration and grain growth 4−70461
- muscovite, coincidence twist boundaries 4−69817
- nichrome, thoria dispersed, interfacial energetics 4−79929
- normal grain growth theory 4−61364
- orientational matching of film and substrate lattices 4−82331
- polycrystal, grain arrangement, Euler's theorem 4−67799
- rock, crack propag. and fracture of compression loaded specimens 4−50249
- rocks, direct obs. of microcavities 4−64797
- segregation models, mean relative surface energy estimates *(Russian)* 4−79944
- shape, integral representation 4−75529
- sintering, shrinkage rate during initial stages 4−80052
- static strength loss due to presence of microcracks, model 4−45619
- steel, austenite diffusion decomposition, fine struct. of excess ferrite 4−61386
- steel, austenitic, crack form. mechanisms *(Czech)* 4−80002
- steel, austenitic, intergranular corrosion sensitivity and nitride precip. *(German)* 4−53675
- steel, austenitic stainless, eval. tests for detection of intergranular corrosion susceptibility 4−49755
- steel, austenitic stainless, high-angle grain boundaries, annealing of dislocations 4−82862
- steel, austenitic stainless, tracer diffusion of ^{59}Fe and ^{51}Cr 4−48798
- steel, cavitated creep-fracture surface, smoothing by surface self-diffusion 4−45686
- steel, cavity formation, exposure to liquid Na formation mech. anal. 4−76517
- steel, creep, fine struct. and pore form. *(Russian)* 4−64546
- steel, intergranular self-diffusion and corrosion *(French)* 4−53690
- steel, low-alloy, intercryst. stress corrosion cracking *(German)* 4−45579
- steel, stainless, austenitic, dislocations in coherent twin and coincident site boundaries 4−61390
- steel, stainless, grain boundary migration during 1 MeV electron irrad. 4−52785
- steel, stainless, intercryst. corrosion and impact strength, precip. of carbides 4−79950
- steel, stainless, intercryst. corrosion rel. to thermodynamic characts. of carbides 4−79949
- steel, stainless, segregation of boron, effect on surface and grain boundary energies 4−79973
- steel, stainless type 316, grain boundary sliding meas. 4−82850
- steel, structural, boron effect on quenchability *(French)* 4−45689
- steel, temper brittleness and grain boundary etching 4−64552
- steel, type 304, stress corrosion cracking 4−49752
- steel grain and grain boundary strengths effects on creep rupture strength 4−79993
- superconducting thin film, mag. struct. obs. using high resolution Bitter pattern technique 4−57220
- surface-reactive metals, thin-film bicrystals prepared by vacuum welding, grain boundaries obs. 4−82864
- symmetric tilt boundary under shear, dislocation behaviour 4−79049
- unified theory, struct. aspects of grain boundary deform. 4−60502
- unified theory, struct. of high and low angle boundaries 4−60501
- work hardening, Ashby's model for polycrystal grain boundaries 4−57749
- wustite, fracture properties enhancement by precipitation 4−70548
- Ag, film, effect on longitudinal strain coeff. of resist. 4−45023
- Ag, internal friction, relax. of grain boundaries *(French)* 4−76433
- γ-AgZn, slip in intermediate phases 4−67795
- Al, bicrystal, tilt boundary mobility investigation 4−79967
- Al, coarse-grained crystals, grain boundary effect on plastic deformation *(Japanese)* 4−49731
- Al, diffusion of Ga at grain boundaries, atomic ionolum. microanalysis obs. *(French)* 4−45564
- Al, grain growth, steady-state, mechanism 4−82853
- Al, non-isoaxial bicryst., pure, deform. 4−73334
- Al, quenched, pure, vacancy loop-denuded zones, formation and morphology 4−73326
- Al bicrystal, grain boundary effect on tensile plastic deform. *(Japanese)* 4−70502
- Al bicrystal, non-isoaxial, mech. behaviour of cryst. boundary, photoelastic coating method 4−67786
- Al:Cu, grain boundary solute electromigration 4−82334
- Al-Cu (4.4 mass %) alloy, solute depleted zone effect on stress-corrosion susceptibility 4−57752
- Al-Cu alloy, eutectic, superplastically deformed, quantitative texture meas. 4−61362
- Al-Mg, high-angle grain boundaries, annealing of dislocations 4−82862
- Al-Mg (7.2 mass %) alloy, solute depleted zone effect on stress-corrosion susceptibility 4−57752
- Al-Zn eutectic, unidirectionally solidified, cellular struct. *(Korean)* 4−67791
- Al-Zn-Mg alloy, grain boundary sliding role in superplastic deform. 4−67844
- Al-Zn-Mg alloy, SCC vel. and grain boundary precipitates 4−80007
- Al_2O_3, grain boundary phenomena, interpret. concepts 4−53809
- Al_2O_3, rel. to mass transport eqn. for diffusional creep, 1200-1600°C 4−49884
- Al_2O_3, sintered, additives, influence on microstruct. 4−53807
- Au, rel. to interdiffusion and cpd. formation in Ta-Au and Ta_2N-Au thin film couples 4−60711
- Au, rolled single crystals, high elec. d.c. densities influence on grain boundary migration 4−49722
- Au film, evaporated, grain boundary self-diffusion, 117-177°C 4−48879
- Au thin film bicrystal, faceting of high-angle boundaries in coincidence lattice, obs. 4−48636
- Au(001)/NaCl(001), film recrystn. into Au(111)/NaCl(001) 4−60712
- Be, metalloceramic types, irrad., swelling during isothermal annealing 4−71995

grain boundaries continued
Be, swelling at high temps. under large irrad. doses 4−71996
Cd, rel. to low stress creep, 267-309K 4−53760
Cd, residual elec. resist., grain boundaries influence *(Russian)* 4−73289
CdS, hot-pressed, investigation of thermal and ultrasonic props. 4−63877
CdSe, with cond. memory, rel. to conc. and Hall mobility of electrons *(Russian)* 4−72838
Cr-Y(Gd)(Sm), dil., deformed, annealing, struct. changes *(Russian)* 4−67773
Cu, cold rolled (110)[112] oriented single crysts., neutron irrad. effect on recrystn. 4−61363
Cu, grain boundary cohesion, effect of dilute additions of Bi 4−49805
Cu, rel. to nucleation mechanism in recrystn. *(German)* 4−67794
Cu, u.s. treated, peak of internal friction *(Russian)* 4−67826
Cu alloys, martensitic, Hall-Petch relationship 4−67856
Cu bicrystal, annealing twins, faceting and grain boundary pinning 4−49705
Cu bicrystal, oriented, intercryst. creep *(French)* 4−49711
Cu film, evaporated, positron trapping at defects 4−79060
Cu whiskers, polygonization process, influence of slip geometry *(Russian)* 4−69808
Cu:B(Sb), loss of ductility, intercryst. fracture, elevated temp. *(Russian)* 4−67825
γ-Cu-Al, slip in intermediate phases 4−67795
Cu-Al alloys, grain boundary sliding meas. 4−82850
Cu-Al-Fe aluminium bronze, cavitation at grain and phase boundaries during superplastic flow 4−45652
Cu-B alloy, neutron irrad., small angle grain boundaries 4−70500
Cu-Cr and Cu-Ni-Cr alloys, Cr precip. mechanism 4−45561
Cu-Ni-Sn alloy, spinodal decomp. and effects 4−64525
Fe, effect of Ce and La on grain boundary internal friction peak *(Chinese)* 4−79979
Fe, intergranular fracture obs. by Auger spectroscopy 4−45672
Fe, segregation of boron, effect on surface and grain boundary energies 4−79973
Fe-C alloy, austenite grain size effect on microcracking of martensite 4−82903
Fe-C alloy, eutectoid decomp., Zn additions influence *(German)* 4−61356
Fe-Cr-Mo alloys, heat treatment effect 4−64544
Fe-Mn, Fe-Ni and Fe-Mn-Ni, surface segregation behaviour of Mn and Ni 4−53669
Fe-Ni alloy, 36NChTYu, γ' and of phase precipitation mechanism *(Russian)* 4−61374
Fe-Ni-Al alloy, tensile fracture rel. to microstruct. 4−45571
Fe-Ni-Cr, 36 NKhTYu alloy, precip. of γ' and η phases, mech. props. *(Russian)* 4−73318
Fe-P solid solns., reversible temper brittleness and phase transform. in adsorption layers at boundaries *(Russian)* 4−73315
Fe-Si (3 wt.%) high and low mobilities *(Russian)* 4−70452
Fe-W(0.02 at.%) alloy, grain boundary hardening phenomenon 4−61378
GaP layers on Ge substrate, prep. and struct. props. 4−48873
Ge,film, cryst. struct. and elec. props. 4−72657
In, residual elec. resist., grain boundaries influence *(Russian)* 4−73289
KCl, laser window material, hot-worked, room-temp. grain growth 4−51080
MgF_2, hot-pressed, investigation of thermal and ultrasonic props. 4−63877
MgO, as-grown, subgrain boundaries 4−53805
MgO, calcination and sintering research 4−67910
MgO, pure dense, grain growth 4−49898
MgO, rel. to mass transport eqn. for diffusional creep, 1200-1600°C 4−49884
Mo-V-C alloy, structure of surface intergrain breakdown *(Russian)* 4−69952
Mo-Zr-C alloys, effect of Ni, structure and props. on annealing *(Russian)* 4−80020
MoO_3, coincidence twist boundaries 4−69817
NaCl, grain boundary phenomena, interpret. concepts 4−53809
Nb, polycryst. foil, local generation of flux flow noise by pinning due to grain boundaries 4−70104
Nb:Y(Gd), fluxoid pinning by d.c. magnetisation meas. rel. to high-angle grain boundaries 4−82528
Ni, high-angle grain boundaries, annealing of dislocations 4−82862
Ni, intergranular embrittlement by hydrogen, grain boundary segregation 4−82905
Ni, rel. to electron microscopical test of domain wall motion theories 4−67402
Ni, thoria dispersed, interfacial energetics 4−79929
Ni alloys, intergranular embrittlement by sulphur, Auger spectra obs. 4−76505
Ni-Al, high-angle grain boundaries, annealing of dislocations, hot-stage electron microscopy meas. 4−82862
Ni-Cr-Ti-Al alloy brazed in vacuo with Pd-Ni, microstruct. obs. with hot stage microscope *(German, English)* 4−64561
Ni-Fe(17%) alloy, rel. to electron microscopical test of domain wall motion theories 4−67402
Ni-Sn, discontinuous precipitation, theoretical models *(German)* 4−70472
Ni-W(6 wt.%) alloy, sample size and grain morphology effect on steady state creep characts. 4−80008
Ni_3Al-Ni_3Nb eutectic, structural defects and Ni diffusion *(Russian)* 4−49640
Pb, stress relaxation in monotonic loading, mech. eqn. of state and grain boundary sliding 4−53704
Pb film, evaporated, positron trapping at defects 4−79060
Pu alloys, α- and δ-phase, bright field grain boundary etching techniques 4−64553
Si:P, polycrystn. film, P activation by annealing 4−45027
Sn, residual elec. resist., grain boundaries influence *(Russian)* 4−73289
Ti-Mo alloys, hardened by ω-particle precip., microscopic deform. behaviour 4−79977
UO_2, fast flux irrad., resoln. controlled fission gas behaviour 4−43640

grain boundaries continued
V and V-Ti-Nb alloys, stability in liq. Li at 700°C *(German)* 4−59845
W-C alloys, struct., fracture type and ductile-brittle transition temp. 4−76489
Zn, facetting of ⟨1010⟩ tilt boundaries 4−76431
Zn, intergranular failure, role of solutes, isothermal and thermal cycling creep 4−82896
Zn, residual elec. resist., grain boundaries influence *(Russian)* 4−73289
Zn, tilt boundary migration obs., step motion 4−61393
Zn-Al(0.16 at.%), intergranular failure, role of solutes, isothermal and thermal cycling creep 4−82896
Zn-Cu(0.14 at.%), intergranular failure role of solutes, isothermal and thermal cycling creep 4−82896
Zr_3Al-based alloys, oxidation process in CO_2 and CO_2-water vapour mixtures 4−82951
ZrO_2, partially stabilized with CaO, microstruct. development and fracture toughness 4−73348
ZrO_2:Y_2O_3, hardening during high temp. creep *(Russian)* 4−53792
ZrO_2-CaO system, partially stabilized, microstruct. development 4−67909

grain size
alloy, ordered with small domains, dislocation struct. 4−61392
brass, 60/40 type, phase behaviour during superplastic deform. *(French)* 4−67806
α-brass, cyclic stress/strain relation and fatigue strength, grain size depend. *(Japanese)* 4−82889
ceramic, fractographic identification of strength-controlling flaws and microstruct. 4−67918
ceramic, microstruct. considerations for applic. of fracture mechanics techniques 4−73350
electron diffraction, textured objects 4−48482
grain boundary diffusion, grain size effect 4−56904
grain boundary migration and grain growth 4−70461
graphite crystallite, determ. in basal plane 4−67938
inhomogeneous nonisometric structure, anal. by directed sections 4−67782
metal, rel. to rupture behaviour *(French)* 4−76455
metal film, temp. coeff. of resist., thickness and grain size depend., calc. 4−60878
metal systems, Hall-Petch relation, boundary ledge struct., yield stress 4−64570
metal-semiconductor eutectic alloy, rel. to superconductivity 4−72894
normal grain growth theory 4−61364
Pb(Zr,Ti)O, effect on dielec. and piezoelec. props. 4−76222
sol-gel urania, new aspect of grain growth 4−82995
steel, austenite grain size depend. on temp. in additionally alloyed specimens 4−61384
steel, bainite transformation kinetics, austenite grain size effect *(Czech)* 4−49654
steel, ferritic, grain size meas. by magnetis. discontinuities *(German, English)* 4−49718
steel, grain shape parameters during bending, stat. meas. *(Japanese)* 4−79954
steel, grain size control 4−70464
steel, hardenability test based on austenite grain size 4−45664
steel, low-C, austenite grain size, hard-to-dissolve particles influence 4−61385
steel, low-C Cr-Ni type, high temp. short time creep deform., microstruct. changes *(Japanese)* 4−45635
steel, maraging, heat treatment conditions effect on microstruct. and mech. props. 4−80027
steel, maraging, produced by powder metallurgy, tensile props. and grain size refinement 4−67891
steel, mild, dynamic recrystn. during high temp. torsional deform. *(Japanese)* 4−70457
steel, stainless, grain refining 4−79951
steel, stainless, high-temp. embrittlement, helium distrib. and grain size effects 4−43643
steel, structural, twinning and slipping shear stresses eval., grain size depend. 4−53695
steel sheet, brittle crack formation, grain size effect 4−64589
superplastic deformation, grain size role 4−76496
superplastic deformation, grain size role 4−76497
texture development in recrystn., review 4−70466
vacancy supersaturation, grain size-depend., and its effect on void formation 4−48651
Ag, film, effect on longitudinal strain coeff. of resist. 4−45023
AgBr, dye desensitisation rel. to crystal size and habit 4−54073
Al, grain growth, steady-state, mechanism 4−82853
Al, grain size control 4−70465
Al, thermal diffusion of Ag, conc. and grain size effects 4−75640
Al evaporated film, oxide surface struct. 4−79245
Al-M-B alloys, M=Ti, V, Zr, Nb, Hf, Ta, grain refinement, segregation and solidification interval effects 4−73311
Al-Ni-Si-Mn bronze, magnesium effect on struct. and mech. props. 4−61442
Al-Zr dispersion alloy, recrystallisation, grain size effect 4−64566
Al_2O_3, alumina, with NiO and ZnO additives, high temp. mech. props., conc. and grain size depend. *(German)* 4−49878
Al_2O_3, fracture energy, grain size depend. meas. discrepancy 4−45752
Al_2O_3, Lucalox, SEM fractographic obs. rel. to testing temp. and grain size 4−67922
Al_2O_3, rel. to mass transport eqn. for diffusional creep, 1200-1600°C 4−49884
Al_2O_3, sintered, additives, influence on microstruct. 4−53807
Al_2O_3, solid soln. softening by MgO.TiO_2 4−45750
$Ba_2NaNb_5O_{15}$, sintered, SEM obs. of morphological changes 4−61495
$BaTiO_3$, effect on dielec. and piezoelec. props. 4−76222
Be_4B, hot pressing and mech. characteriz. 4−45751
BeO, hot isostatic pressing, microstruct. and fracture characts. 4−45759
Cr-Y(Gd)(Sm), dil., deformed, annealing, struct. changes *(Russian)* 4−67773
Cu, cyclic stress/strain relation and fatigue strength, grain size depend. *(Japanese)* 4−82889

grain size continued
- Cu, dynamic recrystn. during high temp. torsional deform. *(Japanese)* 4−70457
- Cu alloys, martensitic, Hall-Petch relationship 4−67856
- Cu-Al and Cu-Al-Zn alloys, time law interpret. of growth of β grain size and martensite plates 4−79898
- Cu-Sn-Cr bronze, crystn. parameters effects on struct. form. *(Russian)* 4−45577
- Cu_3Au, ordered, discontinuous yielding mechanism and dislocation locking 4−79974
- Cu_3Au, ordered, strain ageing yield drops 4−79975
- Fe, cast, with small nitrogen additions, influence on hydrogen embrittlement *(French)* 4−49750
- Fe-Al_2O_3 dispersion alloy, recrystallisation, grain size effect 4−67810
- Fe-C alloy, austenite grain size effect on microcracking of martensite 4−82903
- Fe-Co-V alloys, mag. and mech. props. correl. with microstruct. 4−80014
- Fe-Cu(1 wt.%) alloy, age-hardening, grain size and precip. hardening contribs. to mech. props. 4−61423
- Fe-Ti-Ni alloy, superplastic, substruct. depend. of strain rate sensitivity 4−67873
- FeO, wustite and wustite-Fe_2O_3-Fe, grain size depend. of fracture parameters 4−73347
- Ge-Si alloy, heavily doped, hot-pressed, rel. to optimization of thermoelec. figure of merit 4−72805
- $LiFe_5O_8$ and $LiFe_{4.7}Mn_{0.3}O_8$, prep. technique and calcination temp. effect on densification 4−61480
- MgO, rel. to mass transport eqn. for diffusional creep, 1200-1600°C 4−49884
- Nb, rel. to critical current density *(Russian)* 4−67313
- Ni-Co alloys, influence on mech. props. *(Russian)* 4−45710
- Pu, β to α transform., subzero temps., microstruct. and kinetics 4−81621
- Ti alloy, two-phase α-β, grain size and grain growth 4−49703
- Ti-Al-V alloy, fatigue strength improvement by microstruct. control 4−61424
- Ti-Al(7.4 at.%) alloy, grain size effect on strength 4−80046
- U-Cr alloys, grain size control by double-stage heat treatment 4−43644
- U-Cr alloys, u.s. attenuation obs. 4−47803
- UO_2, sintered, grain growth and densification, effect of titania 4−81624
- W-Ni alloys, recrystn., grain coarsening *(Russian)* 4−67779
- α-Zr, creep deformed at 500 and 600°C, hydride particles and dislocation struct. *(Czech)* 4−49698

gramophones
- No entries

Granato-Lucke theory *see dislocations*

granular materials
- *see also granular structure*
- composite type, effective heat cond., dielec. const. and elec. cond., steady-state conditions 4−64655
- fixed and fluidised bed, porosity near wall 4−66675
- flow, continuum theory 4−50045
- flow behaviour, transducer and X-ray meas. 4−45860
- gravitational escape from vessels with holes kinematics 4−45858
- hydrodynamics, effective porosity occurrence 4−66676
- layer on vibrating plane, movement eqns. soln. including air pressure effects 4−77513
- loose, spatial oscillation displacement amplitudes, exptl. study 4−55266
- loose medium, nonlinear description of space oscillations of displacements 4−74277
- particle flow under gravity, stochastic theory 4−45867
- PVC powder, grain size distrib., meas. methods *(Polish)* 4−80120
- shift of loose materials over surfaces 4−45859
- sol-gel urania, new aspect of grain growth 4−82995
- spatial displacement oscillations as stochastic process, Cauchy problem soln. 4−55265
- thermal conductivity, macroscopic heat transfer 4−45857
- Y_2O_3 granular ceramics obtained by sintering and h.f. fusion, characteriz. 4−61506

granular structure
- *see also granular materials*
- cineradiography, control of granularity or quantum mottle 4−42829
- mixed oxide fuel elements of LMFBR, effects of cracks and granular structure on heat transfer 4−43600
- polycrystal, grain arrangement, Euler's theorem 4−67799

graph theory
- chemical reaction network, steady state, stability analysis 4−53997
- chemical reaction network, unstable perturbation, stability analysis 4−53998
- chemical reaction networks applic. 4−70600
- line graphs of general graphs, characterisation 4−59025
- q-edge Hamiltonian graphs, sufficient conditions for graph to be q-connected 4−59024
- symmetric sparse matrix L-U factorisation, equivalent graph problem 4−59037

graphic equipment, computer *see computer graphic equipment*

graphics, computer *see computer graphics*

graphite
- adhesion of Mo films and wetting by molten metals 4−80045
- adsorbed NO, X-ray photoelectron spectra 4−56981
- adsorption, Xe on graphite (0001) face, first order two dimens. gas to solid transition *(French)* 4−63981
- adsorption of Kr, adsorpt. isotherms meas., triple point of monomol. layer determ. 4−44768
- adsorption of xenon in epitaxy *(French)* 4−56977
- anelastic relaxation by point defects, obs. in neutron irradiated samples 4−56808
- aquadag colloidal, polydispersiveness determ. by forward light scatt. and magneto-optical effects 4−50039
- artificial, ellipsoidal yield function 4−82997
- atomic displacements by irradiation review *(Japanese)* 4−78233
- atomic orbital potentials of C determ. 4−69983
- blackbody radiation source for spectrometer and radiometer calibration 4−80893

graphite continued
- brazing with Au-Mo-Ni filler, microstruct. of brazed joints *(German, English)* 4−49866
- buckling effect on discrete and pseudo modes of neutron waves 4−71973
- carbon-graphitic materials, high-porosity, elec. cond., 300-1700K 4−45870
- Compton profile, obs. using 22.1 keV X-rays 4−52781
- Compton profile measurement, electron wave functions 4−57650
- cone-helix growth forms 4−52708
- crystallite size determination, in basal plane 4−67938
- Debye Waller factor calc. using Komatsu's model 4−60583
- diamagnetic susceptibility, trigonal warping of Fermi surface 4−60944
- diamond synthesis with metal catalyst, mechanism 4−56883
- electrical resistance of carbon materials, porosity depend., irrad. effects 4−69291
- electron energy loss spectra 4−52795
- fibre reinforced Al, liq. phase hot pressed, mech. props. 4−61517
- fibre reinforced epoxy, fibre-matrix interactions 4−64632
- fibre reinforced epoxy prepreg., prestressing effects on laminate strength props. 4−49955
- fibre treatments affecting fibre surface morphology and epoxy bonding characts. 4−53836
- fracture behaviour, failure criteria, struct. depend. *(French)* 4−76540
- fracture behaviour, research methods *(French)* 4−76556
- fracture mechanics applic. to failure pressures determ. under complex stress conditions 4−73365
- fracture under complex stressed state conditions 4−49913
- fracture under different test conditions 4−71991
- fusion reactor blanket-coupled MHD conversion at 2500K 4−55956
- Grafoil substrate, thermodynamics of ^{4}He monolayers 4−72606
- graphite/epoxy shells, unidirectional, axial wave vel. meas. 4−76535
- graphitization, continuous, technology, props. of electrographite powders *(German)* 4−53865
- graphitization, oriented heterogeneous, high pressure effects 4−53864
- graphitization of free C precipitating through reaction of UC or UC_2 with N_2 4−51882
- Hall effect, band parameters evaluations, using Yazawa's model *(Japanese)* 4−72800
- heat transport meas. to 2600°C, polycryst. reference materials 4−60652
- highly orientated, pyrolytic, oxidation, kinetic studies 4−67934
- in-pile radiation damage, model based on displacement spikes *(French)* 4−59847
- inclusions in grey cast iron, effect on fracture 4−82918
- interstellar grains, extinction and refractive indices 4−71063
- interstellar grains, interaction with hot gas 4−62215
- interstellar grains, optical and photoemission props. rel. to extinction 4−46331
- interstellar grains, thermal accommodation coeff. 4−46332
- interstellar grains in hot gas, supernova remnants 4−62216
- isotropic, fatigue, notch sensitivity and work of fracture obs. 4−78268
- isotropic pyrolytic, thermophysical properties 4−69937
- laminar $CoCl_2$/graphite and $NiCl_2$/graphite cpds., mag. props. *(Russian)* 4−67406
- laminated Fe-graphite shielding, straight through-going cylindrical channels influence *(Czech)* 4−59887
- lattice dynamics, analytical two-body potential 4−67007
- LCAO calculation, X-ray and photoelectron emission 4−49489
- lifetime projections for 4 conceptual fusion reactor designs 4−55942
- magnetoelectric properties investigation, fields up to 500 kOe, 4.2K *(Russian)* 4−82435
- magnetoresistance, Kohler's rule 4−75886
- moderator, space- and time-depend. neutron thermalization by reaction-ratio method 4−59839
- neutron angular flux, discrete, Sn calculation 4−78137
- neutron decay, λ-B^2 polynomial validity 4−63228
- neutron Fermi age from fission and fusion sources to In resonance 4−74775
- neutron irradiation strength changes 4−71993
- notched beam test, fracture energy 4−73340
- orbital symmetry rules for chemisorption 4−48854
- polycrystalline, fracture mechanism 4−73346
- polycrystalline, thermal neutron cross section meas. 4−78264
- pyrographite, capillary rise of liq. Zr 4−67961
- pyrolitic, thermal expansion coeff. and dynamic mech. props., 100-300K 4−43645
- pyrolytic, π and σ valence bands, anisotropy in optical transitions 4−82365
- pyrolytic, elastic consts., press. and temp. depends. 4−82213
- pyrolytic, highly oriented, high-temp. neutron irrad. effects 4−74792
- pyrolytic, interaction with liq. Al, 1050-1350°C *(Russian)* 4−53793
- pyrolytic, magnetothermal cond. meas. 0.36 to 4.2K, electronic and lattice contribs. 4−60813
- pyrolytic, reflectivity meas. in megagauss mag. fields 4−70302
- pyrolytic crystal, use as source for X-ray polarisation 4−56584
- rayon precursors small-scale heat-treatment for stress graphitization 4−61540
- reactor material, graphitisation degree effect on magnetoresist. changes during neutron irrad. 4−71998
- reactor-grade, neutron irrad. creep, dislocation pinning-unpinning model 4−74791
- secondary electron emission and high energy excited states obs., theory and expt. 4−49516
- spectroscopic electrodes, use as filters in determ. of trace elements in atmospheric particulates 4−54734
- sublimation temperatures, carbon arcs and crystallite erosion 4−75623
- thermal and elec. conductivity meas. in range 300 to 1000K 4−56779
- thermal diffusivity, 3250K, negative pulse technique 4−62442
- thermophysical properties at high temps., calibration material 4−77046

graphite continued
- turbostratic microstrains and paracryst. distortions, X-ray-Fourier transform anal. *(German)* 4−69698
- unbacked thin films, inelastically refelected electrons energy spectra, electron incidence angle effect 4−70389
- X-ray excitation spectrum, solid-state electron gas, Wigner electron lattice 4−60764
- X-ray photoemission meas. of valence band 4−75779
- C-graphite, discrete samples, for microstruct. anal., prep. 4−67939
- Cu/graphite powder composites, resist. meas. during compaction 4−82968
- $FeCl_2$-graphite compounds, Mossbauer spectra and mag. susceptibility obs. 4−61071
- $FeCl_3$, two-dimensional, intercalated in graphite, magnetic properties 4−64306
- $(NH_4)_2SO_4$-graphite, removal by rain in shallow air flow 4−61780
- $NiCl_2$/graphite lamellar cpd., disordered mag. transitions *(Russian)* 4−70160
- $NiCl_2$/graphite laminar cpd., mag. ordered, ^{35}Cl n.m.r., spontaneous magnetis. behaviour *(Russian)* 4−67470

graphs
- *see also nomograms*
- e.m. wave multiple scattering phenomena, graphical representation 4−74463
- exracting information from graphs in journals, techniques 4−54821
- Hartree-Fock, microscopic nuclear magnetic moment calcs. 4−43450
- mechanical and dielectric relaxation data analysis, graphical methods 4−50008
- molecular catenated structure representation method *(French)* 4−47917
- planar graph contribution to virial coefficients for fluid of long thin rods 4−71449
- quantum field theory, convolution of n-point functions 4−43383
- skeleton, for critical exponent of thermal conductivity of liquid ^4He above λ-transition 4−56928
- slope determ. using a glass rod 4−58740

gratings (diffraction) *see diffraction gratings*

gratings (optical) *see diffraction gratings*

gratings (spectra) *see diffraction gratings*

gravimeters
- microthermobalance, automatic recording 4−74188

gravimetric instruments *see gravimeters*

gravimetry
- *see also density measurement*
- algorithm for nonlinear statistical relationships in gravimetry and magnetometry *(Russian)* 4−54322
- data input to digital computer, automated system *(Russian)* 4−54311
- gravitational influence of mountains compensation on gravimetric obs. *(Russian)* 4−58126
- inverse gravimetric problem soln., stratified body approach 4−83043
- reference points, minimizing of errors *(Russian)* 4−58134
- solids, Derivatograph, combined thermal methods 4−65394
- South Urals gravitational anomalies from borehole meas. of density *(Russian)* 4−57900
- thermogravimetric meas., U_3O_{8-x}, non-stoichometric, high temp. phase transitions 4−78232
- thermogravimetric-X-ray diffr. simultaneous meas. 4−59014
- thermogravimetry, transducer device for automatic meas. 4−65598
- $Y_3Al_5O_{12}$:Nd^{3+} melts, quantitative analysis 4−70408

gravitation
- *see also general relativity; gravitational collapse; gravitational red shift; gravitons; quantum theory of gravitation; Schwarzschild metric; unified field theories*
- acceleration meas., falling body in He-Ne laser-photodetector system *(Russian)* 4−62409
- anisotropic solution of eqns. with isotropic singular hypersurface 4−77542
- Arp 295, tidal origin of intergalactic bridge of interacting galaxy pair 4−68450
- bending of light, induction of inertia, Einstein shift *(German)* 4−55350
- Brans-Dicke equations, generation of new vacuum solns. 4−59280
- Brans-Dicke theory, approximate interior solution 4−71406
- Brans-Dicke theory, modified, with nonzero divergence of energy-momentum tensor 4−68937
- Brans-Dicke theory, nonzero divergence of $T^{\mu\nu}$ imitation of massive theory 4−55363
- C-field, contribution to action fundamental 4−51445
- closed string interaction with external gravitational field, dual resonance model 4−43420
- conformally invariant theory, origins of mass 4−51439
- cosmological constant and f-gravity, gravit. singularities removed in Trautman's model universe 4−70866
- cosmological implications of gravitation law 4−58212
- covariant theories, Palatini method of variation 4−55348
- discrete Newtonian gravitation and the three body problem 4−71321
- dust matter, elec. charged, class of gravitational fields *(Russian)* 4−77544
- Earth, gravitational differentiation energy density calcs. 4−83046
- Einstein's theory, second order approx. in flat space-time 4−47199
- Einstein's theory, solar oblateness, obs. reviewed 4−68933
- e.m. wave gravitational field equations *(Russian)* 4−59257
- energy-momentum densities of arbitrary weight 4−71396
- energy-momentum tensor of quantised field in homogeneous spaces, adiabatic regularisation 4−47433
- Estein's theory, development and contradictions *(Hungarian)* 4−81234
- field of rapidly rotating infinite cylinder, causality violation 4−68931
- field statistics, numerical experiments 4−59092
- Finsler spaces, gravitational field eqns. 4−74391
- five dimensional, scalar-tensor theory *(Russian)* 4−55358
- galaxy distrib. in expanding universe, gravitational-instability picture 4−54546
- gauge field description in integral formalism 4−69113

gravitation continued
- gauge fields, role of Lorentz group in framework of tetrad theory of gravitation *(Russian)* 4−55362
- general invariance of Lagrangian structures, differential geometry 4−51249
- general-relativity, Einstein's theory, textbook in notation of differential geometry to Ph.D. level 4−62721
- geometrodynamics, Lagrangian approach 4−59258
- higher-order potential for many-body system 4−62725
- interactions, compatibility of general relativity and gauge field theories 4−77733
- Jordan-Brans-Dicke Kerr solutions family 4−74398
- Kerr-Newman sources in equilibrium, metric derivation 4−68929
- light deflection by Sun as function of solar distance 4−59284
- local-scale-invariant theory, application to cosmology 4−47205
- naked singularity, repulsive phenomena and energy emission 4−73704
- neutron field, Rainich theory 4−71389
- Newtonian, validity of inverse-square law at laboratory dimensions 4−59285
- Newtonian gravitational potential theory and applics. 4−59282
- non-geodesic laboratory bodies, eqn. of motion 4−71390
- polarized radiation deflection by solar gravitational field, upper limit 4−50441
- potential for many-body system in canonical formalism 4−65776
- PSK 1548 + 115, double quasar as gravitational lens 4−71021
- quantisation in static fields *(German)* 4−71409
- quasar models, gravitational-lens images of Seyfert nuclei, intensification shown to be inadequate 4−50624
- quaternion eqns. of gravitation, Sach's, rel. to Bergmann's theory of general relativity 4−47202
- Riemannian space-time, coordinate systems and transformations, Poincare group generalization 4−51441
- Rosen's bimetric theory 4−51444
- Salam's two-tensor theory, KS-related f-g couples as exact vacuum solutions 4−43166
- scalar-tensor theories, action principle and wave equation 4−65801
- scalar-tensor theory, connection to spontaneously broken scale invariance 4−59281
- scalar-tensor theory, rel. to cosmic abundance of deuterium 4−58213
- second-order nonlinear Lagrangian tensor field theories 4−47198
- SL(2, C) symmetry of gravitational field 4−51440
- solar oblateness, signal photospheric facular contribution 4−61997
- spin-angular momentum of matter, dynamical manifestation in Riemann-Cartan geometry 4−51437
- static gravitational fields with naked singularities, equatorial circular orbits 4−74394
- stationary field props. 4−65770
- stellar density function, gravitational optics calcs. 4−80454
- tachyon gravitational interaction, behaviour of spacelike geodesics 4−59269
- tachyons, repulsive gravitational force between 4−59262
- tachyons in extended relativity theory, gravitational repulsion 4−47178
- theories, review 4−55353
- theory in terms of universal acceleration field, cosmological substratum 4−70867
- theory not permitting black holes 4−65800
- three-body problem, rel. to Laplacean instability in stellar dynamics 4−61976
- two-metric field theory, causality and metrical properties of matter 4−43165
- van Maanen 2 (EG 5), astrometric determ. of gravitational redshift of white dwarf 4−73691
- vector particle potential from quantum theory; centre of mass of nonrotating particle *(Russian)* 4−81226
- zero-mass particle field formula w.r.t. delayed potentials *(Russian)* 4−68934

gravitational acceleration *see gravitation*

gravitational collapse
- *see also black holes; cosmology*
- anisotropic solution of eqns. with isotropic singular hypersurface 4−77542
- axisymmetric gravitating masses, space-time in strong magnetic field 4−65049
- black and white holes, Freidmann closed world metric model 4−68432
- black hole explosions caused by escape of massless particle escape slowing collapse 4−62146
- black holes, role of cosmic censorship and naked singularities 4−68426
- charged dust spheres, solns. of Einstein-Maxwell eqns. for isotropic collapse 4−59274
- damping law of external fields of collapsing star *(Russian)* 4−70968
- dense dust cloud genetic relation with ordinary interstellar clouds by gravitational collapse 4−46326
- detection and theory, conf. Warsaw, Poland (1974) 4−68322
- early universe, existence of black holes 4−68435
- electric polarization near Schwarzschild limit due to electron gravitational mass effects 4−50442
- energy extraction from falling particle in Weyl space-time 4−71405
- f gravity inclusion in Einstein's field eqns., gravitational singularities 4−58214
- general-relativity, Einstein's theory, textbook in notation of differential geometry to Ph.D. level 4−62721
- geodesics, local observations in extended Kerr manifold 4−54364
- gravitational radiation pulses, from collapse of uniformly rotating dust cloud 4−80455
- Jordan projective theory of relativity, free-fall collapse of star 4−80453
- Lee and Yang vector field, prevention of point singularity formation 4−54361
- matter accretion by collapsing star in magnetic field 4−50544
- molecular clouds, statistical equilib. and radiative transfer eqns. for diatomic molecules 4−62196
- naked shell crossing singularities in gravitational collapse of perfect fluid 4−59265
- neutrino emission during relativistic collapse of star, recording method *(Russian)* 4−76931

- **gravitational collapse** continued
  - nonspherical perturbation behaviour and wave tails 4–46149
  - rotating black hole, external field behaviour *(Russian)* 4–73722
  - rotating magnetised star, celestial γ-ray sources 4–58404
  - solar system form. theory, heavy element segregation in centrally condensed gaseous globe 4–83174
  - spherical, with charge, perturbations 4–58322
  - stars, physics of black holes 4–58321
  - stellar, cooling by neutrino emission, inhibiting effect of nuclear elastic scatt. processes 4–59530
  - supernova Type I event from collapsing degenerate C cores 4–46225
  - white holes, influence of quantum effects *(Russian)* 4–80456
- **gravitational constant**
  - plane gravitational condensor, positive gravitational constant, eqn. of motion 4–62722
  - secular change in Earth-MOON system 4–55340
  - variations and effect on quadrature soln. of two-body problem 4–54355
- **gravitational experiments**
  - burst detector optimization using piezoelectric tranducers 4–65813
  - detection, sources and theory of gravit. radiation, review 4–51442
  - extraterrestrial radiation density, upper limit *(Russian)* 4–65805
  - general-relativity, Einstein's theory, textbook in notation of differential geometry to Ph.D. level 4–62721
  - radiation detection, closed system for electromag. transform. 4–65815
  - radiation detection, high sensitivity antennae, consideration of limitations 4–65807
  - radiation detection, Munich Frascati Weber type obs. 4–65810
  - radiation detection, two antenna coincidence, discussion 4–65806
  - radiation detection, wave struct. for gravity metric 4–65814
  - radiation detection, Weber type Meudon expt. 4–65811
  - radiation detector, cryogenic antennae for 3 mK detector 4–65812
  - radiation detector, wide band for millisec. pulses 4–65809
  - radiation detectors, conf. Warsaw, Poland (1974) 4–68322
  - radiation detectors at Maryland and Rochester, time delay expt. anal. 4–65808
  - testing Einstein's theory of gravitation beyond geometrical optics limit 4–62729
  - wave detection, by coherent ponderomotive forces *(Russian)* 4–77549
  - wave detection, effect of filters on system sensitivity 4–77548
  - wave detection, nonisochronous oscillator *(Russian)* 4–81237
  - wave detection, possible use of suspended fused quartz rod *(Russian)* 4–77037
  - wave detection, report of negative result, comparison with Weber expts. 4–74404
  - wave experiments, state-of-the-art 4–68945
- **gravitational radiation** *see gravitational waves*
- **gravitational red shift**
  - *see also cosmology*
  - de-Sitter type metrics, redshift formulae 4–47190
  - double radio sources, redshift-angular size relation 4–58383
  - Lyra's geometry, class one cosmological model 4–73605
  - photon wave mechanics interpret. of abnormal red shifts near Sun *(French)* 4–59264
  - QSO, gravitational effect in spectral line redshift 4–73764
  - QSO pair 1548 + 115 ab, redshifts and generalised gravitational potential theory 4–62168
  - solar, K 7699 A line 4–80505
  - special relativity variant and long-distance astronomy 4–58215
  - static gravitational fields with naked singularities, equatorial circular orbits 4–74394
- **gravitational waves**
  - *see also gravitons*
  - amplification, effect of Kerr black holes 4–68428
  - amplification, numerical calcs. for Kerr metric 4–68323
  - amplification in nonstationary isotropic universe, graviton creation *(Russian)* 4–77546
  - black hole, charged, beat freq. oscill. of gravitational and e.m. radiation 4–46243
  - burst detectors, piezoelec. transducer system, system optimisation using S/N ratio 4–65813
  - circular current interaction with gravitational wave, model *(French)* 4–43164
  - cluster of superdense stars, gravitational radiation props. 4–73799
  - collapse of uniformly rotating dust cloud 4–80455
  - collisions and encounters of virtual quanta, Weizsacker Williams method 4–65793
  - combined electromagnetic-gravitational radiation, generated by unified field theories, Weiss domain 4–65803
  - detection, by coherent ponderomotive forces *(Russian)* 4–77549
  - detection, cryogenic antennae for 3 mK detector 4–65812
  - detection, electromag. resonator for gravitational wave transform. 4–65815
  - detection, high sensitivity antennae, consideration of limitations 4–65807
  - detection, Munich Frascati Weber type obs. 4–65810
  - detection, nonisochronous oscillator *(Russian)* 4–81237
  - detection, possible use of suspended fused quartz rod *(Russian)* 4–77037
  - detection, report of negative result, comparison with Weber expts. 4–74404
  - detection, sources and theory of gravit. radiation, review 4–51442
  - detection, two antenna coincidence, discussion 4–65806
  - detection, wave eqn. for relativistic deformable solids 4–47204
  - detection, wave struct. for gravity metric 4–65814
  - detection, Weber type experiment with double and triple coincidences 4–65811
  - detection and emission, conf. Warsaw, Poland (1974) 4–68322
  - detector, 710 Hz and 1661 Hz; computer time delay obs. 4–65808
  - detector, wide band, millisec. pulse obs. 4–65809
  - detectors, effect of filters as system sensitivity 4–77548
  - dispersion reln. for radiation in Schwarzschild background 4–65788
  - dwarf novae, role of gravitational radiation and mass transfer 4–68431
  - emission and absorption, plunge and gravitational synchroton radiation, survey 4–65792
  - energy extraction from falling particle in Weyl space-time 4–71405
- **gravitational waves** continued
  - energy loss from two-body bound system 4–65789
  - equation of geodesics, general exact solution, flatness condition 4–51443
  - experiments, state-of-the-art 4–68945
  - extraterrestrial radiation density, upper limit *(Russian)* 4–65805
  - focusing by spherical stars rel. to communication 4–65790
  - general relativity, book at undergraduate level 4–59277
  - general-relativity, Einstein's theory, textbook in notation of differential geometry to Ph.D. level 4–62721
  - graviton bremsstrahlung, high-energy, frequency and ang. distribs., total radiated gravitational energy 4–47209
  - high frequency, average Lagrangian method beyond first order 4–65797
  - homogeneous cosmological models with circular polarised gravitational waves and eddies *(Russian)* 4–76781
  - mass loss from galactic centre, calc. including globular clusters and wide binaries 4–65794
  - neutron stars, relativistic non-rotating, stability of non-radial vibrational modes 4–73737
  - nonlinear wave equation in spherical coords. 4–71404
  - particle drift in wave field, ray bending phenomenon *(Russian)* 4–65791
  - radiation reaction tensor for point quadrupole source, fast motion approx. 4–65798
  - reflection, effect of Kerr black holes 4–68428
  - Reissner-Nordstrom geometry, perturbation anal. for gravitational and e.m. radiation 4–59278
  - Riemannian space time, geodetic interval in second post Minkowskian approx. perturbation expansion 4–65782
  - scalar-tensor theory 4–43163
  - scattering in weak gravitational fields, refractive index 4–68932
  - seismic centre, effect on satellite trajectories *(Russian)* 4–68043
  - shock wave energy-momentum density *(French)* 4–74397
  - short wave interaction with e.m. waves in arbitrary external e.m. fields *(Russian)* 4–68936
  - sun, radiation due to transform. of thermal e.m. radiation *(Russian)* 4–74402
  - tails in linear general relativity, spin coefficient technique 4–55361
  - tidal tensor, emission and absorpt. of radiation in long wavelength limit 4–65799
  - travelling wave type radiator power calc. 4–59279
  - two body radiation, covariant approach 4–65783
  - ultrarelativistic bodies, calcs. for circular orbits 4–65796
  - ultrarelativistic charged particle radiation in external e.m. field *(Russian)* 4–62726
  - weak field approximation for interaction with magnetised sphere, soln. of Maxwell equations for earth and mag. neutron star 4–65795
- **gravitons**
  - creation via superadiabatic amplification of gravitational waves in expanding universe *(Russian)* 4–77546
  - emission in high energy hadron collisions *(Russian)* 4–74403
  - graviton-photon-photon decay interaction 4–55343
  - high-energy bremsstrahlung, frequency and ang. distribs., total radiated gravitational energy 4–47209
  - mass rel. to cosmological const. 4–65804
  - microgeons with spin *(Russian)* 4–68944
  - photoproduction by charged particle in plasma and gravitational emittance of sun *(Russian)* 4–74402
  - propagator, one-loop neutrino contribution, trace anomalies in dimensional regularisation 4–81371
  - rest mass, upper limit determ. 4–59283
  - spin, in axiomatic approach to quantum gravity 4–68940
  - virtual, Weizsacker Williams method for encounters and collisions 4–65793
  - f-g mixing, in SL(6c) gauge theory of strong interactions 4–69120
- **gravity**
  - *see also gravitation*
  - Angola anomalies on continental margin, comments and reply 4–64731
  - anomalies, calc. by algorithm and catalogue prep. *(Russian)* 4–57902
  - Antarctic gravity low rel. to Earth's equilibrium figure 4–73460
  - astrogeodetic deflections of vertical at sea from bathymetric data 4–57896
  - Banke ring complex, Nigeria, gravity profile 4–64729
  - complex gravitational field separation *(Russian)* 4–54110
  - Cosmos 395 rocket (1971-13B), 15th-order resonance orbit and geopotential 4–70625
  - dipping prism, anomaly, contour maps 4–64728
  - direct mapping of anomalies using Doppler tracking between satellite pair, comments 4–46098
  - Earth ellipsoid parameters, new mean estimates 4–83044
  - field, elementary point source determ. 4–54150
  - field correlation between geomagnetism and gravity 4–50255
  - filters for upward and downward continuation of field using linear programming 4–45949
  - geoid (1973) of Africa, undulation and deflection maps 4–68042
  - geometric body shapes, approx. in gravity interpretation calculations 4–61889
  - geopotential, fifteenth-order harmonics determ. 4–57898
  - geopotential, least squares collocation 4–68037
  - geopotential absolute value on surface corresponding to mean sea level 4–61648
  - geopotential of simple density layer at zero and low altitudes 4–68040
  - geopotential represent. by point masses *(French)* 4–61649
  - inverse gravimetric problem soln., stratified body approach 4–83043
  - inversion of gravity data for two dimensional density distribs. 4–58117
  - isostatic gravity anomalies in USSR 4–64786
  - lunar mascons, techniques in Doppler gravity inversion 4–58262
  - marine gravity and magnetic anomalies, new modelling method 4–58116
  - Mars, internal structure from Mariner 9 gravity field obs. 4–54427
  - Norwegian Caledonides, gravity interpretation of Jotun nappe 4–64807
  - plumb line deflection near Lomonosov ridge, north pole 4–73461

gravity continued

- potential field transformations, numerically stable solns. 4−61651
- Pripyatsk depression deep structure, transformation of gravitational field *(Russian)* 4−54145
- radial variation of g in spherically symmetric mass with nonuniform density 4−73943
- reduction equivalence along perpendicular and plumb lines 4−61647
- rock density maps rel. to gravitational field interp. *(Russian)* 4−54147
- Russian plate, boundary velocities rel. to formation, gravity anomalies and composition *(Russian)* 4−57945
- satellites in Viking-type orbits, effects of resonant tesseral gravity coeffs. 4−58193
- Saturn ring system, resonance effects produced by gravitational field *(Russian)* 4−54429
- Speke Gulf, Tanzania, Bouguer anomaly rel. to East African Rift System 4−76651
- stellar photosphere, elec. cond. rel. to stellar parameters 4−58284
- terrestrial anomalies from satellite altimetry 4−70623
- two-dimensional residual gravity anomalies, separation using lateral density variation 4−61650

gravity meters *see gravimeters*

gravity waves

- atmospheric acoustic-gravity waves *(Russian)* 4−54217
- atmospheric acoustical signals, naturally occurring, acoustic gravity waves, infrasound 4−80336
- atmospheric gravity waves induced by Earth's diurnal rotation 4−50296
- atmospheric internal gravity waves, current instability 4−50311
- atmospheric travelling discontinuities, transmission and reflection of acoustic gravity waves 4−68183
- capillary, transient linear, variational principle from angle of contact boundary condition 4−52467
- capillary gravity waves, transient linear, second variational principle 4−77545
- equatorial, NCAR global circulation model 4−64886
- equatorial ionosphere spread F, theory 4−61844
- F$_2$-region over Delhi, gravity wave assoc. neutral particle vel. perturbations 4−64960
- galactic spiral structure rel. to density wave 4−54552
- inertial wave interaction, nonlinear reson., anal. 4−44094
- internal, underwater, sound phase fluctuation, depth depend. 4−80801
- internal wave generation, by underwater disturbances *(Russian)* 4−73523
- internal waves in a continually stratified sea *(Russian)* 4−73524
- ionospheric gravity waves, MHD wave interpretation 4−64952
- ionospheric wave disturbances, propagation velocities and speeds 4−64951
- Jeans' criterion, sound wave instability damping, heat transfer and viscosity effects 4−81939
- marine inversion, energy budget and turbulence 4−68169
- mesosphere 30-80 km, thermal effect of radiative transfer in 15 μ CO$_2$ band 4−50292
- nonlinear interaction between standing surface and internal gravity waves 4−52466
- ocean, advancing along submarine canyons 4−68154
- ocean, incipient sediment movement 4−57989
- ocean, slowly-varying, approach to beach 4−64842
- planetary boundary layer with inversion lid, height rel. to buoyancy 4−58005
- planetary waves, diffraction by infinite strip, Weiner-Hopf equation 4−45994
- in shallow water, laser Doppler velocimeter design 4−50409
- short gravity-capillary wind waves, microwave c.w. Doppler spectra 4−80312
- solar chromosphere, oscillating velocity fields and acoustic-gravity waves 4−65071
- stratified liquid, plane nonlinear gravity waves *(Russian)* 4−72284
- stratoform cloud, gravity wave breaking phenomenon *(French)* 4−68196
- stratosphere, 30-80 km, thermal effect of radiative transfer in 15 μ CO$_2$ band 4−50292
- surface wave-internal wave interaction 4−52465
- trapeze instability, on open domain 4−61777
- travelling ionospheric disturbances, electric field control 4−46066
- upper atmosphere, optical recording method 4−58145

greasing *see lubrication*

Green's function methods

- $\lambda\pi_2^4$ quantum field model, negative Euclidean Green's functions, bound state absence without symmetry breaking 4−81366
- σ-model analytic regularization and Ward-Takahashi identities 4−59481
- alloy, substitutionally disordered, rel. to elec. cond. calc. 4−53081
- analyticity properties implied by many-particle structure of n-point function, convolution associated with graph 4−43383
- anharmonic crystal with impurities, theory of lattice thermal conductivity 4−67011
- anharmonic crystals, dielectric susceptibility and i.r. absorption 4−57534
- antiferromagnet, cubic, two-magnon Raman scatt. in ordered region 4−57538
- arc, wall-stabilized, viscous flow and temp. coupled distrib. 4−66787
- atom + diatom scatt., translation-internal mode energy transfer 4−78529
- atoms, photoelectron spectra, excitation with simultaneous ionisation investig., Green's function methods 4−66314
- b.c.c. lattice, lattice Green's function evaluation at arbitrary points 4−81244
- Bethe-Salpeter equation scattering solution requirements 4−69122
- binary alloy, two particle electron Green function *(Russian)* 4−75760
- Bogolyubov hydrodynamics, condensate density 4−75656
- Bose gas, model Hamiltonian of BCS type 4−55374
- C-field, contribution to action fundamental 4−51445
- charged particle radiation in arbitrary laminated media, Maxwell eqns. 4−82209

Green's function methods continued

- coherent potential approx., averaged T-matrix approx. and Lloyd's model, rel. to single particle Green's function 4−53028
- coherent potential approximation calculations, absence of localization for any finite disorder 4−75793
- coherent potential approximation for random lattices, concepts and applications 4−52848
- contact stresses between elastic cylinder and layered elastic solid 4−74311
- continuum bound states generation by nonlocal potentials, cancellation of Green's function 4−59238
- convolution integral of linear differential eqn., simple derivation, educational course 4−58684
- Coulomb Green's functions at diffuse interfaces 4−61621
- crack generated elastic wave analysis, stress field 4−43048
- critical reactor, noniterative method for solving adjoint eqns. 4−55917
- crystal, bounded, phonon Green's function 4−56844
- crystals, randomly disordered, derivation of optical, electronic and magnetic properties 4−79109
- cubic crystal with impurity relax. time of lattice waves calc. 4−75599
- cubic crystals, anisotropic, displacement field of a dislocation loop 4−63832
- differential equation set with random excitation, Green function soln. *(Russian)* 4−77378
- disordered system, one-dimensional, ReG and ImG joint probability distrib., transport coeffs. 4−51474
- disordered systems, cluster approx. 4−72543
- disordered systems, one-dimensional, localization of eigenstates and transport phenomena 4−53023
- double-time, for vacancy migration on one-dimensional lattice 4−56736
- dual meson and fermion model, single loop calculations 4−55636
- eikonal perturbation theory, renormalized, on- and off-shell form factors 4−71598
- elastic cracks, cut-induced, extension under antiplane loading 4−59125
- elastic medium with regular symmetry, interactions of screw dislocations and conc. defects 4−51316
- electron diffraction crystallography, relativistic Green's function theory 4−44451
- electron gas, graphs with nonzero contribution, recurrence formulae 4−62735
- electron gas, Tomonaga model, appl. of eqn. of motion methods 4−82346
- electron gas, vertex correction, tested on core electron coupled to gas 4−75748
- electron gas with surface, work function determ. 4−60840
- electrons, fast, differential flow operator *(Russian)* 4−81251
- e.m. wave scattering, random medium, coherent field in terms of coherent Green function 4−78733
- e.m. wave scattering 4−47287
- e.m. wave scattering from cylinder, comparison with Waterman and Rayleigh theories 4−68999
- energy-momentum tensor in gauge field theories 4−77733
- excitation energies determ., self-consistent time-depend. Hartree-Fock scheme, appls. 4−72138
- excitation energies of closed fermion systems, direct perturbation calc., Green's function approach 4−51947
- f.c.c. and b.c.c. crystals, static lattice, asymptotic behaviour 4−63822
- Fermi gas, liquid-impurity correlation function 4−71422
- Fermi-Dirac system, graph recurrence formulae 4−62734
- ferromagnet, cubic, mag. dipole forces and crit. dynamics above Curie pt. *(Russian)* 4−70158
- ferromagnetic insulator, thermodynamic one-particle Green function in renormalised spin wave approx. 4−70171
- ferromagnetic with uniaxial anisotropy, numerical results for spin-one systems 4−53250
- ferromagnets, $S=1$, variation of Curie temp. with uniaxial anisotropy in X-Y model 4−49140
- Feynman perturbation series, Green's function representations in new method 4−59477
- free-electron lattice Green's function, numerical eval. 4−67141
- ground state energies of π-electron systems using Green's function method calc. 4−60026
- heat conduction problems for hollow cylinder 4−65844
- Heisenberg antiferromagnet, anal. of paramagnetic phase 4−67335
- Heisenberg ferromagnet, biquadratic exchange effects 4−53200
- Heisenberg ferromagnet, first order theory and algebraic props. of Pauli operators 4−70126
- Heisenberg ferromagnet above critical temp. susceptibility and spin wave props. 4−53199
- Heisenberg ferromagnets, spin wave interaction effects on longitudinal dynamical susceptibility 4−82545
- Heisenberg isotropic antiferromagnet, spin waves above Neel point 4−64180
- Heisenberg model, anisotropic, single-magnon Green's function, generalized Hartree-Fock approx. 4−53198
- Heisenberg paramagnet, second order Green function theory 4−53196
- hydrodynamic equations for normal fluid in external field, Green's functions asymptotic behaviour 4−51461
- hydrogen-like atom, relativistic electric and magnetic susceptibilities 4−51960
- impure metal, electron-phonon interaction, u.s. absorpt. 4−52840
- impurity phonon scattering. by two-level impurities appl. of thermodynamic Green's functions 4−82375
- integral transform functions and separable potentials 4−59225
- Ising model, Green's temp. func. expansion of ladder approx. 4−49143
- Ising type linear quadrupole model, exact soln. determ. by Green's function method 4−74427
- kinetic equations, non-equilib. calcs. 4−59291
- kinetic function theory, Boltzmann eqn. generalisation *(Russian)* 4−59308
- Kondo effect, and X-ray absorpt., renormalisation and scaling 4−60948

Green's function methods continued
- Lamb's problem, three-dimens., soln. derivation by Cagniard-de Hoop method 4−62694
- large polaron ground state energy using equation of motion Green's function theory 4−44886
- large-momentum behaviour of Green's functions, analyticity in coupling constant 4−43391
- lattice Green's function for f.c.c. lattice 4−59305
- light-shift of hydrogenic states, Coulomb Green's function formalism 4−59916
- magnetism and Green's function of free electrons, coherent representation *(Russian)* 4−82542
- many-body function, integral eqns. *(Russian)* 4−55224
- many-body systems, integral eqns. for transition operators 4−66132
- mean Green's function of linear stochastic eqn., calculation guide 4−55197
- membrane, spherical and toroidal, dynamic characts. *(Russian)* 4−59213
- metal, one dimensional, with half filled band, finite charge renormalization 4−75772
- molecular compliance constants, triatomic mols., Green's function anal. 4−72117
- molecular vibrations, XY_4 tetrahedral ion calcs. 4−60033
- molecule, simple, vib. struct. in photoelectron spectra by Green's functions methods 4−56293
- molecules, photoelectron spectra, excitation with simultaneous ionisation investig., Green's function methods 4−66314
- moving boundary problem, asymptotic soln. *(Russian)* 4−55217
- multilayer structures, Van der Waals attraction 4−64628
- multiple scattering molecular model, free electron Green function 4−63395
- neutron pulses slowing down in heavy media analysis with lead spectrometer applics. 4−62508
- neutron star superfluidity, lifetime effect due to quasi-particle scattering 4−76840
- n.m.r. line shape theory 4−61045
- nonlinear differential equations, with nonlinear boundary conditions, conversion to integral eqns. *(Russian)* 4−55212
- nuclear particle-hole and particle-particle RPA, ground state correlations 4−71800
- nucleon Green's function from critical exponent calculation in static model 4−51682
- nucleon-nucleus scatt. intermediate structure anal. 4−81489
- nucleus-nucleus scatt. methods of equivalent local potential construction 4−71854
- one-dimensional lattice, Shockley and Tamm states calc. 4−49055
- one-phonon, self energy of phonon in anharmonic crystal to $O(\lambda^4)$ 4−56834
- open resonator embedded in uniaxially anisotropic medium 4−71475
- phase transition theory, 4-ε dimens., vertex functions and Green's function *(Russian)* 4−81262
- phonon model Hamiltonian Migdal approach of renormalization group 4−75587
- photochemical fragmentation, multiple continua sequential decay 4−61632
- photodissociation, predissoc., quantum mech. model, appl. to XCN system 4−75021
- photon Green's function expression 4−71627
- pion condensation in neutron stars 4−65174
- polar crystal, hot electron rate of momentum loss to longitudinal optic phonons 4−44934
- polaron, ground state energy 4−75820
- pole regularised spinor theory with dressed propagator eigenvalue eqns. 4−62897
- polyharmonic equation, inner radius of bounded domain 4−51290
- polymers in irregular conformation, B-matrix 4−75060
- pomeranchukon Green's functions in reggeon field theory 4−71722
- quantum crystal, phonon Green function mass operator derived, adiabatic, isothermal elastic const. investig. 4−63850
- quantum dilute gas, two-particle approx. for third virial coeff. 4−47218
- quantum propagators, reln. to geometrical parallel transport 4−74567
- quasiparticle-phonon coupling in spherical nuclei 4−43479
- R-matrix expansion, calc. of poles and widths of nuclear reaction collision matrix 4−71861
- radial electric dipole located close to ideally conducting circular cylinder, field calc. 4−74453
- radiative transfer, fundamental source function 4−55392
- random micrononhomogeneous elastic space, large macrohomogeneous strain problem 4−59113
- removal energies for single particles in nuclei 4−43508
- resonance fluorescence, Green's functions 4−78484
- Riemannian manifold, asymptotic of Green's function, Ito's stochastic integrals 4−51288
- scalar field in gravitational field, functional integral solution of single-particle Green's function 4−62910
- scattering potential for straight line segment 4−65738
- Schrodinger eqn. soln. in terms of classical paths 4−65724
- Schwinger-Dyson eqns., homogeneous, invariance under arbitrary Lie groups 4−77739
- self-energy of particle interacting with infinite nuclear medium, optical potential and ground-state properties 4−69218
- semiconductor, ambipolar transport noise in mag. field 4−44907
- semiconductor, deep centres, theory, review 4−75815
- semiconductor, disordered, Green's function approach to hopping conductivity theory 4−82399
- semiconductor, hot electrons, energy and momentum loss to lattice, Green's function method 4−79361
- n-semiconductor, intraband optical absorption in crossed d.c. electric and mag. fields 4−45274
- single-particle Green's function in anisotropic Heisenberg model, higher correlation functions 4−70133
- six-dimensional quadrature procedure 4−56105
- sound field, underwater propag., directional multipole sources, normal-mode theory 4−80799
- sound generation from primordial turbulence in expanding universe 4−68324
- spectral moments, approximation, Green's function decoupling comparison 4−67344

Green's function methods continued
- statistically irregular waveguides, Green's function method for perturbed boundary conditions 4−71467
- superfluid Bose system, sources of particles in Hamiltonian, real part exam. 4−52952
- superfluid Bose system sources of particles in Hamiltonian, density of condensate rel. to particles density 4−52953
- surface Green's function for two interface system 4−70060
- third-identity reln. to integral eqn. derivation 4−59061
- torsional wave propagation, infinite elastic medium, embedded rigid oblate spheroid 4−65713
- transition metal alloys, ordered binary, model approach to electron structure *(Russian)* 4−60724
- transition metal alloys, ordered binary, model approach to electron structure *(Russian)* 4−64010
- two particle-two hole levels in nuclei *(Russian)* 4−74733
- two-liquids mixture, microscopic theory with dissipative effects, linearized eqns. and Green functions 4−52951
- two-phonon Green's function for anharmonic crystal, poles in high temperature limit 4−60564
- type II superconductor, isolated vortex lines, core struct., low energy spectrum 4−64158
- uniaxial S=1 antiferromagnet, statistical mech., exchange interactions, Green function technique 4−82556
- variable charged oscillator in nonstationary electrodynamic field Green's function, explicit form *(Russian)* 4−77770
- weakly nonequilibrium system, eqns. of motion for parameters 4−55414
- Weyl self-interacting spinor theory, regularisation and parity 4−55555
- X-ray spectra, transition metals, Green's function calc. of zone struct. *(Russian)* 4−49481
- X-Y model in magnetic field 4−79478
- Yang-Mills field theory, asymptotic solns. of Green's functions eqns. 4−74550
- (d,p) reaction, anal. of two particles in continuum 4−55849
- (d,p)-stripping reaction effect of core excitations 4−69248
- Fe_3O_4, Green function theory of short- and long range order, Verwey ordering 4−57043
- H_2^+, two-photon ionisation, quantum defect model 4−52236
- H_2^+, variational perturbation calc. using Green function method on united atom 4−63398
- He II, kinetic coefficients 4−75661
- ^3He, superfluid, triplet pairing, self-consistent approx. for correl. functions 4−52963
- $KCl:H^-$-Na^+-H^-, cryst., localised modes of complex impurity, Green's function method 4−72540
- KH_2PO_4 type ferroelectrics, soft acoustic mode investigation, appl. of Green's functions 4−82254
- ^{206}Pb ground state wave functions calculation *(Russian)* 4−47637
- ^{210}Po ground state wave functions calculation *(Russian)* 4−47637
- Si(111) faces, surface band structure, pseudopotential calc. 4−75941
- VF_2, helical magnet, mag. props. investigation by Green's function method 4−76061

grinding
- lens grinding and polishing, rate depend. on lathe operating conditions 4−54876
- optical components, spherical diamond tool design 4−80883
- optical flat, machine design theory 4−80880
- optical materials, mechanism of diamond lapping process 4−58785
- optical surface, fabrication of aspherics, mathematical model for material removal 4−65422
- steel, noncorroding, austenite surface layer struct. changes due to grinding *(Russian)* 4−79942
- thin foil preparation, grinding jig 4−73332
- Be, grinding induced machining damage 4−49772
- MgO, machined crysts., residual stresses 4−49893
- Ni powder, plastic deformation during vibrogrinding 4−49863
- Ni/Al_2O_3, abrasive grinding, chemical bonding of Al_2O_3 to Ni 4−67889
- $SmCo_{4.8}$ and $SmCo_5$, metallography, adherence of swarf after fine grinding and polishing *(German, English)* 4−82866
- Yb, h.c.p.α, b.c.c.γ, self-diffusion, grinding method study *(French)* 4−72586
- ZrC powder, plastic deformation during vibrogrinding 4−49863

grinding mills *see grinding*

ground services, aerospace *see ground support systems*

ground support equipment
- *see also navigation; telemetering equipment*
- aircraft wake vortices, ground support device for sensing aircraft wakes 4−44068

ground support systems
- *see also navigation; telemetering systems*
- Goddard Space Flight Centre, STDN, NASCOM 4−46723
- Helios-A solar probe 4−58461
- spacecraft tracking system, v.h.f. interferometer 4−77090

grounding *see earthing*

group theoretical schemes
- lowering operators for $O^+(9)\rightarrow O^+(3)$ and $O^+(7)\rightarrow O^+(3)$ 4−71303
- maximal kinematical invariance groups of Schrodinger equations with arbitrary potentials 4−81219
- meson mass formula, gravitational soldering of dynamical and internal symmetry groups 4−77891
- $SU_3\times SU_3$ chiral-representation mixing, group-theoretic structure rel. to single-particle hadronic states 4−43421
- symmetry in physics 4−47024

group theory
- *see also Clebsch-Gordan coefficients; crystal symmetry; elementary particle theory; group theoretical schemes; Lie groups; SU_n theory*
- algebra of compact group, irreducible tensorial sets 4−71305
- anisotropy magnetic cubic systems, crit. behaviour 4−57229
- anti-unitary symmetry in quantum mechanical systems, extra selection rules 4−43183
- antisymmetrisation in relative coordinates, general theory for N particles 4−59697
- array languages, n-dim., and cryst. symmetry 4−48534
- Bloch electrons, eigenstates for irrational mag. fields 4−48884
- Bondi-Metzner-Sachs group, physical significance of topology 4−71630

- **group theory** continued
  - CNDO/2 calcs., improved first guess for density matrix using group theory 4-56733
  - computational algorithms 4-65619
  - conformal and projective infinity of space-times, new definition 4-47008
  - conformal spinor fields in general relativity 4-47197
  - covariance groups of electrodynamics from topological extension of space-time by e.m. gauge groups 4-71623
  - crossover rel. to lattice anisotropy parameter, renormalisation group verification 4-57238
  - crystalline media, magnetoelec. symm., e.m. props., elementary group theory 4-72931
  - crystallographic point groups, Kronecker product for representations 4-48535
  - d_2 type representation of the conformal group extended by reflections 4-68863
  - de Sitter spectra 4-55187
  - Dicke theory, spontaneous emission, group theory, second-order perturbation theory 4-47330
  - diffusion wave equation, Wentzell's boundary condition, rel. semigroup 4-51429
  - dilation group and dimensionless quantities in classical and relativistic hydrodynamics 4-63516
  - dynamical symmetries in quantum theory, review 4-77519
  - elementary particles, continuity of boosts for each orbit 4-74581
  - finite factorisable groups, construction 4-59034
  - finite G group, fusion control of p-subgroups *(French)* 4-47002
  - finite group, F-separated 4-51255
  - finite groups representation and asymptotic behaviour of symmetric manifold eigenvalues *(Russian)* 4-62662
  - finite groups with automorphisms inverting many elements 4-59035
  - finite subgroups of GL(n,Q) 4-47012
  - Galilei group transformation from inhomogeneous Lorentz group *(Hungarian)* 4-62661
  - geometrically reductive groups 4-47013
  - $GSp(4,F_q)$, Weil represent., factorization *(French)* 4-47001
  - $GSp(4,F_q)$, Weil represents. and $Sp(4,F_q)$ represents. *(French)* 4-47003
  - inhomogeneous space-time groups, quantum mechanical realizations of unitary representations 4-68862
  - inner plethysms, branching rules for decomposition of irreducible representation of general linear group 4-47015
  - irreducible complex characters of subgroups 4-65616
  - kets not strongly symmetry adapted, in electronic system descriptions 4-59227
  - Klein-Gordon equations, with scalar potentials 4-51413
  - knot cobordism, surgery in codimension 2 4-51252
  - Kronecker product of representations of crystallographic groups, reduction 4-82127
  - Kronecker products for representation of point groups having only one n-fold axis with $n \geqslant 3$ 4-77521
  - lattice dynamics, time reversal invariant projection operators 4-63864
  - lattice vibration modes, external, calc. for scheelites 4-44613
  - lattice-coupled magnets, crit. behaviour 4-57230
  - locally compact groups, factorisable, infinitely divisible projective-unitary-antiunitary representations 4-65608
  - Lorentz group, nonlinear realization, causality 4-43400
  - low-symmetry molecules, triplet states, zero field, spin-orbit coupling contrib. to raising of degeneracy *(French)* 4-52061
  - many-particle system with definite subsystem states, allowed states determ. *(Russian)* 4-71425
  - metal, cubic, rel. to magnetoresist. calc. 4-79334
  - molecular symmetry groups, alternative equivalent icosahedral irreducible tensors 4-59992
  - molecular symmetry in Heitler-London method, allowed mol. multiplets determ. 4-59994
  - molecular symmetry in Heitler-London method, point group rel. to electron permutation group 4-59993
  - N-nucleon system antisymmetrisation in relative coordinates, fractional parentage coefficients 4-59698
  - non-rigid molecules, isometric group approach 4-78434
  - nonlinear problem applications, conference, Istanbul, Turkey (August 1972) 4-47026
  - O_4, factorization, symmetry of hydrogen atom 4-51929
  - O_4, representations, energy levels of hydrogen and helium atoms 4-51930
  - parabolic equation, second order, covariant props. and symm. *(Russian)* 4-59044
  - particle masses and spins in arbitrary isotropic, spatially homogeneous cosmological models 4-76777
  - Poincare framework for position and spin operators of relativistic systems, general expressions 4-43398
  - Poincare group, mass zero indecomposable representations 4-69141
  - Poincare group, nonlinear realization, causality 4-43400
  - Poincare group generalization rel. to coordinate systems in Riemannian space-time 4-51441
  - point group representations, symmetrised powers 4-65730
  - point groups, symmetry coupling coeffs., Racah's lemma for phase standardization 4-56642
  - Polish groups, topological extensions, Mackey-Moore cohomology 4-71304
  - pseudo-orthogonal groups, absence of trivial subrepresentations from tensor products of unitary representations 4-81393
  - reduction on Lorentz sub group of U.I.R.'s of Poincare group 4-51699
  - relativistic symmetry groups 4-47203
  - renormalisation theory of dynamic critical phenomena 4-71438
  - saturated formation theory in locally finite groups 4-59033
  - Schrodinger group, connections with conformal group 4-68911
  - semigroup, generalized, of operators, perturb. theory 4-47020
  - $SL(2, \mathbb{C})$ symmetry of gravitational field 4-51440
  - SL(2,R), Fourier transforms of positive type distribs. *(French)* 4-43008
  - spinar formulation of general relativity, undergraduate level book 4-59277
  - spinor calculus in five-dimensional relativity 4-47193
  - spinor character of fermions 4-68924
- **group theory** continued
  - spinor convections in general relativity 4-65773
  - spinor five dimensional approach to electron and neutrino theory 4-47194
  - spinors, two-component, third order eqn. in quantum field theory 4-47010
  - spinors without spin structure 4-65763
  - supergauge transformations, Weiss-Zumino, systematic method of construction 4-66000
  - symmetry adaptation and spin-free and space-spin formulations of electronic struct. 4-59226
  - symmetry adapted functions construction using site symmetry 4-55331
  - symmetry in physics 4-47024
  - symmetry of n-electron wave-functions under various spatial groups 4-59997
  - third group integral of system of three one-dimensional particles, in terms of S-matrices 4-81239
  - translation invariant states of canonical commutation relation algebra, quantum mechanics 4-81213
  - $U(N) \supset O(N)$ state labelling problem for two rowed representations 4-74202
  - unification of external conformal symmetry group and internal conformal dynamic group 4-65606
  - uniform distrib. concept for groups which can be averaged *(German)* 4-77340
  - Weyl group representations generated by generalised free fields 4-47414
  - H, Stark effect, perturbation analysis using dynamic symmetry group *(Russian)* 4-69401
  - LaX(X=S,Se,Te), monochalcogenide, electron energy spectrum struct., optical props. 4-44837
  - Mn_2N magnetic structure analysis *(French)* 4-53243
  - $NaNO_3$, group theoretical selection rules and lattice mode determ. by neutron scatt. 4-79122
  - X_2Y_2 molecules, bent and linear forms, correlation between energy levels 4-60037
- **Gruneisen coefficient**
  - alkali halides, high press., lattice model calc. 4-72545
  - Bravais lattice, rhombohedral, quasiharmonic lattice dynamics, Gruneisen functions and thermal expansion calc. 4-79118
  - Bravais lattice, rhombohedral, short range central forces, understanding of Gruneisen parameters 4-79117
  - Bravais lattices, quasiharmonic lattice dynamics, mechanisms determining Gruneisen tensors of normal modes 4-79116
  - carbonaceous materials, meas. by electron beam induced stress waves 4-53944
  - cubic crystal, Anderson-Gruneisen parameter, delta, from third order consts. 4-75558
  - cubic crystal, volume depend. calc. 4-67008
  - diamond structure materials, evaluation from elastic data 4-60581
  - inert gas solid, melting press. depend., anal. 4-56863
  - melting point, most effective vibr. mode determ. 4-48742
  - metal, b.c.c., atomic vibration amplitudes 4-75603
  - PMMA, thermoelastic effect under uniaxial stress, linear expansion coeff., 295-355K 4-80098
  - polymer polycrystals, model 4-52900
  - polymers, near liquid He temp., calc. from acoustic meas., comparison with calorimetry data *(Russian)* 4-82279
  - Raman spectroscopy under pressure, diamond pressure vessel 4-71201
  - rare earth monosilicides, temp. depend. 4-60534
  - rutile-structure difluorides, Gruneisen parameters of optical modes calc., rigid ion model 4-75592
  - stishovite, determ. of volume dependence of Gruneisen parameter 4-44636
  - thermodynamics of solids under high press. 4-63932
  - zincblende structure materials, evaluation from elastic data 4-60581
  - Ag, volume depend. calc. 4-67008
  - Al, elastic constant data, u.s. attenuation meas. 4-66997
  - Al, volume depend. calc. 4-67008
  - As, using Debye temp. vs. at. vol. data 4-67006
  - Au, volume depend. calc. 4-67008
  - BaF_2, Raman spectra meas. rel. to press., phase transform., Gruneisen coeff. investig. 4-76246
  - Bi, using Debye temp. vs. at. vol. data 4-67006
  - CO_2, mol. cryst, intermol. pot. energy and Gruneisen parameter, lattice Raman spectra 4-56845
  - CaF_2, Raman spectra meas. rel. to press., phase transform., Gruneisen coeff. investig. 4-76246
  - CdF_2, Raman spectra meas. rel. to press., phase transform., Gruneisen coeff. investig. 4-76246
  - Cu, low temp. limit of Gruneisen's gamma from elastic constants data 4-44637
  - Cu, volume depend. calc. 4-67008
  - GaAs, ultrasonic attenuation and velocity 4-60557
  - HgTe, ultrasonic attenuation and velocity 4-60557
  - K, eqn. of state, second order elastic consts., temp. and cond. press. depend. 4-63887
  - KCl, volume depend. calc. 4-67008
  - $KTaO_3$, Raman scatt. data, vibr. mode anharmonicity 4-60574
  - LiD, thermal expansion and mode Gruneisen parameters 4-67056
  - LiH, press. and temp. derivs. of elastic moduli 4-82214
  - LiH thermal expansion and mode Gruneisen parameters 4-67056
  - ^7LiH, ^7LiD, specific heat meas., 5 to 320K 4-52901
  - N_2, molecular crystal, intermol. pot. energy and Gruneisen parameter, lattice Raman spectra 4-56845
  - N_2-type crystals, rot. mol. motion, thermal props. determ. *(Russian)* 4-56889
  - NH_4Cl, order-disorder transition press. and temp. depend., Raman scatt. obs. 4-53414
  - Na, equations of state, second order elastic constants, temperature and pressure dependence 4-63887
  - NaCl, low temp. thermal expansion coeffs. determ., tunnelling mechanisms 4-69926
  - NaCl, volume depend. calc. 4-67008
  - $NaCl:OH^-$, low temp. thermal expansion coeffs. determ., tunnelling mechanisms 4-69926
  - PbF_2, Raman spectra meas. rel. to press., phase transform., Gruneisen coeff., investig. 4-76246

Gruneisen coefficient continued
  - Pd, elastic constants meas., 295 to 850K, lattice and electronic contribs. 4−67877
  - Rb, lattice phonon modes 4−69869
  - Sb, usiing Debye temp. vs. at. vol. data 4−67006
  - Se, using Debye temp. vs. at. vol. data 4−67006
  - SiO$_2$, thermal expansion and phase-transition 4−63884
  - Te, using Debye temp. vs. at. vol. data 4−67006

Gudden-Pohl effect *see electroluminescence*

guided electromagnetic wave propagation
  - *see also guided light propagation; waveguides*
  - Earth-ionosphere cavity, Schumann resonance problem, convergence of zonal harmonic series representation 4−50302
  - e.l.f. atmospherics, propag. over mixed day-night path 4−83116
  - fluctuation growth anomaly near interference minima 4−71468
  - inhomogeneous nonlinear medium, TE mode propag. *(Russian)* 4−63643
  - magnetosphere, whistler-wave guidance along field aligned irregularity with quadratic distribution of ionization density 4−73570
  - plasma, mode conversion and wave scattering 4−69619
  - plasma waveguides, nonhomogeneous layered, surface wave emission *(Russian)* 4−63644
  - quasi-optical beam guide, with aberration correctors, numerical analysis 4−62788
  - radiowave depolarisation in nonuniform multilayered structures 4−51508
  - statistically irregular waveguides, Green's function method for perturbed boundary conditions 4−71467
  - u.l.f. generation by horizontal electric dipole 4−80383
  - v.l.f. propag. below anisotropic ionosphere, mode conversion coeffs. in Earth-ionosphere waveguide 4−83083

guided light propagation
  - *see also optical waveguides*
  - anti-Stokes fluorescence method for propag. visualisation *(French)* 4−71492
  - fibre, attenuation coeff., length and diameter depends. 4−69013
  - garnet film, quadratic magneto-optical effect on light propag. 4−76239
  - inhomogeneous optical square law medium, vector wave eqn. soln. 4−77621
  - optical fibre, graded index material, light propagation path, time and pulse response, theory *(French)* 4−69007
  - symmetric diffusion waveguide for capillary gas lasers 4−71544

Guinier-Preston zones *see crystal microstructure*

Gunn devices
  - *see also Gunn diodes; Gunn oscillators; transferred electron devices*
  - capacitative probe for domains in Gunn devices, evaporation deposition technique of production 4−54986
  - negative resistance induced by avalanche injection 4−70026

Gunn diodes
  - anomalous current oscillation at low temp. 4−72786
  - impact ionisation, current filament motion, linear theory 4−72788
  - manufacture processes, microwave oscillator applic. *(Italian)* 4−64500
  - slow high field domains, hole trapping and propag. conditions 4−53103
  - GaAs, n-n$^+$ epitaxial layer, mobility and carrier conc. 4−64087
  - GaAs, single crystal, dislocations produced by device fabrication 4−61320

Gunn effect
  - *see also limited space charge accumulation; negative resistance effects*
  - domain instability increment calc. 4−79367
  - domains, slow, propag. conditions and hole trapping effects 4−53103
  - semiconductor, radiation modulation using Gunn effect, appl. for laser beams 4−82689
  - GaAs, nonsaturating velocity-field characts., domain meas. 4−75870

Gunn effect devices *see Gunn devices*

Gunn oscillators
  - manufacture processes *(Italian)* 4−64500

guns, plasma *see plasma guns*

gyration *see rotation*

gyromagnetic effect
  - *see also gyromagnetic ratio; magnetic resonance*
  - paramagnetic liquid, torque acting on heated cylinder interpret. *(Russian)* 4−70137

gyromagnetic ratio
  - *see also g-factor; magnetic resonance*
  - nuclei with odd-A, Nilsson method determination from internal conversion data 4−43493
  - proton gyromagnetic ratio meas. improvement 4−65364
  - Ar I, transition probability between 3p^{5}ns-3p^{5}4p configs., calc. from gyromag. ratio 4−69410

gyroscopes
  - *see also navigation*
  - artificial satellites, attitude stabilisation, nutation *(French)* 4−46573
  - average elastic moment disbalance, minimisation *(Russian)* 4−47135
  - dynamically unbalanced asynchronous, in cardan suspension, drift speed *(Russian)* 4−47064
  - gas bearings, micro-ion milling 4−51664
  - gimbals, three frame, use of double channel method for reducing external noise effects *(Russian)* 4−47134
  - gimbals-mounted, motion anal. *(Russian)* 4−51386
  - gimbals-mounted gyro, drift on shaking platform *(Russian)* 4−51390
  - gyrocompass, two-rotor, with dampers, stability of motion in given coordinates *(Russian)* 4−55287
  - gyrostat, steady state motions in two-fixed centres problem *(Russian)* 4−51385
  - heavy, in gimbal suspension, eqns. of motion solns. *(Russian)* 4−74272
  - heavy, stability of regular precession *(Russian)* 4−74269
  - integrating, probability treatment of nonlinear vibrations *(Russian)* 4−74353

gyroscopes continued
  - kinematical drift of two-degree-of-freedom systems 4−55234
  - satellite attitude stability at libration points *(Russian)* 4−51383
  - triaxial space vehicle stabilizing system, periodic motions *(Russian)* 4−51384
  - unbalance, contactless suspension, motion in uniform gravit. field *(Russian)* 4−81138
  - vertical convection scheme using Kalman filter *(Russian)* 4−51387

H centres *see colour centres*

H i regions
  - atlas of 21 cm line profiles in direction of 43 hot stars and 34 X-ray sources 4−50700
  - atlas of contour maps of 21 cm line radiation for $|b| \geqslant 10°$ 4−46303
  - Cancer cluster, upper limits for 21 cm emission 4−50658
  - cold cloud, optical interstellar line studies 4−50698
  - Coma cluster, upper limits for 21 cm emission 4−50658
  - dense interstellar dust clouds, 21-cm. line profiles and HI content 4−58446
  - dust−H I gas association, 21 cm line strength and narrow emission line components 4−46304
  - galactic H I half thickness determ. 21 cm line obs. 4−62181
  - galactic plane, 21 cm. line obs. in longitude interval 339-72 degrees 4−65183
  - Gould's Belt, local galactic properties, model for H I distrib. 4−73804
  - Hat Creek 21 cm line survey, correction procedure for machine readable magnetic tape 4−50702
  - high velocity HI clouds, thermal-convective instability *(Russian)* 4−71060
  - homogeneity and kinematic temp., 21 cm line emission 4−73849
  - ionization by low energy cosmic rays or soft X-rays using interstellar absorption line obs. 4−50701
  - Khavtassi 3, HI 21-cm-line obs. of dark cloud 4−58447
  - kinematics of local interstellar H I, indication of separate subsystem 4−73848
  - Lyman α absorption, extension of OAO-2 survey 4−46301
  - M33, mass determ. from H I velocities 4−62186
  - M82, H I absorption by radio inferometry 4−80626
  - microwave recombination line obs. 4−62201
  - molecular abundances and formation on grain surfaces 4−46338
  - NGC 4472, upper limit to HI content, 21 cm line obs. 4−62182
  - North Polar Spur, H I cloud structure from 21-cm. line obs. 4−62202
  - Orion Nebula line of sight 158α and 166α recombination spectra of ^{1}H and ^{12}C 4−50699
  - Pegasus I cluster, upper limits for 21 cm emission 4−50658
  - Perseus cluster, upper limits for 21 cm emission 4−50658
  - structure of 200 clouds, 21 cm maps 4−46302
  - vertical motions above spiral arm 4−62187

H ii regions
  - AFCRL-UOA IR source No. 19, compact H II region, radio detection 4−65220
  - cocoon star gas and dust shell breakup producing high velocities in H II regions 4−65173
  - DR 21, broadband i.r. obs. in 800 μ-2 mm range 4−50711
  - DR 21, maps of spatial and kinematic struct. from H 76α obs. 4−80654
  - e.i. emission in 1.5μ-1.5 mm range 4−58441
  - extragalactic, calibration of linear sizes rel. to Hubble const. 4−73850
  - far i.r. obs., interpretation 4−73869
  - formaldehyde 6 cm line obs. rel. to ^{12}C/^{13}C abundance ratios 4−50707
  - G333.6-0.2, 34 μ energy distribution 4−68444
  - galactic centre direction, star form. in nuclear disc 4−73852
  - galactic centre radiosource complex, 1418 MHz obs. 4−73754
  - giant H II regions, formation from magnetic Rayleigh-Taylor instability 4−65219
  - IC 1318 structure from Hα and Ca II brightness ratios 4−83254
  - IC 1396, neutral H distrib., 21 cm line obs. 4−46306
  - IC 1795, H$_2$CO and OH distrib. 4−46307
  - IC 1795, survey of H$_2$CO absorption in dark clouds at 4830 MHz 4−46328
  - IC 434 and Orion region, 2700 MHz map 4−54566
  - i.r. emission by dust grains 4−80655
  - i.r. excess and dust grain absorption of trapped Lyman α photons 4−54567
  - K3-50, compact H II region,, i.r. spectrophotometry rel. to interstellar reddening 4−50704
  - M17, maps of spatial and kinematic struct. from H 76α obs. 4−80654
  - M42, image tube filter photography N II and O II lines, rel. to major ionization fronts 4−58440
  - M8, image tube filter photography in N II, rel. to major ionization fronts 4−58440
  - M 33, 1415 MHz obs. of H II regions 4−62188
  - M 33, physical studies of emission regions in spiral galaxy 4−65207
  - molecular abundances rel. to origin in stellar atmospheres 4−46308
  - multicolour far i.r. photometry in galactic plane 4−73851
  - NGC 1976, O III line ratios 4−50705
  - NGC 3199, shell nebula, monochromatic photographs in Hα and Nii 6584 A 4−83255
  - NGC 6334 and 6357, i.r. photometric obs. 4−73853
  - NGC 7538, 4.8 GHz obs. of nearby H$_2$CO emission 4−80656
  - NGC 7538, new i.r. sources discovered in 1.65-20μ range 4−46255
  - NGC 7635, galactic nebula, comet like structure 4−50710
  - OB star ionization of intercloud medium not associated with normal H II regions 4−80643
  - Orion A, He nα:H nα line ratios rel. to sizes of He II and H II regions 4−54515
  - Orion Nebula, 21 μ map 4−54571
  - Orion Nebula, association of paraformaldehyde emission with major ionization fronts 4−83251
  - Orion Nebula; maps of spatial and kinematic struct. from H 76α obs. 4−80654
  - Orion Nebula broadband i.r. obs in 800 μ-2 mm range 4−50711
  - Orion Nebula continuous spectrum, absolute spectrophotometry 4−62204
  - Orion nebula spherical model with filling factor unity 4−58386
  - radio recombination line emission from Galactic nucleus 4−76913

- **H ii regions** continued
  - radio recombination line obs. in direction of supernova 3C 391 4−50706
  - 166α radio recombination lines from C and possibly heavier elements 4−76915
  - RCW 38, H 90α radio recombination line obs. 4−54569
  - second survey of H ii regions in galaxies, Hα obs. 4−50708
  - Sh 2-157, i.r. source detect. at 2.2 μ 4−76876
  - southern galactic H II regions, H252 α radio recombination line obs. 4−76918
  - structure of 140 objects at 2.8 cm wavelength 4−46305
  - structure of dense cores 4−50709
  - tight mixing of neutral gas and dust with ionized gas 4−46309
  - type I OH sources, 6.3 cm excited line obs. 4−73752
  - W3, 0.70 and 0.92 μ obs. of three i.r. sources 4−76914
  - W3, new i.r. sources discovered in 1.65-20μ range 4−46255
  - W51, maps of spatial and kinematic struct. from H 76α obs. 4−80654
  - C line clouds and assoc. H II regions, radio obs. 4−83256
  - H_2O emission sources associated with southern OH sources, 22 GHz obs. 4−62203
  - H_2O sources, 1.35 cm. obs. of OH i.r. stars and complex H II regions 4−46249
  - Hα photographic survey of whole Milky Way 4−62205
  - He, low abundance due to selective absorption by dust, towards galactic centre 4−50703
  - He abundances in galactic H II regions from H and He radio recombination lines 4−54568
  - OH maser sources, IR pumping 4−76916
  - OH maser sources assoc. with H II regions, pumping by far i.r. radiation 4−54529
- **hadron classification schemes**
  - 0^+ nonet, assignment scheme, fit of decay characteristics 4−62990
  - 0^+ nonet assignment scheme S* (1000) effect 4−55646
  - baryon scheme in terms of $SU(6)_w$, coplanar subgroups 4−71655
  - baryon spectrum, even wave harmonic oscillator mechanism 4−69176
  - baryon spectrum degeneracy in harmonic symmetric quark model 4−47538
  - baryon structure and spin-parity grouping, oscillator theory 4−74641
  - baryon SU(3) breaking mass formulae, linear or quadratic, validity 4−77868
  - baryons within 27-plet, SL(3,C) description of magnetic moments 4−43408
  - broken SU(4) × SU(4) symmetry implications 4−59515
  - chiral SU(3) × SU(3) symmetry breaking, sum rules 4−47549
  - Feynman diagrams compensation, based on hadron octets, nonets and vector bosons 4−69107
  - isotopic symmetry, nonlinear and algebraic realisation 4−59519
  - ladder U(6,6) symmetry 4−51724
  - light-quark hadron spectroscopy, exptl. and angular momentum systematics 4−59580
  - matrix elements by Li-Pagels mechanism, scale and chiral symmetry breaking 4−71719
  - meson nonet mass formula in quark counting aspect 4−66051
  - mesonic spectrum, spinor quarks, potential approach 4−81423
  - mesons, $0^{\pm}$, broken chiral symmetry model, mass formulas in SU_3 sigma model 4−55645
  - multi-pion Born amplitude, symmetric group construction 4−47548
  - quark calculations, non-additive contrib., resonance photoproduction 4−77819
  - quarks, current and constituent, differences and relating unitary transformation 4−59579
  - quarks, current-constituent transformation, algebraic properties, hadron decays calc. 4−55634
  - single-particle states, group-thoretic structure of chiral-representation mixing 4−43421
  - SL(6c) gauge theory of strong interactions, introduction of gravitational interaction, f-g mixing 4−69120
  - SO(3) gauge model with vector-gluon field for e.m. corrections to semileptonic decays 4−71671
  - spontaneous symmetry breaking, loop approx., self consistency in Higg's model *(Russian)* 4−77779
  - SU_3 mass formulae, mass sum rules 4−55583
  - SU(3) × SU(3) configuration mixing, prediction as relativistic effect in naive quark model 4−62976
  - SU(3) particle mixing among mesons in SU(3) sum rules 4−62991
  - SU(3) spectroscopy, critical review 4−55644
  - SU(4) × SU(4) on approximate symmetry of hadrons, breaking parameter constraints 4−59516
  - SU(6) × SU(6) current algebra, classification according to irreducible representations 4−77781
  - U(6,6) relativistic generalizations of ladder complete set and classification scheme 4−66066
  - vector octet matrix elements, bootstrap equations 4−71705
  - $\beta\ \omega\pi$ decay and SU(3) breaking, strict duality in meson meson scatt. 4−62989
  - E meson SU(3) classification, (KK* + KK*) decay partial width 4−66067
  - $O^{\pm}$ mesons with linear breaking, renormalization of $SU_3 \times SU_3$ σ-model 4−59500
- **hadron current**
  - *see also current algebra*
  - baryonic, role in semileptonic weak interactions 4−47490
  - book, currents in hadron physics 4−62882
  - canonical gauge field theory of coloured quarks and gluons, Bjorken scaling violation 4−55630
  - Drell-Yan relation in bound-state model, breakdown due to spin complications 4−55561
  - electroproduction of higher spin resonances within generalized Joos-Weinberg formalism 4−59547
  - e.m. properties 4−69157
  - mass shift due to weak interactions, light-cone algebra framework 4−55588
  - neutral current interaction anal. in inclusive neutrino reactions 4−59544
  - neutral in semi-leptonic processes $\Delta T = 0$ 4−62912
  - quarks, current and constituent, differences and relating unitary transformation 4−59579
- **hadron current** continued
  - $SU(2)_l \otimes U(1)$ gauge model, universal renormalization in leptonic and semileptonic amplitudes 4−43411
  - toy gauge model, Cabibbo angle generation by weak interaction effects 4−71646
  - unified gauge models without charmed hadrons 4−62914
  - unified gauge scheme for weak and e.m. interactions, spontaneous Cabibbo suppression 4−71645
  - weak, construction using conventional quantum number gnome fields 4−55589
  - weak neutral current, coherent effects in elastic neutrino-nucleus scatt. 4−59530
  - weak neutral current effects in e^+e^- annihilation with polarised beams 4−62946
  - weak neutral currents characterisation, phenomenological study including conservation 4−59531
  - weak-interaction, charm nature, neutrino sum rule 4−59543
  - $\Lambda \to pe^- \nu_e$, tensor constants of weak axial vector current *(Russian)* 4−77795
  - νN interactions, muonless events, baryon current model 4−62927
  - $\Sigma^- \to ne^- \nu_e$, tensor constants of weak axial vector current *(Russian)* 4−77795
- **hadron decay**
  - *see also baryon decay; meson decay*
  - $\Delta T = 1/2$ rule for nonleptonic decays in gauge model of weak and e.m. interactions *(Russian)* 4−47477
  - weak and e.m. calcs. based on properties of current-constituent quark transformation 4−55634
- **hadron interactions**
  - *see also baryon interactions; bootstrapping; electromagnetic corrections; meson interactions; Pomeranchuk poles and trajectories; Regge poles and trajectories; Veneziano model*
  - binary-collision theory for multihadron production amplitudes 4−59595
  - charged particle left-right multiplicities, generating function techniques 4−47560
  - coherent state formalism for high-energy pion production 4−55657
  - diffraction dissociation, high energies 4−77902
  - dynamical model of high energy interactions, applicable to nuclear multiparticle production 4−66159
  - eikonal-type approximations, derivation, extension and renormalization 4−47417
  - energetic collisions in central region, particle ratios in statistical model, isobar decay effects 4−59598
  - fireball dimensions determ. by second-order interference between identical particle pairs 4−55652
  - fragmentation effect on eikonal phase, total cross sections and absorptive effects 4−55655
  - graviton emission in high energy hadron collisions *(Russian)* 4−74403
  - hadron + hadron → lepton pair + hadrons, parton-model description of hadron distrib. 4−59654
  - hadron-nucleon diffractive production, model for production on nuclei 4−71865
  - hadron-nucleon total cross sections, three-component model using quark counting 4−74699
  - hadron-nucleus collisions, Gottfried's model of multiple production of particles 4−43522
  - heavy nuclei, real and virtual photons shadowing 4−74616
  - heavy-particle production in high-energy collisions, cluster models 4−59594
  - high-energy, multiplicity distrib. under clustering assumption 4−66107
  - high-energy differential cross section, local Regge pole-Regge cut interaction, phenomenological model 4−74644
  - hydrodynamical model for multiparticle prod., transverse momentum bounds and scaling 4−59596
  - inclusive, bounds on average multiplicity and transverse momentum 4−71748
  - inclusive, geometrical anal. of increasing associated multiplicity with increasing transverse momentum 4−77928
  - independent cluster production at high energies, quark model interpretation 4−43444
  - inelastic processes, limits on impact parameters 4−55653
  - Koba-Nielsen-Olesen scaling, statistical model for early onset 4−47559
  - mass dependence of slopes, comparison of various parametrisations 4−43431
  - massless relativisitc string, methods for association of rest mass 4−47541
  - multibody final states, channel likelihood technique 4−62999
  - multiparticle production, two-component picture 4−81444
  - multiperipheral dynamics, general, upper bound on binomial multiplicity moments 4−51727
  - multiperipheral model, for $\geqslant 30$ GeV collisions 4−47563
  - multiple production, statistical theory, initial volume and multiplicity at high energies *(Russian)* 4−81433
  - multiplicity of nonlepton-nonlepton inelastic reactions, and inelastic interactions with nucleus *(Russian)* 4−71758
  - parton model, appl. to high-energy hadronic collisions 4−81425
  - Pomeranchuk statistical model, high energy collision, secondary particles, final-state interaction and comp. *(Russian)* 4−77890
  - quark-quark meson multiple production in hadron-hadron high energy collisions 4−55628
  - rising total hadronic cross section systematics 4−47600
  - spectroscopy, thermodynamic description *(Hungarian)* 4−47564
  - statistical thermodynamic theory, calc. of mag. susceptibility of neutron stars 4−62163
  - strong, scaling behaviour, generalized dimensional anal. 4−69184
  - strong interactions at high energy, expt. review 4−81439
  - total cross section, high-energy, role of baryon-antibaryon threshold resonances 4−74651
  - γ-hadron interactions, book 4−62943
  - μ-hadron, total cross section of Z boson bremmstrahlung high energy asymptotes *(Russian)* 4−77845
- **hadron leptoproduction**
  - *see also baryon production; meson production*
  - deep inelastic, light cone approach to strange structure functions 4−47523
  - deep inelastic, quark model, scaling behaviour 4−77835

hadron leptoproduction continued
- deep inelastic, quark-parton fragmentation models, Feynman's quantum number conjecture and triality 4−62977
- deep inelastic, struct. functions relns. test for charmed quarks in nucleon 4−74636
- electroproduction, asymptotic near freedom 4−59484
- electroproduction, consistency of SLAC data in parton picture 4−47534
- electroproduction, cross sections and correlation functions in quark parton model 4−55616
- electroproduction, deep inelastic, diffractive behaviour in resonance excitation model 4−62961
- electroproduction, deep inelastic, on polarised protons, sum rule derivation from quark light-cone algebra 4−59569
- electroproduction, deep inelastic, single-particle inclusive cross section in dual resonance model 4−47528
- electroproduction, exclusive, in massive quark model 4−47510
- electroproduction, final states as $\omega\to 1$ 4−55612
- electroproduction, highly inelastic, initial volume and multiplicity evaluation in statistical theory *(Russian)* 4−81433
- electroproduction, one-particle inclusive, connection with e^+e^- annihilation and pair production 4−59560
- electroproduction, virtual photon forward elastic scatt., analyticity of amplitudes due to microcausality *(Russian)* 4−77828
- electroproduction and photoproduction in resonance region, theoretical aspects 4−77849
- electroproduction of baryon $3/2^+$ isobars, quark model predictions of angular decay distributions 4−71673
- electroproduction of higher spin resonances within generalized Joos-Weinberg formalism 4−59547
- electroproduction of nucleon resonances, spin depend. struct. functions, SU_6 quark model 4−81408
- electroproduction of polarised hadrons, with polarised beams and targets, formulae 4−62944
- electroproduction of pseudoscalar and vector mesons, review of experimental data 4−77830
- electroproduction scaling in asymptotically free non-Abelian gauge theory of strong interactions 4−47530
- electroproductionlike processes invariant spectrum for equivalent-photon method 4−51717
- inclusive electroproduction, behaviour in Regge and scaling asymptotic domains 4−69163
- meson electroproduction, physical consequences of chiral symmetry 4−47459
- multiparticle production, asymptotic behaviour of form factors 4−71688
- neutrinoproduction, asymptotic near freedom 4−59484
- scalar meson production cross sections, asymptotic behaviour *(Russian)* 4−66037
- semi-inclusive deep electroproduction threshold connection with annihilation processes 4−62964
- vector meson electroproduction, diffractive process, review of data 4−77854
- vector meson electroproduction, exclusive, in massive quark model, scaling law 4−47510
- vectorial partons, structural functions of deep electroprod. *(Russian)* 4−69167
- e^+e^- annihilation, multipion generation in counterflow beam system, ρ' meson obs. *(Russian)* 4−74632
- $e^+e^-\to e^+e^-\eta'$, M=800 MeV event, beam energies 1.3 to 1.5 GeV 4−59559
- $e^+e^-\to\gamma$+hadrons, cross section calc., photon struct. functions 4−62965
- en→hadrons, deep inelastic, charged multiplicities in deuterium target 4−43419
- eN→pions in photon fragmentation region, Regge-Mueller and triple-Regge description 4−55615
- ep, $Q^2=0.4\text{-}2.2$ GeV^2, large angle proton and pion production 4−74624
- ep→eN*, symmetric quark model with modified Woods-Saxon potential 4−62939
- $ep\to en\pi^+$, near threshold, polar-angle dependence 4−66041
- ep experiments, review discussion of experimental data 4−77850
- $e^-p\to e^-p\eta$ near S_{11} (1535) resonance, differential cross sections compared with quark model 4−62955
- $e^-p\to e^-p\pi^0$, at $\Delta(1236)$ resonance, $q^2=0.3$ (GeV/c)^2, cross-section study 4−66042
- $e^-p\to e^-\pi^+n$, forward-charged-pion electroproduction meas. at large K^2 4−59567
- $e^-p\to e^-\pi^\pm X$, meas. of cross-section 4−59561
- K^+ electroproduction, pseudoscalar-versus-pseudovector interactions 4−47516
- $\nu N\to$multiparticle final state, coincidence hadron production, peripheral model 4−59542
- π deep inelastic electroproduction structure function, simple core model, threshold relations 4−77806
- π electroproduction, polarisation phenomena *(Russian)* 4−43413
- π electroproduction, test of current-current light-cone commutation 4−77836
- π electroproduction, virtual photon polarisation, t-channel selection rules *(German)* 4−71672
- π inclusive photo- and electroproduction, absorption corrections in Mueller Regge analysis 4−59563
- π production in ν interactions, distribution in current fragmentation region, quark-parton model 4−66024
- π^0 electroproduction on protons near threshold, four-momentum transfer 0.2, 0.4, 0.6 GeV^2 4−62953
- π^+ electroproduction, pseudoscalar-versus-pseudovector interactions 4−47516
- π^+ electroproduction at threshold, form factor at timelike momentum transfer 4−62931
- π^+ electroproduction in threshold region, coincidence expt. cross sections, nucleon axial vector form factor 4−55609
- $\pi^\pm\Delta$ electroproduction, modified Born term model 4−74613
- ρ meson electroproduction, Regge pole model 4−55614
- Σ^0/Λ ratio in electroproduction off protons, quark parton model 4−55620
- W-meson electroproduction on hadron target, energies much higher than threshold *(Russian)* 4−66039

hadron photoproduction
- *see also baryon photoproduction; meson photoproduction*
- data compilation 4−81414
- $\gamma_{(\nu)}$ inclusive reactions, duality, quark and parton models, scaling 4−77852
- $\gamma+p\to\pi^0+p$, 220 to 500 MeV, multipole anal. of cross-section data 4−47522
- $\gamma+p\to\pi^0+p$, 240 to 380 MeV, cross-sections meas. at small π^0 angles 4−47520
- $\gamma+p\to\pi^0+p$, 340 to 420 MeV, differential cross-section meas. near first resonance 4−47519
- $\gamma+p\to\pi^0+p$, 400 to 500 MeV, cross-section meas. between first and second resonance 4−47521
- $\gamma\gamma\to$multihadrons studied via $e^+e^-\to e^+e^-$ multihadrons, E=1.3 to 1.5 GeV 4−59559
- $\gamma_{(\nu)}N$ total cross sections, H_2 and D_2 targets 4−77853
- γp interactions with almost real photons, 20-100 GeV 4−59572

hadron production
- *see also baryon production; hadron leptoproduction; hadron photoproduction; meson production*
- binary-collision theory for multihadron production amplitudes 4−59595
- bounds on multiplicities and polynomial boundedness, axiomatic field theory 4−71603
- energetic collisions in central region, particle ratios in statistical model, isobar decay effects 4−59598
- hadron + hadron→lepton pair + hadrons, parton-model description of hadron distrib. 4−59654
- heavy-particle production in high-energy collisions, cluster models 4−59594
- hydrodynamical model for multiparticle prod., transverse momentum bounds and scaling 4−59596
- inclusive reactions, high-energy, diffractive component 4−66075
- mass dependence of slopes, comparison of various parametrisations 4−43431
- multiparticle production, two-component picture 4−81444
- multiparticle production in 200 GeV/c proton interactions with nuclear emulsion 4−59754
- multiplicity distribution at high energies, two component model 4−81438
- pomeron factorisation in hadron production processes 4−43422
- self-consistent model for production of charged particles 4−43424
- semi-inclusive rapidity correlations in cluster emission models 4−47615
- strong interactions at high energy, expt. review 4−81439
- virtual photon + virtual photon→hadrons, parton-model description of hadron distrib. 4−59654
- e^+e^- annihilation, new unitary bound 4−77822
- e^+e^- annihilation, self-damping, strong vacuum polarization 4−77821
- $e^+e^-\to\gamma\to$hadrons, scaled hadronic multiplicity distribs., rel. to pp collisions 4−77940
- $e^+e^-\to$hadrons, multiplicity behaviour in parton model with weak assumptions 4−55624
- $e^+e^-\to$hadrons total cross section, relative magnitude of one- and two-photon processes 4−59568
- $e^+e^-\to\mu^+\mu^-$ + hadrons, differential cross section in deep inelastic region 4−59570
- pp collision, charged particle multiplicities associated with large transverse momentum photons, ISR energies 4−59650
- Cu spallation, multireaction detectors, flux and energy spectra meas. of high energy hadrons 4−74149

hadron scattering
- *see also baryon scattering; bootstrapping; lepton-hadron scattering; meson scattering; Pomeranchuk poles and trajectories; Regge poles and trajectories*
- charge distributions of many particle final states and energy depend. of forward charge exchange 4−55697
- current-hadron scattering and scaling in a dual relativistic quark model 4−69170
- diffractive, self-consistent Regge eikonal model with crossed-channel unitarity 4−55647
- dual-resonance amplitudes, calc. of low-energy partial-wave parameters 4−71712
- elastic, on deuterons, Glauber theory, charge distrib. effects 4−55679
- elastic, radiative corrections 4−59548
- elastic and charge exchange scattering of strongly interacting particles, tables of data 4−74670
- elastic high-energy, general ideas and specific theoretical models 4−77911
- e.m. corrections to relativistic hadron scattering, using S-matrix methods 4−66029
- hadron-deuteron elastic scattering, screening correction, rel. to high energy inclusive processes 4−74697
- hadron-hadron, quark-parton fragmentation models, Feynman's quantum number conjecture and triality 4−62977
- hadron-hadron fixed angle scattering, integral equation for Regge behaviour discussion 4−66072
- hadron-neutron forward elastic scatt., from hadron-deuteron collision studies 4−55679
- hadron-nucleus scattering amplitudes, asymptotic behaviour 4−43525
- high-energy, scalar field theory $L_{int}=g\psi^2\varphi$ *(Russian)* 4−69181
- large angle scattering, correspondence principle relating inclusive and exclusive processes 4−55626
- minimal rule of Chou and Yang, test by summation of exclusive reactions giving inclusive spectrum 4−47558
- space-time structure of hadronic collisions, rel. to nuclear interactions 4−43441
- spin-3/2 targets, non-Abelian Compton effect 4−47517
- two-body charge and hypercharge exchange, s-channel partial-wave amplitudes in peripheral and central region 4−59627
- two-body target, explicit soln. and multiple scatt. expansion in frozen-nucleus approx. 4−47673
- two-particle t-channel unitarity, Pomeron shielding 4−62995
- wide-angle double-scatt. diag. derivation using Feynman parametric integral technique 4−71736

hadrons
see also baryon resonances; baryons; hadron classification schemes; hadron current; hadron decay; hadron interactions; hadron scattering; meson resonances; mesons
cosmic ray, $\varepsilon \geqslant 300$ GeV, device for identification using transient radiation 4−77171
electrons, possibility of hadron core 4−74714
extended quasi-classical objects, Regge slope, interpretation based on relativistic props. 4−74642
Schwinger model for min. e.m. mass *(Russian)* 4−81449
simulation using general relativity formalism *(Russian)* 4−81434
HgTe single cryst., growth, defects and phys. props. 4−53599
haemodynamics
see also blood
aortic and carotid flow acceleration correlation, maximum, in chronically instrumented dogs 4−58490
arterial blood flow, in horses, hot film anemometer velocity measurements 4−50745
arterial blood flow model, numerical analysis of oscillatory flow 4−75195
arterial stenosis, flow analysis by an integral method 4−73882
artery dynamic local distensibility, rel. to wave transmission 4−54636
blood flow in narrow tubes, peripheral plasma layer model 4−60267
blood viscosity, medical and engineering problems 4−65260
brain supply, digital simulation *(Czech)* 4−71088
capillary permeability, and sympathetic activity in canine subcutaneous adipose tissue 4−50751
cardiac output, continuous monitoring, non-invasive u.s. technique 4−81051
cardiac output, in the conscious rabbit, thermodilution technique appraisal 4−51196
cardiovascular forces, transfer through body 4−54640
circulatory system, model of response to acceleration stress 4−76942
constrictions in arteries, atherosclerotic, pseudo-sound generation, theory 4−83320
continuous volume determ., of a space in a non-steady state condition 4−73883
coronary blood flow, distribution across the canine heart wall during systole 4−50747
coronary collateral blood flow, direct measurement in conscious dog by an e.m. flow meter 4−58493
coronary flow, effect of myocardial strains 4−58489
e.m. measurement of blood flow, const. field interrupted reson. system 4−62656
energy conservation equation, in living tissue, error in 4−83295
entry flow in curved pipe investig., appl. to blood flow in aorta 4−78609
erythrocytes in capillary flow, theoretical model 4−48250
flow measurement, u.s. interferometric technique 4−50749
flow measurement 4−68821
flow measurement in bone, non-invasive approaches 4−68823
flow rate, and mean circulation time, direct and indicator-dilution measurements, comparison 4−51197
flowmeter, u.s. Doppler type 4−68822
laminar flow and blood oxygenation in channels with boundary irregularities 4−46369
lung multicompartment model analysis with ^{85}Kr and ^{133}Xe 4−81058
myocardial blood flow, regional in bands with concentric right ventricular hypertrophy 4−50744
myocardial blood flow, total and regional, in dogs and sheep, measured by microspheres and antipyrine 4−55123
pial vessels, transport of substances from cerebrospinal fluid to blood 4−50750
plethysmographs, strain-gauge and water, compared 4−81060
pressure control, reflex, during accute myocardial ischemia 4−50746
pulmonary venous flow patterns obs., radiological method 4−58558
reflex venoconstriction, and capacity vessel pressure volume relationships in dogs 4−58492
renal blood flow measurement, radionuclide techniques 4−46368
stationary flow simulation, passively distensible vessel model *(German)* 4−80698
stationary flow simulation, topologically variable model of branched rigid tubes *(German)* 4−80697
steady and pulsatile blood flow in circular tubes 4−66680
stroke volume, beat-by-beat, from aortic pulse pressure analysis 4−50748
tumour blood flow, response to radiation therapy 4−62323
ultrafiltering capillary, concentration polarisation 4−54637
u.s. measurements 4−65261
velocity measurement, thin film gauges 4−59021
venous, volumetric flow rate and flow channel volume determ. by solid-sphere radiotracer method 4−81108
white corpuscle motion in blood plasma *(Russian)* 4−60263
haemoglobin *see proteins*
hafnium
electrotransport of C, N and O, degree of purification prediction 4−44703
impurity in Zr and Zr alloys, meas. by neutron activation anal. 4−81083
interstitial oxygen role in plastic flow kinetics, 77-873 K 4−49784
lattice dynamics, modified Bhatia's model 4−52833
transformation, polymorphic, atomic mechanism *(German)* 4−73285
Hf IV, spectra, obs. of new lines and ionisation pot. calc. 4−63348
Hf V, configuration interaction, energy levels *(French)* 4−51935
p-Si-Hf, Schottky barrier height for holes determ. 4−67279
hafnium alloys
see also hafnium compounds
Cr-HfC system, quenched and annealed condition, phase diagram *(Russian)* 4−82833
Hf-Al-M, (M=group VIII metal), ternary Laves phases 4−63891
Hf-Cu alloys, hafnium rich, phase diagram, oxidation kinetics and microstruct. *(French)* 4−81639
Hf-Cu-Hg systems, X-ray anal., $HfCuHg_2$ struct. *(German)* 4−75479
$HfFe_2$, X-ray emission spectra, Laves-type lattice electron struct. *(Russian)* 4−53544
Nb-Ru-Hf system, phase diagram *(Russian)* 4−45540
hafnium alloys continued
Nb-W-Zr(Hf)-C effect of ultrarapid quenching from liq. state on struct. and phase comp. 4−79918
NbHf, supercond. and normal, quadrupole intraction, temp. depend. 4−79659
Ni-Hf, dilute, Curie point conc. depend. 4−57274
Ta-W-Hf, internally oxidized, struct. and mech. props. 4−45644
$V_2Hf_xZr_{1-x}$, composite-processed Laves phase tapes, supercond. current capacities 4−72905
W-Hf-C, vacuum arc melting 4−76420
W-Re-Hf-C, comp. effects on mech. props. 4−80003
hafnium compounds
see also hafnium alloys
CaO-HfO_2 system, fluorite related phases 4−48740
$GfSi_x$, form. of diffusion layer, kinetics, 1150-1300°C, struct. and microhardness 4−44784
Hf-HfO_2 system, phase relations in HfO_2-rich region 4−45749
HfC, microhardness temperature dependence, from room temp. to 1973K 4−67900
HfC, superconducting transition point and electron mass enhancement factor calc. from augmented plane wave theory 4−49113
HfC, thermal cond., 1500-2500°C 4−79198
Hf(IV)-O_2^- ion-radical complex, structure determ. by e.s.r. 4−66366
HfN, thermal cond., 1500-2500°C 4−79198
HfO, gaseous isomolecular O-exchange reaction, thermodynamic props. 4−57819
HfO, HfO_2, mass spectra determ. of ionisation pots. 4−52234
HfO_2 crystal, Mandel'stam-Brillouin light scattering 4−53394
HfO_2 dispersion in Ni, pressing behaviour of powder mixtures with Cr 4−70532
HfO_2 film, gate insulator for CdS m.i.s. struct., evaluation 4−82490
HfO_2 + Li liquid reaction 4−83027
HfP_2O_7, self-activated luminescence efficiency and emission energies, obs. 4−57638
$HfSiO_4$, hafnon, elec. quadrupole interaction of ^{181}Ta, perturbed ang. correlation tech. 4−49281
$HfSiO_4$, hafnon, Raman spectra, comparative study with $ZrSiO_4$ 4−45291
$HfTiO_4$, fracture toughness, effect of microstruct. factors 4−61502
NiO-HfO_2, phase comp., range of concs. and temps. 4−57759
half adders *see adders*
half-lives (radioactive) *see radioactive decay periods*
half wave rectification *see rectification*
half wave rectifiers *see rectifiers*
halides
see also alkali metal halides; halogens
alkaline earth mixed halides, $M_{1-x}Eu_xFCl$, M=Ca, Sr, Ba luminescence spectra *(French)* 4−64430
alkaline earth monohalides, radiative lifetimes 4−56265
bond distance, rel. to ionicity 4−47940
crystal structure parameters, space groups and lattice constants, data collection 4−60464
diatomic, SCF MO calcs. of electronic struct. 4−56148
fluoride, flux growth under reducing conditions, apparatus and procedure 4−57684
fluorides, binary, dielec. behaviour *(French)* 4−61094
fluorides, molten, single and binary, conductance, density, viscosity and surface tension data, summary 4−70019
group II dihalide molecules, valence angles 4−66360
group III halides, $2MX_3 \rightleftharpoons M_2X_6$ (M=Al or Ga, X=Cl, Br or I), variable temp. He I photoelectron spectra 4−52256
group-V trihalides, vapour phase Raman spectra, Raman band contour anal., Coriolis and force const, thermodynamic functions 4−66437
ion + inert gas atom repulsive interaction pot. curve calc. 4−66350
metal, d.c. arc column, plasma state 4−82055
rare earth fluorides, impurity-conditoned solid-solid transition and melt growth 4−60614
superheavy element compound, $E110F_6$, mol. orbitals calc. by self-consistent multiple scatt. Xα method 4−66373
univalent halides, phase transitions and elasticity-density relations 4−67034
Ag halide grains in photoemulsion, blacking function sensitivity *(German)* 4−62485
$E110F_6$, ground state one-electron energy states, calc. by self-consistent multiple scatt. Xα method 4−66373
H, vibr. excited, bibliography on kinetics of chemiexcitation and energy transfer 4−80188
Hall constant *see Hall effect*
Hall effect
33 GHz semiconductor dielectric and Hall mobility meas. 4−65497
conducting thin layers, galvanomag. phenomena theory *(Russian)* 4−79338
conduction mechanism, semiclassical model, monoenergetic localized states, mobility calc. 4−79339
disordered system, resistivity theory from random force correl. formula 4−57077
in electrolyte solns., semiconductor model interpretation 4−50177
Fermi energy rel. to estimating Hall coeff. rate of change 4−60784
ferromagnetic, d.c., nonexistence of dipole-driving mechanism 4−53086
graphite, band parameters evaluations, using Yazawa's model *(Japanese)* 4−72800
graphite, fields up to 500 kOe, 4.2K *(Russian)* 4−82435
magnetic domain wall propagation, in ext. mag. field, current perturb. in adjacent Hall effect material 4−45136
magnetic metal, Hall coeff. near phase transition 4−67205
membrane/electrolyte systems, Hall effect meas., elec. transport processes investig. *(German)* 4−68008
metal, induced and intrinsic anisotropy effects, review 4−44896
metal, low temp. resist. theory *(Russian)* 4−70011
MGD flows of finite cond. past wedge profile, Hall effects investigation 4−60233
plasma, effect on torsional Alfven waves 4−78762
plasma, Hall current effect on anisotropic plasma jet instability 4−75233
plasma, Hall effect on linear and nonlinear theories of MHD wave propag. *(Italian)* 4−75236

Hall effect continued

- plasma, reverse current due to relativistic electron beam 4−75263
- rare-earth metal, side-jump effect contrib. to extraordinarily Hall resistivity 4−64067
- semiconductor, carrier mobility meas. by Van Heek method, improved circuit 4−51106
- semiconductor, Hall coeff. meas., contact size effects 4−80958
- semiconductor, inhomogeneous, two probe analysis of pot. gradient variation 4−46754
- semiconductor, transport in surface vicinity with strong band-bending 4−72844
- semiconductor, transport props., isolated inclusions effect 4−70012
- semiconductor in magnetic field, potential equation using expansion technique 4−70038
- semiconductor mobility meas., influence of magnetoresistance 4−64073
- semiconductor thin film, vacuum deposited, Hall studies, new apparatus 4−58863
- SOS, gate bias depend., Al autodoping 4−67232
- spontaneous field in Ni and Invar alloy crystals *(Russian)* 4−57081
- stellar atmosphere, thermal-convective instability with rotation and Hall effect 4−58290
- stellar atmospheres, thermal-convective instability with Hall effects 4−54464
- TCNQ charge transfer complexes, temp. depend. 4−70200
- tetrahedral amorphous semiconductors, transport meas. 4−79360
- thin film, device for meas. during deposition 4−46762
- vanadium-bronze, microwave mobility meas. 4−48972
- n-YIG:Si, elec. cond., thermoelec. power, Hall effect and magnetoresist. meas., mag. effects 4−79349
- Ag, film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
- $AgGaS_2$, acceptor levels, n- and p-type 4−82403
- Ag_2S, $Ag_2S_{0.5}Te_{0.5}$, electron mobility and effective mass, from cond. and Hall const. 4−44911
- AgTe, metal like semicond. melt, Hall coeff. meas. 4−79371
- n-Ag_2Te, temp. and carrier density depends., carrier mobility 4−70039
- Al-Cu, experimental obs., comparison with two band model 4−60782
- Al-Cu-Si, experimental obs., comparison with two band model 4−60782
- Al-Si, experimental obs., comparison with two band model 4−60782
- $Al_xGa_{1-x}As$:Ge, Sn epitaxial layer, elec. props. rel. to semicond. layer applic. 4−57095
- As-Te-Ge-S-Si systems, Corbino disc a.c. mobility, amorphous 4−75902
- $As_2(Se,Te)_3$ glasses, temp. depend., small polaron model 4−75903
- As_2Se_3, liq., mobility meas. 4−75881
- As_2Te_3, localised band tail and extended states cond. 4−75867
- Au, film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
- Bi, Hall components of magnetoresist. tensor, 5.6-65K *(Russian)* 4−72804
- Bi, influence of twins on elec. and galvanomag. props. 4−79351
- Bi, thickness depend. of Hall const. sign *(French)* 4−53106
- Bi film, thickness depend., 77-300K 4−60884
- Bi-Sb alloys in strong magnetic fields at 4.2K *(Russian)* 4−57265
- BiSb alloy, gapless state transition in mag. field, galvanomag. meas. rel. to band edge motion 4−57115
- Bi_2Se_3, melt-grown, electronic props. 4−82360
- Bi_2Te_3, metal like semicond. melt, Hall coeff. meas. 4−79371
- C, amorphous, nonmetal-to-metal transition obs. 4−57150
- Cd, pure and dilute alloys, temp. depend., mechanism 4−60787
- Cd-Mg (up to 10 at.%) alloy, temp. and comp. depend. 4−48967
- $CdGeP_2$, obs. of energy spectrum and carrier mobility, 200-400K 4−48981
- $Cd_xHg_{1-x}Te$, longit. magnetoresistance and Hall coeff. meas. in strong mag. fields, 1.8 to 300K 4−75891
- Cd_3P_2, determ. of cond. band non parabolicity, obs. of electron effective mass 4−53047
- n-CdS, anomalous mobility behaviour, elec. evidence for impurity pairs 4−72798
- n-CdS, electron irrad. damage, annealing kinetics obs. 4−44564
- CdS, inhomogeneous elec. cond., effect on Hall mobility meas. 4−44935
- CdS, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
- CdS, thin film, Hall coeff. meas. 4−58863
- CdS, thin film, surface scatt. effects 4−45029
- n-CdSb:In(Te), obs. of anomalous temp. depend. effects 4−48983
- CdSe, nature of fast recombination centres 4−67257
- CdSe, shallow donor ionisation energies determ. from Hall data anal. 4−75811
- CdSe, with cond. memory, conc. and Hall mobility of electrons *(Russian)* 4−72838
- n-$CdSnAs_2$, pressure depend. meas. up to 10 kbar, complex band struct. 4−75856
- n-CdTe, anomalous mobility behaviour, elec. evidence for impurity pairs 4−72798
- CdTe, electrical properties of centres with deep levels from temp. depend. Hall coeff. *(Russian)* 4−67636
- p-CdTe, electron irrad., defect annealing behaviour 4−60755
- CdTe, ion implantation, lattice disorder and elec. activity 4−79886
- CdTe, ion implanted layer, electrical activity and radiation damage 4−72498
- CdTe, photosensitivity, Hall mobility and photoresponse meas. 4−53124
- CdTe, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
- CdTe:O, luminesc. and elec. props., form. of complex centres 4−76309
- $Ce_{3-x}S_4$ ($x=0, 0.06, 0.28$), elec. props., depend. on composition and temp. 4−44936
- Co, temp. depend. in pure polycrystalline samples 4−53087
- Co-Fe film, 80-100% Co, anomalous Hall const. 4−49090
- Co_2Si-Ni_2Si, comp. depend., 80-350K, interband transition mechanism *(Russian)* 4−60725
- $Cr_{5-x}V_xGe_3$, solid soln., mag. susceptibility elec. resistance, thermo-e.m.f. and Hall coeff. 4−53215

Hall effect continued

- Cu, film, optical and elec. props. with different lattice defect concs. *(German)* 4−70082
- Cu film, vacuum-deposited, thickness/temp./time dependences, obs. *(Japanese)* 4−44897
- Cu-Bi(In)(Sb)(Sn) alloys, liq., comp. depend. of Hall coeffs. *(Japanese)* 4−44898
- $CuFeS_2$:Al(In), characterisation 4−61319
- $Cu_{2-x}Te$, film growth, cond., carrier mobility 4−45443
- Dy, side-jump effect contrib. to extraordinary Hall resistivity 4−64067
- Dy_2S_3, transport props. and mechanism, single crysts. 4−48969
- $FeAs_{2-x}Se_x$, marcasite struct., characterisation 4−49154
- FeS_2, natural cryst., evidence of n-type semicond. 4−72769
- Fe_xSe_y, carrier conc. and mobility determ. 4−60833
- n-GaAs, 78 to 400K 4−49025
- GaAs, band struct., influence of impurity ions under moderate doping conditions, expt. 4−48914
- n-GaAs, band structure, three band model 4−72704
- p-GaAs, compensated by defect prod. by fast electron irradiation 4−75898
- GaAs, epitaxial layer, Cu contamination effect on electron mobility 4−75888
- GaAs, epitaxial layers, evaluation for microwave devices 4−45460
- n-GaAs, Hall factor meas. 4.5-300K 4−72796
- GaAs, heat treatment, effect on electrical properties *(Korean)* 4−72797
- GaAs, implanted layer elec. props. 4−75864
- GaAs, ionization energy of shallow donors, mag. field effect determ. 4−60760
- GaAs epitaxial layer, liquid phase grown on semi-insulating substrate 4−64088
- GaAs epitaxial layers, grown in $AsCl_3$-Ga-N_2 system, characterization 4−53611
- GaAs epitaxy, characterisation 4−70417
- GaAs:Cr, semi-insulating, meas. of carrier mobility, mixed conduction obs. 4−53108
- GaAs:Fe, compensation mechanism obs. 4−48933
- GaAs:Ge, Si-Te epitaxial layer, elec. props. rel. to semicond. layer applic. 4−57095
- GaAs:Zn, annealing behaviour, carrier conc. 4−44939
- GaAs-Te, obs. of heat treatment effects on struct. perfection 4−48759
- $GaAs_{0.62}P_{0.38}$, elec. props., effect of reactant gas vapour pressure during growth 4−57709
- GaP, annealing effect 4−49012
- n-GaP epitaxial layer, impurity parameters detn. *(Czech)* 4−64511
- p-GaSb, high field, uniaxial stress effect 4−49008
- GaSb:Li compensated, free hole and hopping transport props., coeffs. meas. 4−53110
- GaSe, carrier mobility obs., anomalous valence band anisotropy 4−48911
- GaSe, effect of interaction of holes with optical phonons 4−75893
- GaTe, metal like semicond. melt, Hall coeff. meas. 4−79371
- Gd_2S_3, transport props. and mechanism, single crysts. 4−48969
- $GdZn_{1-x}In_x$ and magnetoresistance anomalies, ($0 \leqslant x \leqslant 0.15$) 4−64102
- Ge, comparative meas. for effects of dislocations introduced by deformation at 350°C and 600°C 4−49005
- p-Ge, even effect meas., ang., conc. and temp. depends. 4−57109
- Ge, film, cryst. struct. and elec. props. 4−72657
- Ge, film, elec. and optical props., impurity and defect effects 4−79419
- Ge, irradiated with 30 keV Ga^+ ions, electrical characts. 4−67236
- Ge, mag. field depend. and carrier density determ. 4−44943
- Ge, monitoring of Cu and Ni solid soln. precipitation 4−73269
- p-Ge, piezoresist. and piezo-Hall effect 4−57119
- Ge, twisted specimens, screw dislocations, electronic states, carrier density and Hall mobility obs. *(German)* 4−69991
- p-Ge film, elec. cond., Hall coeff. and hole mobility, 20K, two-layer model interpretation 4−82502
- Ge high-purity, low temp. Hall anal. reln. to use as gamma-ray spectrometer 4−53107
- n-Ge:Li, neutron irrad., Hall effect obs. of acceptor levels 4−56780
- $GeSe_4Te_7$, single crystals, elec. props. meas. 4−44922
- n-$Hg_{0.8}Cd_{0.2}Te$, 1.8-77K, high and low mobility samples 4−67234
- HgSe, Hall coeff. and mobility meas., temp. depend. 4.2 to 300 K 4−44942
- HgSe, intrinsic carrier conc., temp. depend., overlap energy 4−75895
- Ho, anomalous effect in single crysts. in helicoidal mag. ordering region *(Russian)* 4−79337
- Ho, Hall coefficient anisotropy of single crysts. above Neel pt. *(Russian)* 4−60778
- ice:HF, cryst., Hall mobility meas., double freq. method 4−75887
- In, galvanomagnetic props., anisotropy, Fermi surface contrib. 4−48964
- InAs, donor-acceptor interaction investigation from Hall effect and microhardness meas. 4−67237
- InAs, epilayer, anomalous transport coeffs. 4−79417
- InAs:Zn,Te, carrier conc., impurity conc. depend. rel. to solubility limit, Hall meas. 4−75818
- $In_xGa_{1-x}As$, epitaxial layer, electron Hall mobility meas., phonon and disorder scatt. 4−45028
- $In_{1-x}Ga_xP$:Te, Hall mobility, comp. depend., 300K 4−75890
- $In_{1-x}Ga_xP$:Te, temp. depend., conc. var. 4−82408
- InP, ionization energy of shallow donors, mag. field effect determ. 4−60760
- n-InP, magnetophonon effect, warm electron relax. 4−57107
- n-InSb, and activated conduction, 4 to 30K 4−72778
- n-InSb, doping characts., systematic control by nucl. reactions 4−70428
- p-InSb, effective mass of holes determ. from galvanomag. meas. 4−79372
- InSb, electron drift and Hall mobility at 30, 77 K, impurity effects, calcs. 4−53095
- n-InSb, existence of donor states occupying two non equivalent lattice sites 4−49007
- n-InSb, Hall mobility, 20-77K 4−49014

Hall effect continued
  InSb, magnetoresist., effect of sample geometry on meas., conformal mapping technique 4−53112
  n-InSb, strongly doped, quantum oscillation of Hall constant, temperature influence *(Slovak)* 4−67231
  n-InSb, surface defects and mag. freezing, Hall and cond. meas. *(German)* 4−70037
  p-InSb, temp. and intensity depend. *(Russian)* 4−49001
  n-InSb, temp. depend., existence of two nonequivalent lattice positions of donors 4−67233
  InSb, thickness dependence of galvanomagnetic props. 4−79369
  n-InSb, two-photon absorption and recomb. processes obs. 4−82452
  K, high and low-field limits of Hall coeff., comment 4−48968
  K, longitudinal helicon oscills. obs., magnetoresistance and Hall coeff. meas. 4−57079
  K, low field Hall coeff., temp. depend. 4−64060
  KBr, with F-centres, low temp., polaron model interpretation 4−64103
  Mg-Cd (up to 10 at.%) alloy, room temp., comp. depend. 4−48967
  Mg_5Hg_3, prep. and elec. behaviour, 4.2 to 297K 4−79325
  $NbSe_2$, speculations on Fermi surface 4−44841
  $NbSe_2$, supercond., press. depend. of Hall coefficient 4−64150
  $NbSe_2$, transport props., variation with temp. and purity 4−53105
  Nd_2S_3, transport props. and mechanisation, single crysts. 4−48969
  (Ni,Cu)Al, β-phase, rigid band model approach to electron transport props. 4−67197
  $Ni_{1-x}S$, elec. props. exam., metal-semiconductor transition at 265K 4−75930
  $Pb_{0.0995}Ge_{0.005}Te$, 300-950K, heavy hole localization effect 4−72770
  PbS, n- and p-type, heavily doped, anomalous magnetoresist. obs. 4−49010
  PbSe, epitaxial, vapour deposition, carrier conc., mobility and Hall effect meas. 4−53614
  PbSe, epitaxial film, galvanomag. meas., O_2 and H exposure effects 4−75979
  n-PbSe, obs. of lattice vibs. and dispersion of free carries 4−48719
  $Pb_{1-x}Sn_xSe$, epitaxial, vapour deposition, carrier conc., mobility and Hall effect meas. 4−53614
  $Pb_{0.82}Sn_{0.18}Te$, mag. remanence and elec. props., 78-500K *(Russian)* 4−57116
  $Pb_{0.82}Sn_{0.18}Te$, temp. depend. of intrinsic carrier conc. and mobility ratio 4−82415
  p-$Pb_{1-x}Sn_xTe$, temp. depend. obs., 4.2 to 450K 4−57108
  Pd-H system, rel. to degree of struct. of proton reson. line *(Russian)* 4−67469
  α-Pu, neutron irrad. in liq. nitrogen and isochronal annealing effects 4−59848
  Re, single crysts., 4.2K, strong mag. fields *(Russian)* 4−79336
  Sb_2Te_3, Sn impurity behaviour and effects on elec. props. 4−67065
  Se-Te, liq., mobility meas. 4−75881
  n-Si, anisotropy, theory 4−49016
  nSi, Co acceptor state, temp. depend. of energy level and capture cross section 4−75812
  n-Si, conc. depend., 300 and 77K 4−60817
  n-Si, degree of compensation determ. from Hall mobility 4−73270
  Si, homoepitaxial, exposed to neutrons 4−66941
  Si, polycryst., pure, electronic props. 4−44925
  p-Si, rel. to defect cluster form. by neutron irrad. 4−79067
  n-Si, scattering parameters determ. 4−44941
  Si, thermally cycled to 850K, Hall coefficient and mobility 4−44945
  n-Si on sapphire, elastoresistance effect 4−67210
  Si single crystal film, dielectrically isolated and defined by electrochem. etching, mobility obs. 4−57097
  Si:Bi, charge carrier and B conc. profiles comparison 4−64504
  Si:P, He^+ irradiated, sheet resistivity and Hall meas. to detect conductivity changes 4−82822
  Si:P, polycrystn. film, annealing effect 4−45027
  Tb, side-jump effect contrib. to extraordinary Hall resistivity 4−64067
  Te, crystal, a-edge-dislocated, hole mobility 4−64084
  Te, undeformed and plastically deformed, hole transport, ohmic conductivity and Hall effect 4−82411
  Te film, hole mobility, surface scatt. effects 4−49094
  Te single crystals, plastic deform. influence, meas. 77 to 300K 4−60814
  TiC_x, nonstoichiometric, temp. and vacancy conc. depend. 4−48985
  p-$TlSbTe_2$, 300-700K, many valley valence band struct. 4−72771
  YZn, field depend. sign reversal, rel. to band struct. 4−44900
  Yb, anomaly at 590K, polymorphic transition 4−72571
  $ZnCr_2Se_4$, resistivity, Seebeck and Hall effects meas., 77 to 300K heat treatment effects 4−60793
  ZnSe, elec. and optical props. 4−61235
  ZnSe, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
  p-$ZnSiAs_2$, effective mass of holes investigation 4−67241
  p-$ZnSiP_2$, 200-1000K, hole effective mass determ. 4−72799
  $ZnSiP_2$, doped with Ga and In, prep. and elec. props. *(German)* 4−82820
  $Zr_xNb_{1-x}C$, solid soln., temp.-conc. depend. of Hall const. and resistance, cond. mechanisms 4−44937

Hall effect devices
  Hall probe, determ. inhomogeneous mag. field components 4−68742
  magnetic field measurement and control system for spark source mass spectrometry 4−51217
  magnetometer, bridge cct. *(Spanish)* 4−46766
  probe, for smallest magnetic fields meas. *(German)* 4−80960
  InSb Hall plate for mag. field meas., nonlinearity reduced 4−42840

Hall effect transducers
  magnetic field sensors, in differential system controlled by n.m.r. gaussmeter *(Polish)* 4−54994
  probe calibration for induction range ⩽3T *(German)* 4−46763

Hall generators *see Hall effect devices*

halogens
  see also astatine; bromine; chlorine; fluorine; halides; iodine
  atom, neutral, position of sp^6 config. 4−78318
  chemiluminescence photon yields on reaction with alkaline earth metals 4−57825

halogens continued
  gas-phase halogen atom recombination, role of charge transfer interactions 4−57861
  interhalogens, diatomic, selected valence electron split-shell mol. orbital calcs. 4−43773
  linear halogen compounds, SCF MO calcs. of electronic struct. 4−56148
  marine atmosphere, halogen photolysis rates 4−64904
  in meteoritic and lunar samples 4−62083
  molecular anion, X_2^-, as V_k-centre, optical transition characts. 4 64411
  recombination mechanism, halogen atoms in inert gas diluents 4−80170
  CdTe halogen-doped γ detector developments 4−46824
  ICl, vib. depend. of dipole moment of $A^3\pi_1$ state 4−47970

Hamidashi effect *see ferroelectric phenomena*

handling, materials *see materials handling*

handsets (telephone) *see telephone sets*

Hanle effect
  heading is late addition, see also energy level crossing
  atom, optical pumping, nonlinear effects, exact theory for small ang. momenta 4−56019
  cubic crystal, optical orientation of bound excitons in longit. and transverse mag. fields *(Russian)* 4−76291
  magnetic resonance saturation effects r.f. field effects on optically pumped paramagnetic atoms 4−47854
  n-octane: porphin, cryst., e.s.r. in photoexcited triplet state 4−81795
  signal correction for asymm. scatt. region, lifetime meas. 4−78341
  toluene, in benzene cryst., lowest triplet state, MIDP, zero-field splitting 4−60015
  Ar, lifetimes of 2p levels by Hanle effect and double resonance meas. 4−43733
  Ba I, 6s6p $^3P_1$ level, tensor polarizability 4−81717
  $Cd^+ + He$ collision, Cd $5^2P_{3/2}$, $5^2P_{1/2}$ states lifetime and depolarisation, Hanle effect meas. *(French)* 4−47904
  p-GaAs, interpretation for optical excitation above band edge 4−49446
  p-GaSb, interpretation for optical excitation above band edge 4−49446
  ^{201}Hg, Hanle effect in ground and excited states 4−69418
  I, $(5p^46s)^4P_{5/2}$ state, rare gas collisional broadening 4−59929
  NS, $C^2\Sigma^+$ state, fluorescence and zero-field level crossing 4−78487
  Ne, lifetimes of 2P levels by Hanle effect and double resonance meas. 4−43733
  Ni I, lifetime meas. of 18 excited levels, Hanle effect *(German)* 4−63362
  Pb, $(6p7s)^3P_1^0$ state, impact approx. breakdown, Hanle effect, collision broadening 4−59930
  $Rb^{87} + Rb^{85}$, depolarisation of Hanle effect spectra by collision broadening 4−74849
  Sr, level lifetimes, oscillator strengths 4−47830
  Sr^+, $5p^2P_{3/2}$ level lifetime, Hanle effect obs., $Sr^+ + Sr$ alignment depolarization 4−72091
  Sr^+, lifetime of $5p^2P_{1/2}$ level 4−78337
  Tl, $7^2S_{1/2}$ state, lifetime investigation using zero-field level crossing technique *(Spanish)* 4−63456

hard soldering *see brazing*

hard-sphere gases *see quantum fluids; statistical mechanics*

hardness
  see also abrasion; dispersion hardening; hardness testing; radiation hardening; work hardening
  adhesion between various clean surfaces, light loads 4−70401
  alkalu halide single crysts. of various orientations, dynamic compression effects of microhardness and dislocation density *(Russian)* 4−69846
  borosilicate glass, sintered film, Vickers microhardness 4−76547
  brittle materials characterization 4−61432
  carbide, cemented, indentation hardness *(Japanese)* 4−45753
  epoxide resins, curing mechanism and mech. props. *(Japanese)* 4−57771
  epoxy resin setting, hardening kinetics eliminating interaction with vessel material *(Russian)* 4−50029
  fluoroelastomers with improved compression set resistance *(Japanese)* 4−49966
  glass, Vicker's hardness rel. to chem. comp. calc. 4−61541
  metal, ductile, abrasion resistance criteria 4−76510
  metals immersed in ultrasonically agitated soln. 4−64587
  optical glass, indentation hardness and lapping hardness 4−45796
  PMMA, microindentation deform. props. under influence of surface-active media *(Russian)* 4−45794
  polymer, hardness as a meas. of crystallisation rate 4−48518
  polymer, moduli, u.s. monitoring 4−56795
  polymer coatings, correl. between strength and hardness, −40 to +100°C 4−49996
  rocks, effect of residual tangential stresses during drilling 4−80253
  semiconductors, tetrahedrally coordinated, bonding energy rel. to band gap, hardness, melting temp. 4−82130
  steel, abrasive wear resistance rel. to hardness and microstruct. 4−49845
  steel, annealing effect on softening of cold worked austenitic phase and subsequent martensitic transform. *(Russian)* 4−82832
  steel, cavitation resistance rel. to structural conditions 4−61437
  steel, fine-grained high-temp., welding-simulation heat-treated specimens, stress-relieving effects *(German)* 4−64571
  steel, hardenability, symposium, Cleveland, USA (Oct. 1972) 4−45663
  steel, hardenability and diffusional growth limitation 4−45669
  steel, hardenability and notch toughness, optimum boron range 4−45667
  steel, hardenability and nucleation limitation 4−45668
  steel, high Cr, containing distributed TiC plasma hardening 4−76472
  steel, high-C, hardenability, alloying effects 4−45666
  steel, high-speed, high temp. martempering effect on physicomech. and cutting props. 4−82921
  steel, increase in hardness and wear resistance due to laser irradiation *(Russian)* 4−70478
  steel, low-alloy eutectoid, hardenability prediction from thermodynamic and kinetic data 4−45670

hardness continued
steel, low-C, explosive toughening *(Russian)* 4−53712
steel, martensite ageing effect, C atom redistrib. 4−57754
steel, medium-C, transform. kinetics and hardenability, effects of cooling 4−45522
steel, mild, vanadium influence on heat affected zone props. 4−82931
steel, Ni-Mo-Cr type, temp. and holding time at stress relieving effects on internal stresses and mech. props. *(German)* 4−67812
steel, noncorroding, austenite surface layer struct. changes due to grinding *(Russian)* 4−79942
steel, prediction from struct. and comp., data treatment methods *(French)* 4−45688
steel, stainless, thin sheet, strain and failure under static and alternating-reversing load 4−67883
steel, tempered martensite, field-ion microscopy 4−82860
steel, two-phase systems, continuum mechanics theory 4−73328
transition metal carbides, microhardness temperature dependence, from room temp. to 1973K 4−67900
transition metal intermetallics, oxidation resist. and hardness data 4−49773
visioplasticity method for strain/microhardness relationship determ. 4−45654
Ag film, evaporated, substrate bias voltage effect on bonding 4−76373
Ag_3AsS_3, anisotropy obs. 4−52707
AgMg alloys, internally oxidized, oxide phase conc. depend. *(Russian)* 4−49780
Ag_3SbS_3, anisotropy obs. 4−52707
Al alloys, cast, seizure resistance, effect of microstruct. and mech. props. 4−67887
Al coating on cast iron, struct. and comp. 4−76482
Al-Cu-Sn alloy, ageing accelerating at high temps., aged struct. obs. *(Japanese)* 4−64578
Al-Mg_2Si(1.3 wt.%) alloy, two-step ageing behaviour *(Japanese)* 4−45637
Al-Si, alloy, hypereutectic, primary silicon refining treatment effect *(Korean)* 4−76474
Al-Si-Cu-Mg-Ni piston alloy, copper influence on microstruct. and mech. characts. *(German)* 4−61398
Al-Zn alloy, phase transform. during ageing, hardness variations, effect of Mg *(Polish)* 4−67746
Al_2O_3, alumina, with NiO and ZnO additives, high temp. mech. props., conc. and grain size depend. *(German)* 4−49878
Al_2O_3, sapphire, surface hardening assoc. with machining 4−64610
Al_2O_3, solid soln. softening by $MgO.TiO_2$ 4−45750
As_2Se_3-Sb_2Se_3, amorphous alloy, relax. process, annealing effect 4−44482
As_6Se_4, glass, laser beam induced changes 4−59447
B_2O_3-PbO glasses, comp. depend. *(Japanese)* 4−70575
Be_4B, hot pressing and mech. characteriz. 4−45751
Bi-Sb alloy, spherical indentation tests 4−49786
$CdGeAs_2$, microhardness 4−75492
$CdSn(As_xP_{1-x})_2$, $0\leqslant x\leqslant 0.6$, lattice parameters and microhardness determ. *(Bulgarian)* 4−57693
Co, Vickers and Knoop obs. of microhardness 4−53752
Co-Cr and Co-Cr-Fe alloys, high temp. hardness and heat resist. *(Russian)* 4−49794
Co-Fe-Ni-Al-Ti alloys, annealed, titanium effect on β and β_2 phase props. 4−61441
Cr-rare earth (0.5-5.0%) alloy, influence of alloying element *(Russian)* 4−80022
Cu-Ti (1.3-4.3 wt.%) alloys, temp. effect on ageing, hardness and thin foil electron microscope exam. 4−76454
Cu-Ti(5 wt.%) alloy, hardness recovery anomalies *(Russian)* 4−49793
$CuGaSe_2$, microhardness 4−75492
Cu_3LnS_3(Ln=Sm, Gd, Dy, Yb, Y, Sc), microstructural anal., microhardness 4−44520
Cu_2SnSe, phase diag. melting, phase transitions and microstruct., microhardness 4−44671
Fe alloys, austenite transform. and pearlitic hardenability, cooling rate and alloying effect 4−45523
Fe-Co-Cu-V alloys, semi-hard mag. material characts. and prop. changes on heating *(Japanese)* 4−45140
Fe-Ni alloy electrodeposition, with small amounts of Mn 4−82842
Fe-Ni(50 wt.%) alloy, textured, softening kinetics *(Russian)* 4−76463
Fe-Ti alloys, nitrided, struct. changes during annealing 4−53680
Fe-W(0.02 at.%) alloy, grain boundary hardening phenomenon 4−61378
Fe_2B tetragonal single crysts., plastic props., 20-800°C 4−82956
Ge, dislocation-free *(Russian)* 4−66984
$HfSi_x$, diffusion layer form., 1150-1300°C, kinetics, microstruct. and microhardness 4−44784
In-Ge-Te ternary system, microhardness, rel. to phase equilib. 4−49643
InAs, donor-acceptor interaction investigation from Hall effect and microhardness meas. 4−67237
In_2Te_5, single crystals, growth by chemical transport, struct. and props. 4−72457
LiF, annealing under load effect, dislocation mechanism 4−60508
Mn-Ni-Fe antiferromag. Elinvar-type alloy characts. 4−79567
Mo, dispersion strengthened, hardness temp. depend., 20-1500°C 4−70518
Mo, powder preforms, hot and cold pressing characts. 4−49867
Mo, vacuum-melted, annealing temp. and addition effects on struct. and mech. props. *(Russian)* 4−45709
Mo alloys with B microalloying additions, recrystn. behaviour *(German)* 4−61391
Mo-C, cast and recrystallised, effect of alloying with Fe, Ca, Ni, Ir, mechanical props. 4−82948
Mo_5Ru_3 films, Knoop hardness values and scratch resist. 4−45660
NaCl:NaOH, hardening and near u.v. absorption, flow stress from deformation meas. 4−79047
Na_2O-SiO_2 glass, deformation mechanisms under microindentation 4−79092
Nb-Al-Ge alloys, metallography and supercond. 4−49109
Ni, struct. changes during alternate thermocyclical working and annealing *(Russian)* 4−82914

hardness continued
Ni superalloy, γ' coarsening and elevated temp. hardness, effect of Mo 4−45647
Ni-Al(Si)(Ti) alloys, with modulated struct., aged, recovery in hardness *(Russian)* 4−80017
Ni-Co alloys, shot peened, fatigue stability and residual stress 4−45658
Ni-Cr alloy, hardened by Ni_3Nb phase, Al influence on struct. and mech. props. *(Russian)* 4−45713
Ni-Fe-Nb system, Hardperm high permeability alloys 4−67399
PbS, air-annealing change in dislocation distribution and hardness 4−79041
PbTe-SnSe, microhardness, rel. to phase diag. 4−49644
Sn-Pb alloy, eutectic, indentation creep 4−45620
Ti alloy VT6, surface hardening due to gas saturation 4−82925
Ti-Al-V alloy, kinetics of annealing , hardness and resist. obs. *(French)* 4−76470
Ti-Al-V alloy, phase transforms. and effects on hardness during soln. treatment and ageing 4−67757
Ti-Mn-Al alloys with elevated oxygen content, struct. and mech. props. 4−76480
TiB_2, single cryst., room temp.-1000°C, orientation depend. 4−61501
TiC-Mo-Ni hard alloys, carbon content and sintering temp. effect on struct. form. and mech. props. 4−70527
TiO_2, rutile, surface hardening assoc. with machining 4−64610
V, hardening dependence on interstitial conc. after neutron irrad. 4−69833
W filament characterization as reinforcing material for heat resistant composites 4−61526
W-heavy metal alloys with Co-Fe-Ni binder, comp. depend. of mech. characts. *(German)* 4−61477
WC-Co alloys, sintered, WB effect on phys. and mech. props. 4−70528
W_3Ru_2 films, Knoop hardness values and scratch resist. 4−45660
ZrC-NbC(TaC) systems, microhardness 4−67901
hardness testing
ball penetration into plastic material, inertia forces role *(German)* 4−45872
ceramic, microhardness, reliable average value determ. method 4−53941
indentation hardness, expt. 4−82999
microdepression, depth of indentation 4−67968
microhardness measurement in liq. metal media 4−61561
polymer, penetration depth and indentation diameter relationship 4−50085
rock, Vicker's hardness concept 4−64794
Rockwell C hardness values accuracy *(German)* 4−45886
steel, austenitic, reln. between hardness and ultimate strength *(Russian)* 4−45610
steel, hardenability, accurate meas., calc. and control 4−45665
steel, hardenability test based on austenite grain size 4−45664
steel, strain hardening capability 4−50057
thin-walled shell, device for Vickers hardness meas. 4−67976
Al-Ag alloys, precipitation process obs., use of micro Vickers meas. *(Japanese)* 4−82843
harmonic analysis
see also waveform analysis
arc furnaces, Clausthal measuring system *(German)* 4−43225
damped mechanical system with quadratic and cubic nonlinearities, differential tones 4−43013
geomagnetic and gravity fields, correlation from spherical analyses 4−50255
geomagnetic scalar F, spherical harmonic analysis 4−73491
geomagnetic- 4−73495
geopotential, fifteenth-order harmonics determ. 4−57898
linearization of nonlinearities of form $f(x,x^{I},x^{II})$ *(Russian)* 4−81139
multigroup neutron transport eqn. soln. using spherical harmonics 4−81537
Neumann problem, function harmonic in half-space 4−51265
non-linear oscillator, harmonically forced, general perturbational soln. 4−43012
non-linear system, two degrees of freedom, combination tone in single mode motion 4−71344
polyharmonic equation, inner radius of bounded domain 4−51290
quantum mechanics, reformulation 4−68912
radiative transfer, inhomogeneous atmospheres *(French)* 4−51486
spherical anal. of satellite cosmic-ray anisotropy meas. 4−62529
harmonic generation
see also lasers
acoustic pulsating resonator, sonically excited 4−46504
acoustic surface waves, thermoelasticity theory, collinear interaction 4−60678
acoustic wave, in materials with strain-depend. dielec. consts. 4−60555
alkali metal vapour, third harmonic production, rate of two-photon resonance 4−59936
ammonium oxalate crystal, second and third optical harmonics, simultaneous generation *(Russian)* 4−51626
benzene derivatives, substituted, generation of second harmonic of Nd laser *(Russian)* 4−51655
biregringence effect, o+e→e interaction 4−47374
cyanine dyes, nonlinear susceptibility, freq. tripling 4−77708
m-dinitrobenzene crystals, phase-matchable optical nonlinearity 4−74523
equations, new general derivation 4−47382
exciton absorption band region, difference harmonic generation *(Russian)* 4−51656
four-photon parametric processes in metal vapours and inert gases calc. 4−59453
guanidinium aluminium sulphate hexahydrate, ferroelec., second harmonics 4−51634
isotropic medium with parallel edge dislocations, shear acoustic harmonics excitation by transverse waves *(Russian)* 4−60554
laser, stabilized, freq. offset due to modulation distortion 4−71569
laser beam plasma production, harmonic generation and freq. mixing obs. 4−55514
laser beam self-focusing enhancement of harmonics 4−71572
laser radiation interaction with dense plasma anomalous behaviour *(Russian)* 4−78776

harmonic generation continued
- linearly inhomogeneous medium, second harmonic intensity distrib. at output 4−65940
- methanes, halogenated, d.c. electric field induced second harmonic generation meas., hyperpolarisability determ. 4−47969
- molecular scattering of circularly polarised light, ang. depend. 4−62856
- nitrobenzene/benzene mixture, molecular hyperpolarisability, d.c. elec. field induced s.h.g. obs. 4−57459
- p-nitrophenylhydrazine, temp. depend. 4−77706
- nondegenerate semiconductor, nonlinear acoustic wave excitation 4−82464
- nonlinear absorbing medium, efficiency of stimulation of optical harmonics *(Russian)* 4−69079
- nonlinear crystal, transient optical second-harmonic excitation with phase mismatch 4−71577
- nonlinear crystal with tetragonal symmetry, second harmonic intensity ang. depend. *(Russian)* 4−62869
- nonlinear current flow problem, higher harmonics *(Russian)* 4−70025
- nonlinear magneto-optical phenomena, third harmonic generation, kinetic theory 4−43352
- nonlinear medium with dislocations, interaction of transverse and longit sonic harmonics *(Russian)* 4−48708
- optical second harmonic generation, electronic config. with charge transfer role *(Russian)* 4−59457
- picosecond pulse, high efficiency second and fourth order emission *(Russian)* 4−65946
- piezoelectric semiconductor, optimum acoustic wave second-harmonic generation 4−67261
- plasma, bounded isotropic layer, second harmonic generation and emission in wave conversion 4−75230
- powder, second harmonics, phase transitions obs. 4−62871
- pthalimide derivative solution, spectral generation region boradening investigation *(Russian)* 4−43353
- pyrimidine derivatives, substituted, generation of second harmonic of Nd laser *(Russian)* 4−51655
- quartz, microwave freq. Rayleigh waves 4−82311
- Rayleigh waves, guided in metal on piezoelectric struct. 4−63967
- resonantly two-photon pumped frequency convertor 4−43346
- ruby laser generation of totally reorganised frequencies, u.v. and vis. light region *(Russian)* 4−69094
- semiconductor, nondegenerate, acoustic wave second harmonic generation in mag. field 4−44970
- semiconductor, u.s., with deformation potential coupling 4−64119
- solid, second harmonic, by paramag. reson. saturation 4−76141
- Tokamak ST, poloidal field meas. by harmonic generation at upper hybrid layer 4−44398
- uniaxial negative crystal collimated Gaussian beam, o + e→e interaction 4−47370
- $AgGaS_2$, second harmonics, cryst. quality effects 4−47372
- AlSb, second harmonic generation using CO_2 laser beam 4−77712
- Ar, d.c. electric-field-induced second harmonic generation, hyperpolarisability ratio 4−47378
- $Ba_xLi_{5-2x}Nb_{5(1-y)}Ta_{5y}O_{15}$, crystallographic, dielectric and nonlinear opt. props. *(French)* 4−64353
- $Ba_2NaNb_5O_{15}$, opt. second harmonic generation rel. to growth and thermally-induced homogeneities 4−59451
- $Ba_2NaNb_5O_{15}$, unipolarity effect, multidomain region 4−77716
- $CdGeAs_2$, chalcopyrite, efficient doubling and c.w. difference freq. mixing in i.r. 4−47375
- Cs vapour, two-photon resonant optical third-harmonic generation 4−71581
- CsH_2AsO_4, CsD_2AsO_4, efficient second harmonic generation at 5321Å 4−62857
- CuCl, interference of third-order light mixing and second-harmonic exciton generation 4−47380
- GaAs, waveguide, phase matched second harmonic generation 4−77703
- GaAs(Sb), nonlinear optical susceptibility dispersion, 1.19-1.78 eV 4−62865
- GaSe, conversion of i.r. light into near i.r. and visible 4−74529
- GaSe, optical freq. up-converter, expt. arrangement *(French)* 4−65939
- He, d.c. electric-field-induced second harmonic generation, hyperpolarisability ratio 4−47378
- InP, second harmonic generation using CO_2 laser beam 4−77712
- n-InSb, piezoelectric semiconductor, optimum acoustic wave second-harmonic generation 4−67261
- InSb, second harmonic generation using CO_2 laser beam 4−77712
- KH_2PO_4 crystal, second and third optical harmonics, simultaneous generation *(Russian)* 4−51626
- Kr, d.c. electric-field-induced second harmonic generation, hyperpolarisability ratio 4−47378
- $LiIO_3$, laser damage, with and without harmonic generation 4−55494
- $NaNO_2$, laminar ferroelec. domains, second harmonic light scatt. 4−55521
- Nd laser, generation of totally reorganised frequencies, u.v. and vis. light region *(Russian)* 4−69094
- Ne, d.c. electric-field-induced second harmonic generation, hyperpolarisability ratio 4−47378
- RbH_2AsO_4, second harmonics, high efficient u.v. generation at 3472Å 4−62858
- RbH_2PO_4, conversion of high power ruby laser radiation to u.v. 4−51636
- RbH_2PO_4, freq. doubling of Nd:YAG laser output 4−81350
- Te, nonlinear polarisation coeff. dispersion, harmonic generation 4−77714
- W-Ni point contact diodes, characts. for laser harmonic generator mixers 4−62472
- Xe, d.c. electric-field-induced second harmonic generation, hyperpolarisability ratio 4−47378

harmonic oscillators
- anharmonic, kp^{2m}, eigenvalue evaluation in perturbation theory 4−71367
- anharmonically coupled quantum oscillators, energy level and matrix element calc. 4−59236
- Boltzmann distribution for an ensemble of harmonic oscillators, computer derivation as aid to instruction 4−58704
- constants of motion, anal. 4−62732

harmonic oscillators continued
- coupled assemblies, Brownian motion in limits of generalized Langevin eqns. 4−55378
- coupled to infinite bose system, relaxation amplification and KMS conditions 4−65820
- diatomic molecule, avoided crossings, coupled harmonic oscill. model calcs. 4−52099
- displaced oscillator wave functions, integrals of products 4−65747
- dynamical symmetries in quantum theory, review 4−77519
- even partial wave mechanism for baryon spectrum 4−69176
- Gaussian frequency fluctuations, second statistical moment calc., 3 approx. methods *(Russian)* 4−74368
- general oscillator brackets, new relations 4−47148
- group theory case study, book 4−62663
- hard sphere-harmonic oscillator collision, semiclassical calc. of transition probability 4−51421
- ion + atom collision, polarisation in distant inelastic Coulomb collision 4−47907
- kinetic energy, minimisation of integral estimate by impulse control *(Russian)* 4−74265
- lateral waves from continuous transition layer, depth depend. sound speed 4−80796
- Lorentz gas, Kubo conductivity formula with velocity-dependent forces 4−65836
- Morse potential interaction, particle oscillator collision 4−55317
- necessity of three-dimensions to localise particle in this potential 4−54779
- non-linear oscillator, harmonically forced, general perturbational soln. 4−43012
- nonpolynomial anharmonic, correction, energy levels, perturbation series 4−71384
- nuclear fission, three and four centre oscills. 4−63087
- operator ergodic properties, finite quantum system 4−65825
- oscillator and H atom matrix elements determ. by operator algebra 4−81220
- phase operators, spectral properties 4−55180
- Planck distribution in classical nonlinear coupled system 4−62731
- positive energy bound states in resonating group calcs. 4−47678
- quantum, adiabatic and sudden perturbations *(Russian)* 4−43149
- relaxation, temp. depend. 4−62736
- singular oscillator, even and odd coherent states and excitations 4−68913
- singular oscillator excitations and even and odd coherent state 4−62817
- two-dimensional matrix elements, hyperbolic angular momentum, spherical harmonics 4−74373
- $H_2 + Li^+$, vibr.-rot. excitation, Morse and harmonic oscills. anal. 4−52292
- He + H_2 collisions, anal., use of harmonic and Morse oscillator wavefunctions, comparison 4−72070

harmonics
- *see also harmonic analysis*
- acoustic wave nonlinearity due to uniformly distributed air bubbles *(Russian)* 4−52510
- cyclotron and upper hybrid resonant plasma, diagnostic applic. 4−63696
- p-n junction capacitance, self-bias consideration 4−70064
- polyharmonic functions, three-dimensional, construction, recurrence relation *(Russian)* 4−55201
- suppression in signals from probes into cyclotron beam 4−55021
- with end support and end mass cantilever beams, double tapered, transverse vibrations 4−55277

Hartree-Fock approximation *see Hartree-Fock method*

Hartree-Fock method
- *see also atomic structure*
- acetylene $^2\pi_u$ and $^2\pi_g$ ionic states, near Hartree-Fock assessment of reorganisation effects 4−52233
- allyl cation, generalised valence bond pi orbitals, Hartree-Fock calcs. 4−63385
- amino radical, excited state props. from HF calcs. 4−60025
- atom, Fermi hole in terms of distrib. function of interelectronic distance 4−74820
- atom, Z = 10 to 98, K X-ray emission, exchange corrections, relativistic Hartree-Fock solns. 4−56012
- atomic, finite difference Newton-Raphson soln. 4−63321
- atomic ground state ds^2 electron config., electronic energy calcs. 4−72023
- atomic hyperfine interaction terms 4−63327
- atomic spectroscopy and collision theory, Hartree-Fock-Roothaan eigenchannel calcs. 4−81712
- atomic/molecular excited state-excited state transition densities, time-depend. Hartree-Fock method 4−66287
- atoms, neutral He to No, coupling constants, polarizabilities, susceptibilities and radii 4−51938
- aza-aromatic radical anions, unrestricted Hartree-Fock spin density calcs. 4−52054
- band structure calcs. correlated crystal potentials 4−75769
- benzyl radical, UHF calc. with orthogonalized atomic orbitals 4−63399
- Bose gas, charged, critical behaviour, self-consistent theory 4−59297
- boson system with attractive interactions, generalised Hartree-Fock method 4−65826
- Bruechner-Hartree-Fock wave functions, calc. of high-energy electron and hadron scatt. on ^{4}He and ^{16}O 4−63120
- cis-butadiene diradical, singlet instability, closed shell H-F calcs. 4−52077
- charge transfer, symm., cross section oscill., Clementi's wave functions 4−78371
- chemisorption, Hartree-Fock approx. extended to larger atomic clusters 4−72634
- chemisorption of H atoms on metal surface, Hartree-Fock calc. method, overcompleteness basis 4−63992
- chemisorption of many valence electron atoms on normal metals *(French)* 4−44783
- chemisorption theory review 4−60690
- closed shell nuclei, energy and density distributions calc. *(Hungarian)* 4−81469
- configuration interaction taught on H_2 4−58705

Hartree-Fock method continued
conjugated hydrocarbons, transition energies calc., Hartree-Fock formalism 4−56166
conjugated molecules, uncoupled Hartree-Fock perturbation theory 4−81750
convergence, open shell systems, anal. 4−52030
converging open-shell Hartree-Fock wave functions 4−69456
croconate anion, UHF wavefunction determ. 4−52037
crystal, localised canonical wave function, nonexistence conditions 4−64005
diamond, Hartree-Fock directional Compton profiles calcs. 4−60515
diatomic hydrides, first- and second-row AH, $AH^{\pm}$, AH^*, Hartree-Fock-Roothaan wavefunctions 4−52060
diatomic molecules, involving Li through F, wavefunctions by expansion solutions of Hartree-Fock equations 4−74951
dilute alloy, to show absence of finite conduction electron polarisation 4−79485
dipole moment derivatives determ. from Hartree-Fock-Roothaan wave functions 4−56180
equations, solutions minimising energy for atoms and molecules 4−72020
ESCA approach to structure and bonding 4−72141
ethyl radical, hyperfine coupling consts., ab initio unrestricted 4−69455
ethylene, generalised valence bond pi orbitals, Hartree-Fock calcs. 4−63385
excitation energies determ., self-consistent time-depend. Hartree-Fock scheme, appls. 4−72138
Fermi system, bounded two-body interaction, existence proof of time dependent problem 4−65821
formaldehyde, harmonic force consts. and equil. geom., HF calcs. 4−56165
Hartree-Fock-like orbitals, harmonic perturbation, symmetry props. 4−74816
Heisenberg model, anisotropic, single-magnon Green's function, generalized Hartree-Fock approx. 4−53198
Hubbard model, strong correlations, theory based on generalized Hartree-Fock scheme 4−72949
hydrocarbon molecule, saturated, electron correlations effect on ^{13}C-H coupling 4−74949
hydrocarbons, condensed, dipole polarisabilities from uncoupled and coupled Hartree-Fock calc. 4−72164
information-theoretical interpretation 4−78321
LCAO formalism introduced in SCF eqns., derivation of Hartree-Fock eqns. 4−47922
localised states, existence and appl. 4−75795
matrix generalised formulation 4−56077
metal, electronic correlation effects in X-ray edge profile, recoil problems 4−49491
metallic atoms and ions, Na to Ga, screening effects, electronic densities and energies *(French)* 4−51944
molecular orbitals, inner shell, represented by 1s atomic orbitals Hartree-Fock calcs. 4−47936
molecular polarisability and quadrupole moment estimation, vibr. spectra interpretation 4−63415
molecule, excited state SCF theory, optimal orbitals for states of a configuration 4−78410
monfluoropropenes, calc. barriers to internal rotation 4−43764
multi configuration Hartree-Fock model anal. of correlation influence in ^{21}Ne and ^{25}Mg 4−66137
multi-configuration model anal. of doubly even sd-shell nuclei 4−47644
multi-configuration model of doubly-even sd-shell nuclei 4−47645
multiconfiguration, excitation spectrum of exact nuclear model 4−74732
multiconfiguration calcs. of ^{20}Ne, and ^{22} Ne and ^{24}Mg ground state rotational spectra 4−71770
multiparticle correlations in third order of theory of perturbations 4−55997
nitroaromatic radical anions, unrestricted Hartree-Fock spin density calcs. 4−52054
noble metal based dilute alloys, for electronic strucute, appl. to Cu alloys 4−79275
non-relativistic atomic Compton profiles, X-ray form factor calc., inert gases 4−81713
nuclear calculation, Coulomb exchange contribution 4−51777
nuclear centre of mass motion and single particle separation energies 4−55758
nuclear deformation effects, comparison with shell model 4−59691
nuclear magnetic moment, microscopic calcs. including Hartree-Fock graphs 4−43450
nuclear structure calculation, soln. of the generalised Brueckner-Hartree-Fock equations in the exp(S) formalism 4−71799
nuclear two-particle intrinsic states in ^{22}Ne and ^{26}Mg 4−59679
nuclei, highly-excited, calcs. of excitation energies and entropies 4−81470
nuclei, in f7/2 shell, radii and deformations 4−47638
one-electron space orbitals, population numbers variation 4−69403
open shell static dipole polarisability and shielding factors 4−56014
open-shell system, dynamic polarizability by coupled Hartree-Fock perturbation theory 4−59923
optical transitions, electron correl. effect in upper and lower states 4−78326
pentachlorocyclopentadienyl cation, UHF wavefunction determ. 4−52037
photonuclear dipole sum, two- and three-body correl. 4−78033
polyatomic molecules, small, heavy-atom shielding calcs. 4−56279
polynucleotide chains, internal rot. barrier, additional ab initio calcs. 4−56131
propene, calc. barriers to internal rotation 4−43764
renormalised Brueckner-Hartree-Fock calcs. of ^4He and ^{16}O with centre of mass corrections 4−59696
SCF Dirac-Hartree-Fock calcs. for elements Z=1 to 120 4−55994
semiempirical extended Hartree-Fock theory for correl. effects 4−56098
solvent interaction within Hartree-Fock SCF mol. orbital formalism 4−78412
spherical nuclei, determ. of binding energies and single particle spectra 4−55757

Hartree-Fock method continued
spin projected EHF method calc. for four-electron model system 4−63387
spin-restricted single determinant wave-function calcs. 4−81751
superconducting impurity problems, intra-atomic Coulomb interaction anal. 4−60920
transition metal alloy, dil., electronic struct. change. oscill., knight shift, pair interaction 4−79275
transition metals, Coulomb correlation energy in Hubbard model 4−60720
trimethylene diradical, singlet instability, closed shell H-F calcs. 4−52077
unrestricted, (UHF) wavefunction determ., three component, approx. spin projections 4−52037
water, struct., Monte Carlo simulation, effect of correl. energy corrections to Hartree-Fock water-water potential 4−66811
wave functions for neutral atoms from He to Xe 4−55990
AlF, excited electronic state struct. 4−74960
Ar, relativistic Hartree-Fock Compton profile 4−66277
B^+, pair distrib. functions calc. from Hartree-Fock and CI wave functions 4−51948
BF_2 radical, excited state props. from HF calcs. 4−60025
BN, cubic, X-ray struct. factor and Compton profile, self consistent calcs. 4−57033
^{10}B, shell-model calculation, intermediate coupling 4−71784
Ba, atom, oscillator strengths using multi-config. Hartree Fock approx. 4−66285
Ba, spin-orbit coupling, multi-config. Hartree Fock wavefunctions 4−66279
Ba^+, electron ionisation cross section, autoionisation threshold 4−74894
Be, $1s^22s^2$ ground state, correlation study, multiconfig. Hartree-Fock calcs. 4−63326
Be atom, pair distrib. functions calc. from Hartree-Fock and CI wave functions 4−51948
Be isoelectronic sequence, atomic polarisabilities calc. by finite difference methods 4−59922
^8Be, ^9Be, energy shifts of ground-state rotational bands, rel. to deformation effects 4−47640
C^{2+}, correl. holes, pair distrib. functions calc. from Hartree-Fock and CI wavefunctions 4−51948
CO_2^-, orbital calcs. of mag. hyperfine interactions 4−81788
Ca, even-even isotopes, Hartree-Fock-Bogoliubov calcs., nuclear shape 4−47639
Cl_2, mol. polarisability and quadrupole moment estimation, vibr. spectra interpretation 4−63415
F_2, mol. polarisability and quadrupole moment estimation, vibr. spectra interpretation 4−63415
H_2, $c^3\pi_u$ state, electronic wavefunctions, ab initio Hartree-Fock calcs. 4−43792
H_2, mol. polarisability and quadrupole moment estimation, vibr. spectra interpretation 4−63415
HF, $\chi^1\Sigma^+$ state, dipole moment and i.r. transition matrix calcs. 4−56130
H_2O, molecular complex, Hartree Fock anal. of struct. 4−72112
H_3S^+, electronic struct. and barrier to pyramidal inversion, MO calcs. 4−81745
HX (X=second row atoms), electronic struct., correlation energy correction 4−52074
$H_2c^3\pi_u(2s,2p)$, spin-other-orbit and spin-spin interactions 4−74939
He, atom, dynamic polarisability and long-range dispersion energy calcs. 4−56013
He atom, integral-transform trial functions, shape function optimisation 4−74814
He isoelectronic sequence, $2^3S_1 \rightarrow 1^1S_0$ transition rates, Dirac-Hartree-Fock calc. 4−63333
$HeC^{2+,+}$ molecule-ions, Roothaan-Hartree-Fock calcs. 4−59991
^3He, superfluid, triplet pairing, self-consistent approx. for correl. functions 4−52963
^4He, three body clusters, Bethe-Faddeev equation, treatment method 4−74731
^4He, three-particle Bethe-Faddeev equation solns., Faddeev-Brueckner-Hartree-Fock calc. 4−74730
Kr, relativistic Hartree-Fock Compton profile 4−66277
Li, cryst., electronic struct. calcs., Hartree-Fock method 4−64016
Li, crystals, electronic structure 4−72683
Li clusters, b.c.c. structure, SCF-LCGO-MO calculations, rel. to vacancies and Be impurities 4−63826
Li isoelectronic sequence, $^4P^o5/2$ states, decay and autoionisation rates 4−74859
Li^+, third harmonic coeff. fully coupled H-F calc. 4−55993
Li_2^+, Li_2^-, convergence of Hartree-Fock eqns. 4−52030
LiF, optical props. investig., Hartree-Fock band struct. calcs. 4−70320
LiF, self-consistent Hartree-Fock calc. of energy bands 4−75754
MgO, optical absorpt., X-ray spectra, one electron model 4−44847
NF_3, ab initio force consts. calc. 4−52101
NO, K-level X-ray photoemission, anomalous multiplet splitting ratios 4−56296
NO_2, orbital calcs. of mag. hyperfine interactions 4−81788
Ne, crystalline, self-consistent Hartree-Fock calc. of energy bands 4−75754
Ne-HF interaction, hydrogen-bonding investig., Hartree-Fock calc. of pot. energy surface 4−81813
Ne + Ne, ab initio MCSCF calc. of $^1sigma_g{}^+$ pot. at intermediate separations 4−47912
^{20}Ne anticentrifugal stretching, α:−^{16}O cluster model in J independent radius explanation 4−43478
$N_2(x\ ^1\Sigma_g{}^+)$, quadrupole moment, vibr. matrix elements 4−74974
O_2, K-level X-ray photoemission, anomalous multiplet splitting ratios 4−56296
OI, photoionisation, photoelectron ang. distrib., cross section, branching ratio 4−72066
ONF, ab initio force consts. calc. 4−52101
^{16}O, three-particle Bethe-Faddeev equation solns., Faddeev-Brueckner-Hartree-Fock calc. 4−74730
^{18}O, structure calculations by multishell Hartree-Fock 4−77980
Pb, relativistic Hartree-Fock Compton profile 4−66277
^{208}Pb, random phase approx. theories, test for collective models of inelastic scatt. transition densities 4−59692

Hartree-Fock method continued
^{208}Pb neutron radius, influence of exchange potential 4−55723
Pd, mag. form factor, 4.2K, comparison with expt. 4−70163
ScH, low-lying electronic states, Hartree-Fock approx. 4−74959
Si, atomic scattering factor, calc. of imaginary parts, using Hartree-Fock and H-like wavefunctions 4−78986
^{28}Si, shape-excited states, Hartree-Fock calc. 4−43481
X$_2$ (X = second row atoms), potential energy curve, correlation energy correction, Hartree-Fock density 4−52075
X$^+$(H$_2$O)$_n$, (X = Li,Na,K,F,Cl), configuration, pairwise additivity approx. 4−74928
Xe, relativistic Hartree-Fock Compton profile 4−66277

He *see helium*

headphones
see also earphones
No entries

health effects of radiation *see biological effects of radiation*

health hazards
see also biological effects of radiation
Atomic Energy of Canada Limited, organisation 4−43706
buried reprocessing wastes from fast reactor and light-water reactor fuels, radiotoxic hazards compared *(Dutch)* 4−59883
cancer mortality risk estimation from Japanese atomic bomb survivors 4−80762
dangerous dosages of cosmic and terrestrial radiations *(Dutch)* 4−65266
dust control and air cleaning, book 4−65290
fusion reactors, neutron activation hazards and accessibility 4−63299
noise, impact, OSHA regulations, measurement 4−65314
noise, machine tool, enclosure 4−65316
Q-tube neutron generator, activated SF$_6$ release hazard 4−80763
radiation, population dose reduction prospects 4−58597
X-ray diagnostic procedures rel. to health hazards and genetic effects in Puerto Rico 4−58592
^{125}I ingestion risk classification and thyroid burden obs. 4−54696
^{239}Pu contaminated air samples, track autoradiography 4−55978

hearing
see also ear; hearing aids; speech
acoustic reflex threshold rel. to bandwidth 4−54657
acoustical conditions in some school buildings in Asia, meas. of speech levels 4−71142
acoustical ratings and human perception of sound 4−73896
attention sharing between ears 4−62286
audiometry, computerised pure tone procedures 4−50786
audiometry practice, training aid 4−46386
auditory evoked response, infant, short-term habituation 4−50785
auditory evoked responses, maturation and interrelationship with e.e.g. patterns, in premature infants 4−54643
auditory illusion, in localisation of tones 4−80717
auditory nerve fibre, tails of tuning curves 4−50779
auditory nervous system, lateral inhibition for monosyllabic vowel speech sounds *(Japanese)* 4−68496
auditory receptor, model for mechanical to neural transduction 4−62290
auditory running-average hypothesis 4−50781
averaged evoked potentials, in auditory pathway and reticular formation of the cat during waking and sleeping 4−73889
averaged evoked response, influence of stimulus level and sleep stage 4−68505
basilar membrane tuning curve, guinea pig 4−50775
bilateral asymmetry in males 4−62292
binaural, masking level differences in cat and man, interaural correlation 4−73899
binaural masking level differences, pulse train signals of differing interaural correl. 4−73902
binaural masking-level difference, interaural delays in complex waveforms, lateralization 4−73898
biomedical engineering and human perception, interdisciplinary communication and interaction 4−73874
cat, lateralisation of tonal stimuli 4−50782
chinchilla, combined continuous and impulse noise effects 4−46378
chinchilla, inner ear changes and hearing losses due to intense stimulation 4−54653
cochlear impaired, masked normal listeners, perstimulatory loudness adaptation 4−80710
cochlear nucleus, coding of sounds 4−50780
cochlear waves, propagation 4−50774
codfish, detection of acoustic stimuli 4−77015
critical bandwidth, rel. to frequency difference limen 4−50773
damage at schools near Los Angeles International Airport, jet noise 4−77005
damage risk criterion, external ear subject to impulsive noise 4−80708
digital modelling, lateral inhibition, mammalian auditory system 4−83313
dynamic theory of sound-source localisation by listener 4−77008
e.e.g., auditory evoked responses, objective evaluation 4−83314
e.e.g. response, averaged, of aphasics, to linguistic and nonlinguistic stimuli 4−68508
electric discharge rates in auditory nerve fibres, loudness function derivation from 4−54650
equal loudness pressure, determ. with decaying oscillatory waveform 4−50770
feedback monitoring development, studies on the vocalization of children aged six to 19 months 4−50788
frequency following response conduction, differential brainstem pathways 4−54652
h.f. loss, displacement limit of human middle ear 4−76957
identification audiometry, pass-fail ratios for children, function of audiometers rise time 4−80714
impaired, auditory ability and compensation *(Japanese)* 4−68502
impulse measurement device, outer ear transfer functions *(German)* 4−65553
industrial airborne ultrasound, effect on humans 4−46474
inner ear, intracellular response to acoustic clicks, alligator lizard 4−50778
intensity and frequency discrimination in humans, decision-making processes 4−73900
intensity discrimination, pure tone 4−62289

hearing continued
inter-channel phase difference, subjective effects *(Japanese)* 4−68499
interaural differences, distinct sound sources 4−46380
interaural phase differences, lateral discrimination 4−73903
left hemisphere, right ear superiority for speech, language 4−50771
loudness, rel. to rise time as a function of energy *(Japanese)* 4−68497
marine mammals, low false alarm rates in signal detection 4−54656
masking audiograms for young adults in band-rejected noise 4−76958
masking methods, comparison 4−73895
masking with narrow band f.m. noise 4−80816
memory, active selection of items to be remembered, role of timing 4−46377
memory, and speech perception 4−50766
memory, incremental, for pictures but not words in multiple recall trials 4−46388
memory, long-term free recall, recency sensitive retrieval processes 4−62285
memory, stimulus factors and listening strategies, experimental demonstration 4−50769
memory, stimulus factors and listening strategies, theoretical analysis 4−50768
memory verification, semantic, quantified sentence comprehension, sentence-picture relation 4−62287
modality correlation detection 4−50804
neural network behind the basilar membrane, subsystem study 4−80718
perceived sound quality, judgements and dimension analysis 4−54759
perceptual exhibits, collection at Exploratorium, San Francisco 4−54774
perceptual structure of 16 sententially embedded prevocalic English consonants 4−76954
peripheral auditory function in Ornithorhynchus anatinus platypus 4−76955
phase effects in three component signal 4−46384
pitch perception of short tonal pulses, role of initial phase angle 4−54651
pitch phenomena signalled by binaural timing 4−46383
psychoacoustic consonance, pitch and harmony 4−62291
psychoacoustic meas., perception of periodic sound fluctuations, roughness 4−68494
psychophysical experiment, response of subjects *(Japanese)* 4−68501
right ear advantage, sensorimotor dominance in mandibular-auditory tracking 4−80709
S/N ratio and critical band in teleost fishes 4−76952
shock tube use as impulsive noise source 4−71271
signal onset and offset time disparities, interaural difference thresholds expts. 4−73901
sound localisation on horizontal plane *(Japanese)* 4−68498
sound localization, strong and weak sounds, front/rear discrimination 4−76953
sound localization in the rat, compared with precedence effect in humans 4−76950
sound quality assessment *(Japanese)* 4−68504
speech perception, categorical and noncategorical modes 4−50772
speech perception, complementary effect between amount and rate of formant transition *(Japanese)* 4−68500
speech perception, detector location in brain, bilateral component 4−80716
speech-sound discrimination tests, variables influencing performance 4−68506
spoken language meaning, control of eye fixation 4−50767
squirrel monkey, pure-note threshold 4−46382
stimulation-recording technique, for evaluating binaural sound processing in porpoises 4−65559
subjective assessment, triadic comparisons method of concert hall acoustics 4−68571
synthetic speech, dichotic listening method 4−50784
temperature effects, in two species of Amphisbaenia 4−62293
temporal discrimination, by trained listeners 4−62288
temporary threshold shift alteration, effect of spectral and temporal parameters of contralateral signals 4−68507
threshold, v.l.f. pure tones 5 to 100 Hz and 2 to 20 Hz 4−54655
threshold estimates, reduction of variance using parameter estimation by sequential testing 4−65250
threshold shifts, produced by exposure to noise, in chinchillas with noise-induced hearing losses 4−50787
thresholds during deep saturation He-O dives 4−54654
time perception, in speech and music 4−54658
time-intensity trading functions, pure tones, high freq. a.m. signal 4−80715
tones and noise, aversion levels, sound press. levels in humans 4−76951
vertebrates, pure-tone auditory frequency discrimination threshold values 4−76959
voiced-voicless distinction, role of formant transition 4−50783

hearing aids
consonants, affected by monaural, binaural listening, noise, reverberation, hearing aids 4−77012

heat
see also heat transfer; heating; latent heat; specific heat; temperature; terrestrial heat; thermal variables measurement; thermodynamic properties; thermodynamics
problems, methods of solution and physical concepts, self-teaching book 4−58717

heat capacity *see specific heat*

heat conduction
see also thermal conductivity
agas, heat propag. rate formula, absolute temp. depend. 4−66541
atmosphere, viscous isothermal, effect of heat-conduction on internal wave 4−75161
axial conduction, Graetz problem soln. 4−75089
axially symmetric stationary heat conduction, mixed temp. conditions 4−65846
bodies with small boundary perturbations 4−74439

- **heat conduction** continued
  - boundary-value heat conduction problem, time variable heat transfer coeff. 4−47248
  - boundary-value problems, Kantorovich's method applic. 4−51485
  - Cauchy problem for nonlinear heat cond. eqn. in combustion theory and gasdynamics 4−47245
  - Cauchy problem soln. by R-network analysis using Laplace transform *(Russian)* 4−51489
  - circular plate system, one-dimens. axisymmetrical steady-state problem for radial temp. distrib. 4−43201
  - complex bodies in regular thermal modes, semiempirical computation of temp. 4−59312
  - compressible rough surfaces, contact thermal cond. 4−43204
  - cylinder, infinite, numerical solution 4−74432
  - cylinder, mixed two-dimens. stationary heat cond. problem 4−47246
  - cylinder, semi-infinite hollow 4−43192
  - cylindrical bodies, temp. fields due to mobile sources 4−43200
  - cylindrical shell subjected to instantaneous hot spot, thermoelastic behaviour 4−55238
  - differential equations with nonlinear relations on boundaries, soln. method 4−43194
  - diffuse reflectors, reflectance and unsteady temp. distrib. 4−47244
  - dislocation drag, flutter mechanism 4−66923
  - elastoplastic deformable body, diffusion, heat conduction and deformation *(Russian)* 4−51374
  - equation with complex boundary conditions, soln. construction method 4−62759
  - free boundary value problem, global convergence of implicit difference method *(German)* 4−74440
  - free-boundary problems solution method 4−62761
  - gases around nuclear fuel elements, role of accommodation coeff. in contact heat exchange 4−78555
  - general nonlinear problem, unsteady, small-parameter method 4−65848
  - hard sphere gas, three dimensional calc. of transport coeffs. in powers of density 4−62752
  - harmonic chains, unification of theories on eigenstate localization and transport processes 4−53023
  - harmonic crystals, isotopically disordered, heat conduction and sound transmission 4−59309
  - heat propagation finite velocity effects 4−68971
  - hollow cylinder, dynamic problem of thermoelasticity 4−43057
  - hollow cylinder, Green's functions 4−65844
  - hollow cylinder, internal heat sources, variable boundary conditions 4−68970
  - hollow cylinder, transfer functions based method 4−43203
  - hollow cylinder convective type time depend. boundary conditions 4−55397
  - integral equation approach 4−51477
  - integral transforms, finite, applications of coded table 4−58686
  - inverse transient problem, solutions by methods of Tikhonov and Sparrow 4−77573
  - Jeans' criterion, in presence of heat diffusion and viscosity 4−81939
  - laminated composites, continuum integral theory 4−57764
  - linear diffusion theory for finite media, boundary value problems 4−47241
  - liquid, plane layers, radiant heat exchange effects 4−52947
  - liquid metal, flow through eccentric annuli 4−43985
  - lumpy layer, effective coeff. of heat cond. 4−43195
  - melting and freezing problem, approx. soln. of phase front 4−56862
  - memory effects, general soln. of eqns. 4−43209
  - metal, interface region, heat cond. anomaly interpret. w.r.t. phonor state *(French)* 4−52977
  - metallic thin wire heated by electric current, anal. of stationary problem 4−79324
  - Monte Carlo calculations, method for improving efficiency 4−74438
  - multilayered semitransparent coatings, optical thickness effect on temp. distrib. 4−59311
  - negative heat pulse technique, decrease in phonon population in low temp. solids 4−69866
  - nonlinear, estimation of thermophysical props. 4−62765
  - nonlinear equation, exact soln. of Cauchy problem *(Russian)* 4−43211
  - nonlinear equilibrium processes, variational principle 4−43215
  - nonlinear problems, with reference to phase change, finite element analysis 4−62756
  - nonstationary, variational anal. *(German)* 4−68976
  - nonstationary heat conduction problems with variable heat transfer coeff., calc. method 4−43198
  - nonstationary heat-transfer problem, linearization, perturbation technique 4−65847
  - nuclear reactor blowdown accident, heat conductivity and thermal emissivity effects on core heatup and meltdown 4−81597
  - nuclear reactor fuel elements, polygonal prism under heat generation, unsteady thermal stresses 4−81564
  - parallel plates with lateral supply (removal) of heat, heat transfer eqns. 4−51480
  - plane layer, cond. temp. depend. effect on temp. distrib., current and e.m. field 4−51482
  - plane problems with mixed boundary conditions of first and third kind, soln. *(Russian)* 4−43212
  - porous body, nonstationary temp. field on gas filtration 4−52527
  - porous tube, transient temp. distrib., analytical soln. 4−65845
  - radiative-conductive heat transmission in regular mode of second kind 4−74437
  - reactor vessels, axisymm. rectangular element 4−71329
  - rigid conductors, thermodynamic theory 4−62753
  - solid cylinder, differential eqn. soln. *(German)* 4−62764
  - specular-diffuse reflection of radiation on plane layer boundaries, radiative-cond. heat exchange 4−43196
  - squeeze films, thermohydrodynamic performance 4−75198
  - steady-state problems with convective boundary conditions, theorems for heat flow bounds 4−51487
  - Stefan problem, iteration scheme for soln. of nonlinear integro-differential eqn. 4−48743
  - temperature dependent heat sources, small-parameter method of soln. 4−68972
  - thermal fracture, insulated penny shaped crack 4−65663
  - thermal oscillations penetration into conductive and radiating wall *(Italian)* 4−43191
  - thermoelastic wave with finite heat propag. vel., amplitude determ. 4−43058
  - thermostatic problems, iterative methods 4−43202
  - three-dimensional boundary-value problem for a body with cylindrical surface 4−77571
  - transient, two-dimensional problems, finite element method 4−62755
  - transient conduction, continuous solns. 4−77572
  - two-dimensional, in irregular domains, singular perturbation solns. 4−55399
  - uniqueness theorem, finite wave speed, heat conductors with memory 4−74436
  - unsteady heat conduction, nonlinear heat transfer coefficients 4−68969
  - upper atmosphere, horizontal heat conduction during electron precipitation 4−80374
- **heat content** *see enthalpy*
- **heat convection** *see convection*
- **heat dissipation** *see cooling*
- **heat engines**
  - information theory approach to thermodynamics 4−81257
- **heat exchange** *see heat transfer*
- **heat exchangers**
  - *see also cooling towers*
  - convection from pipe with harmonic internal heat generation 4−75088
  - cylindrical structures dynamical behaviour in axial flow 4−63244
  - finned tube, air flow, transfer coeff. and press. drop 4−43934
  - fluid problems in industry, conf. vol. IV, Keswick, England (Apr. 1973) 4−48184
  - gas-counterflow single-pass, calcs. for chemically reactive coolant N_2O_4 *(Russian)* 4−43653
  - holographic investigation of reduced temp. boiling *(German)* 4−50973
  - hydraulic inlet of close-packed bundle of rods, fluid vel. profiles 4−56380
  - liquid metal, turbulence meas. in a magneto-fluid-mechanic channel, appl. to fusion reactors 4−78683
  - multistage forced-circulation, approx. soln. of eqns. of thermal dynamics 4−65841
  - Nernst thermomag. generator with internal heat exchange, thermodynamic analysis *(Russian)* 4−54838
  - nuclear power plant, assessment of actual loading conditions according to probabilistic criteria 4−47764
  - Parkinson type, gas liquefaction, heat exchange obs. in miniature N_2 and Ar units 4−58765
  - regenerative counterflow, temp. fields of gases and materials *(Russian)* 4−43610
  - serial solution by heat exchanger 4−62427
  - stress waves, propagation in anelastic multi-layer body 4−49986
  - surface efficiency in ^{3}He-^{4}He dilution refrigerator 4−65401
  - transient thermal processes evolution 4−43953
  - Na-NaK, mixed convection in horizontal shell 4−43629
- **heat flow** *see heat transfer*
- **heat insulation** *see thermal insulation*
- **heat losses**
  - *see also thermal insulation*
  - friction, calcs. *(Russian)* 4−72523
  - linear θ-pinch d.c. Joule losses, laser and mag. heating compared 4−63686
- **heat measurement** *see thermal variables measurement*
- **heat of adsorption**
  - dichloromethane, heat of absorpt. on porous γ-alumina 4−64722
  - dimethyl sulphide/γ-Al_2O_3, adsorpt. investig., heat of adsorpt. determ. 4−52987
  - dimethyl sulphide/SiO_2 gel, adsorpt. investig., heat of adsorpt. determ. 4−52986
  - ethanethiol/γ-Al_2O_3, adsorpt. investig., heat of adsorpt. determ. 4−52987
  - ethanethiol/SiO_2 gel, adsorpt. investig., heat of adsorpt. determ. 4−52986
  - liquid-liquid interface, thermodynamic study *(Flemish)* 4−44683
  - methanethiol/γ-Al_2O_3, adsorpt. investig., heat of adsorpt. determ. 4−52987
  - methanethiol/SiO_2 gel, adsorpt. investig., heat of adsorpt. determ. 4−52986
  - organic vapours on silica-gel, polar and apolar molecule interactions 4−79237
  - tetrachloromethane, heat of absorpt. on porous γ-alumina 4−64722
  - trichloromethane, heat of absorpt. on porous γ-alumina 4−64722
  - Al_2O_3, alumina, of cyclohexane, weak interaction 4−56972
  - $BaSO_4$ surface, of water, rel. to hydrophilic sites 4−52997
  - Cu on nonuniform surface of C replica containing dispersed Au *(Russian)* 4−71255
  - H_2, on β Pd, single phase α and β regions, heat of adsorpt. determ. 4−48839
  - H_2 adsorption on Pt/Al_2O_3 catalyst, isotherm determ. by i.r., heat of adsorpt. calc. 4−44767
  - H_2S/γ-Al_2O_3, adsorpt. investig., heat of adsorpt. determ. 4−52987
  - H_2S/SiO_2 gel, heat of adsorpt. determ., adsorpt. investig. 4−52986
  - N_2 adsorbed on SiO_2-supported Pt, i.r. absorpt. spectral investig., heat of adsorpt. determ. 4−80211
  - NO, adsorption on low and high energy surfaces 4−44763
  - NaCaA-zeolite, separate adsorpts. of H_2S and n-butane investig. rel. to temp. *(German)* 4−60684
  - NaCl,, sublimated, of Ar and N_2, site energy distrib. 4−56973
  - Ni film, CO adsorption states obs. 4−75703
  - Pt, clean polycryst. filaments, H heat of adsorption determ. 4−63980
  - Pt, of Xe, coverage and cryst. face effects, field emission microscopy obs. 4−67109
  - SiO_2 gel, adsorpt. of H_2S, methanethiol, ethanethiol, dimethyl sulphide investig., heats of adsorpt. meas. 4−52986
  - W, of Ho, action of elec. field *(Bulgarian)* 4−48848

heat of combustion
  No entries

heat of crystallisation
  alkali germanate glasses, soln. calorimetric approach to struct. *(Japanese)* 4-69731
  polypropylene fibre, methyl methacrylate-grafted, thermal props. *(Japanese)* 4-50015

heat of dissociation
  As_4, vapour press. over InAs(c) and GaAs(c) investig., enthalpy of dissoc. determ. 4-52886
  $CaCO_3^\circ$ ion pairs, thermodynamic props., 10 to 50C 4-64724
  GaAs(c), vapour press. of As investig., enthalpies of form., decomp. determ. 4-52886
  GaSb, third law enthalpies 4-80177
  Ge_2N, GeSiN, mass spectrometric determ. of heats of form., atomisation energies 4-61579
  InAs(c), vapour press. of As investig., enthalpies of form., decomp. determ. 4-52886
  $MgCO_3^\circ$ ion pair, thermodynamic props., 10 to 50C 4-64724
  $ZnAs_2$, thermodynamic stability, dissociation press. 4-56855

heat of formation
  rare earth compounds, enthalpy, calc. from cryst. chem. 4-44682
  tribromoacetic acid-water complex in CCl_4 solution *(Russian)* 4-57889
  trichloroacetic acid-water complex in CCl_4 solution *(Russian)* 4-57889
  AlF_2^-, AlF_4^-, heats of form., electron affinities determ., effusion-mass spectrometric method 4-78507
  $(1-x)As_2Se_3.xSb_2Se_3$, amorphous alloy 4-44482
  BF_2^-, BF_4^-, heats of form., electron affinities, determ., effusion-mass spectrometric method 4-78507
  BF_3 adducts, ab initio MO calc. of electronic structure and heats of formation 4-43797
  $Bi^+(H_2O)_n$, hydration equilibria, mass spectrum 4-61594
  Cu_6Sn_5, $\eta \rightleftharpoons \eta'$ transform. behaviour, metallic bonding 4-45515
  EuN, standard heat of form. 4-45943
  Ga-Cs(K) system phases *(Russian)* 4-45538
  GaAs(c), vapour press. of As investig., enthalpies of form., decomp. determ. 4-52886
  GeF_3^-, enthalpy of formation by electron impact dissoc. of tetrafluoride 4-48117
  Ge_2N, GeSiN, mass spectrometric determ. of heats of form., atomisation energies 4-61579
  HfO, gaseous isomolecular O-exchange reaction, thermodynamic props. 4-57819
  Hg_5Tl_2, thermodynamic properties, enthalpy of formation *(German)* 4-69924
  InAs(c), vapour press. of As investig., enthalpies of form., decomp. determ. 4-52886
  Mg_2Ge 4-64706
  MoO_4^{2-}, aq., standard enthalpy of form. determ., calorimetric method 4-52908
  $OH^- + C_2H_2 \rightleftharpoons C_2H^- + H_2O$, kinetics; $\Delta G_{298}{}^0$, $\Delta S_{298}{}^0$, $\Delta H_{,298}{}^0$ determ. 4-83013
  Rb_2MoO_4, standard enthalpy of form. determ., calorimetric method 4-52908
  Rh_2, gaseous mols., thermodynamic investig. 4-43874
  SF_6, Ar and H_2 shock wave decomp., ΔH° for SF_5 determ. 4-45901
  SF_6Cl, Ar shock wave decomp., ΔH° for SF_5 determ. 4-45901
  $SiCl_{4(g)}$, rel. to dissociative-electron attachment process obs. 4-78519
  TiRh, Ti_2Rh, gaseous mols., thermodynamic investig. 4-43874
  U-N system, phase relations and thermodynamics 4-51885
  Zn_3As_2-ZnTe system, synthesis, chem. anal. and microstruct. investigations 4-45897
  ZrO, gaseous isomolecular O-exchange reaction, thermodynamic props. 4-57819

heat of fusion
  correlation with activation energy of self-diffusion, binding energy and thermal expansion *(Russian)* 4-67070
  expandable-lattice theory, configurational free energy 4-69899
  octafluorotoluene, low temp. heat capacity, enthalpy of fusion, triple-point temp. determ. 4-52909
  polyethylene, chain defects effect on thermal behaviour 4-61545
  polypropylene fibre, methyl methacrylate-grafted, thermal props. *(Japanese)* 4-50015
  trioxane-1, 3-dioxolane copolymers prepared by post-polymerisation 4-80138
  α-Al_2O_3, corundum, enthalpy, heat of fusion and m.p. rel. to calorimetric standards 4-63902
  $CsMnCl_3$, enthalpy of fusion 4-56888
  Cs_2MnCl_4, enthalpy of fusion 4-56888
  Cs_2ZrCl_6, enthalpy of fusion 4-56888
  Cu, meas. using liq. Ar calorimeter 4-60623
  ErB_{12}, drop calorimetry 4-63901
  Ge-Co(Cu)(Ni)(Sb) system alloy form. kinetics 4-70436
  N_2, pure and doped with O_2, Ar, Kr, CO, heat of fusion as triple point meas. 4-82263
  $NaNO_2$, enthalpy between 450 and 800°K 4-56891
  U, meas. using liq. Ar calorimeter 4-60623
  UB_{12}, drop calorimetry 4-63901
  $Zr_{0.6}Y_{0.4}B_{12}$, drop calorimetry 4-63901

heat of mixing
  alcohol-hydrocarbon ternary mixtures, thermodynamic investig., vapour-liq. equilib., heat of mixing 4-45946
  alkanes, normal and branched, mixtures with tetra-alkyl tin compounds, heats of mixing determ. 4-54100
  binary alloys, free enthalpy of mixing, chemical spinodal curve calc. 4-76413
  cycloheptane + 2,3-dimethylbutane, mixt., excess thermodynamic props. determ. 4-54097
  cyclohexane + 2,3-dimethylbutane, mixtures, excess thermodynamic props. determ. 4-54096
  dimethylsulphoxide-water system, 25°C 4-54088
  glassy alloys, T_g rel. to atomic sizes and heats of mixing 4-78926
  liquid metal systems, free volume theory 4-78883
  liquid-vapour/gas equilibria, equilib. consts. evaluation, entropy, enthalpy, heat of mixing calc. *(German)* 4-60603

heat of mixing continued
  nonelectrolyte solutions, excess entropy and enthalpy of mixing eval. from internal press. 4-45938
  propylene carbonate-water system, 25°C 4-54088
  ternary solutions, temp. depend., statistical thermodynamics 4-60624
  tetra-alkyl tin compounds, mixtures with normal and branched alkanes, heats of mixing determ. 4-54100
  water + acetic acid, thermodynamic props. *(German)* 4-79164
  $AgCl_2$-alkali halide binary liquid mixtures, enthalpies of mixing determ. by high temp. calorimetric meas. 4-45942
  Ca-Sr(Ba) systems, liq., energetics of alloy form., thermodynamic meas. *(German)* 4-48768
  Ge-Au(Cu) liq. systems, mass spectrometry obs. 4-45944
  Ge-Cu alloys, binary liquid, investigation of thermodynamic props. 4-45492
  Hg-In alloys, liq., association equilibria, conc. depend. of enthalpy of mixing *(German)* 4-72423
  Hg-Tl, liquid, enthalpy of mixing, equilibrium of association *(German)* 4-69924
  $LaCl_3$-ACl system, A = Li, Na, K, Rb, Cs, thermodynamic quantities of mixing meas. using electrochem. cell method 4-68011
  NaF-AlF_3 mixture, enthalpy of mixing, isothermal and drop calorimetry 4-56884
  Sr-Ba system, liq., energetics of alloy form., thermodynamic meas. *(German)* 4-48768

heat of reaction
  see also heat of combustion; heat of dissociation; heat of formation
  DTA, quantitative, heat transfer errors 4-51225
  pyrolysis, in flow-reactors at high temp., energy balance investig. using models *(German)* 4-50137
  submarine heat prod. due to chem. reactions from seawater movements through ocean floor materials 4-64727
  SeF, dissoc. enthalpy and spectroscopic consts., MO study 4-63390

heat of solution
  alkali germanate glasses, soln. calorimetric approach to struct. *(Japanese)* 4-69731
  tetraalkylammonium bromides in dioxane-water mixtures, enthalpies 4-50213
  water, solvation, Monte Carlo calc. of hydrophobic interaction with non-polar mols. 4-48498
  He in carbon tetrachloride soln., solvent effects, solvation energy 4-64725
  $InCl_3$-H_2O system, thermodynamic characteriz. 4-80213
  In_2O_3, in conc. HCl 4-80213
  $In(OH)_3$, in conc. HCl 4-80213
  KCl in aq. solns. of copolymers of vinyl alcohol and vinyl acetate 4-50222
  LiCl in dioxane-water mixtures, enthalpies 4-50213
  Mo-Re alloy with H impurity, and electron structure by X-ray spectroscopy *(Russian)* 4-82351
  NaCl in dioxane-water mixtures, enthalpies 4-50213
  PuF_3, in LiF-BeF_2-ThF_4 and LiF-ThF_4, solubility and heat of solution calc., appl. to breeder reactor 4-78267
  W, solubility of C at 1400 to 2000°C, obs. *(German)* 4-49738

heat of sublimation
  benzene, solid, vap. press. determ. below triple pt., triple pt. determ. 4-52885
  cyclohexane, solid, vap. press. determ. below triple point, enthalpy of sublimation determ. 4-52885
  Ca, vap. press. determ. rel. to temp., heat of sublimation calc. 4-52884
  EuTe, 1717-1887K, Knudsen effusion meas. 4-79151
  N_2, pure and doped with O_2, Ar, Kr, CO, heat of sublimation at triple points meas. 4-82263
  NdF_3, entropy, enthalpy and vap. press. 4-79149
  Ne, sublimation energy, isotope effects and new calc. value 4-63908
  Rh, 1850-2120K, Knudsen effusion-mass spectrometric study 4-63909
  Sr, vap. press. determ. rel. to temp., heat of sublimation calc. 4-52884
  TbF_3, entropy, enthalpy and vap. press. 4-79149

heat of transformation
  ammonium halides, polymorphism, three particle interactions *(Russian)* 4-60610
  cholesteryl oleyl carbonate-cholesteryl chloride binary mixtures, liq. cryst. transitions, latent heat investig. *(German)* 4-66816
  ice, III-IX transformation, thermal obs. 4-56877
  quartz, DTA meas., comparison with thermal expansion data 4-79154
  rare earth dicarbides and mixed solid solutions 4-67036
  $Ca(NO_3)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4-69729
  $Cd(NO_3)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4-69729
  $CuCO_3$:$Cu(OH)_2$, heat effects in amorphous-crystalline transform. 4-67035
  Mg_2GeO_4, olivine-spinel transition, enthalpy, olivine-spinel-phenacite stability relations, thermodynamics 4-67043
  $Mg(OAc)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4-69729
  $NaH_3(SeO_3)_2$, ferroelec. transition, spin model 4-70265
  NdH_2-NdH_3 system, solid-state phase transitions, enthalpy changes, 25-700°C 4-72568
  $^{242}PuF_3$, ht. capacity, entropy, enthalpy, 10-350K 4-79159
  SmH_2-SmH_3 system, solid-state phase transitions, enthalpy changes, 25-700°C 4-72568
  Tl-S system, thermodynamic form. functions of compounds 4-44653

heat of vaporisation
  liquid metal, rel. to surface tension 4-63970
  student experiment, calc. using obedience of evaporation of liquids to Arrhenius law 4-58710
  transition metal carbides heated on graphite filament 4-52235
  vapour layer form. at a liquid to hot wall interface 4-63905
  EuN, Knudsen effusion mass spectrometry 4-45943
  N_2, pure and doped with O_2, Ar, Kr, CO, heat of vaporisation at triple point meas. 4-82263

heat of vaporisation continued
- Sb_2Te_3, vaporisation, heat of reaction, equilib. vapours mass spectra 4−56874
- $VS_{(s)} \rightarrow VS_{(g)} + V_{(g)} + S_{(g)}$, 1700-2000K, thermodynamics, mass spectra 4−52882

heat of wetting *see wetting*

heat pumps
- coefficient of performance, new method of increasing 4−77246

heat radiation
- blackbody radiation, effect of cavity shape on Stefan-Boltzmann and Planck formulas 4−47252
- brass, roughened surface, bidirectionally reflected thermal radiation analysis 4−82880
- cooling, thin wire in gas layer 4−65849
- cylindrical cavity with nonisothermal heat cond. walls, radiant efflux 4−47249
- diatomic gas-radiation interaction, correlated translational and internal modes 4−75072
- emission balancing, of inhomogeneously radiating surfaces *(German)* 4−68966
- equilibrium radiation in finite-size cavity 4−68978
- Mercury, i.r. radiometry, preliminary Mariner 10 obs. 4−70944
- nonstationary heat-transfer problem. linearization, perturbation technique 4−65847
- semitranslucent media, total heat transmission 4−68974
- shields, heat transfer props. at high temps. 4−42754
- spatial layer, cooling during Stefan-Boltzmann radiation from surface 4−65843
- thermal radiation between closely spaced metal surfaces, low temp. 4−55396
- LiF slabs, spectral thermal emission meas. in far i.r. 4−67050

heat systems
- *see also boilers; heating*
- acquifer, solar energy accumulation, model 4−80276
- acquifer, solar energy accumulation, temp. distrib. calc. 4−80275
- radioisotope power sources in ocean environment 4−63313

heat transfer
- *see also convection; cooling; heat conduction; heat radiation; radiative transfer; thermal diffusion*
- aerodynamic heating, mapping, photographic data processing 4−48226
- air, laminar flow along electric arc in tube, heat transfer *(Russian)* 4−56378
- air bubble formation in water, glycerine, glycerine-water systems, heat transfer 4−56443
- air flow in narrow channels 4−43954
- air/water two-phase flow in spirally grooved tubes 4−48342
- alkali metals, crisis during boiling, free convection 4−44666
- alkali metals, in vap. generating tube, boiling effect 4−43624
- analogy, respiratory tract deposition, mathematical model using 4−83289
- annular anisotropic plate with temp. depend. heat transfer coeff., temp. stresses 4−43065
- annular chnnel with rot. axial air flow, hydraulic resist. and heat transfer 4−43962
- atmosphere heat transfer-resistance coeff. relation for air flow over rough surfaces *(Russian)* 4−64878
- benzol-ethanol mixture, heat exchange intensity in boiling *(Russian)* 4−52879
- Bermuda Deep Drill 1972, heat flow and heat production 4−76626
- blunt bodies in supersonic flow, heat transfer, missile domes with i.r. seekers design *(German)* 4−52432
- boiling liquid, critical heat flux meas. under transient conditions 4−63531
- boundary layer, in turbulent separation zones, local flow parameters at boundary 4−43961
- boundary layer, increase due to mass injection 4−81833
- boundary layer, laminar axisymmetric, periodic crossflow effect on heat transfer 4−48199
- boundary layer, temp. profiles during liq. boiling in free vol. 4−52379
- boundary layer, thermodynamic coupling, rapid coupling-factor estimate 4−60160
- boundary layer flow on plate, temp. and turbulent Prandtl number profiles 4−43937
- boundary layer on vertical flat plate, uniform surface heat flux 4−52372
- boundary value problems of one-dimensinal heat eqn. appl. of general similarity soln. 4−47247
- Boussinesq fluid between horizontal rotating discs, thermally induced meridional cell 4−81850
- brief thermal contacts, effusivity *(French)* 4−52371
- buoyant plumes, 3-dim. unsteady conservation eqns. 4−44056
- burn up of liquid flowing through a pipe in heat transfer experiments, detection 4−42753
- calorimeter, heat-flow type, generalised, spherical, cylindrical models, boundary value problems solved 4−50975
- chemically reacting streams in equilibrium, energy eqn. 4−63631
- circular cylinder with downstream splitter plate in crossflow, heat transfer and drag behaviour 4−52391
- circulating system, dynamics of incompressible heat transfer agent, computer calcs. *(Russian)* 4−52398
- cloudy atmosphere, radiant heat transfer, book 4−61823
- cold liquid jet, vapour condensation, heat transfer 4−69593
- combined heat and mass transfer eqns., coeffs. computation using straight-line method 4−62758
- combustion surface in condensed medium *(Russian)* 4−76601
- composite semi-space, transient temp. field resulting from incident heat flux 4−45786
- condensation, vibration effect 4−60173
- condensation heat transfer to wall from gas-vapour system 4−63527
- contact heat transfer in four-body system, temp. and heat balance calc. 4−65842
- convection influence, flow in vertical tubes 4−69563
- cooling of very hot vertical surface by falling liquid film 4−75101
- corrosion studies, high-press. steam loop, superheated alloys, high heat fluxes *(German)* 4−82887
- corrugated surface systems, contact thermal resist. 4−43197

heat transfer continued
- Couette cylindrical flow with radial temp. gradient *(German)* 4−63549
- Couette plane channel flow 4−56359
- critical value, in presence of large vapour contents 4−78578
- cryogenic liquid container, heat influxes through neck determ. 4−50995
- cylinder heated using countercurrent or direct current system, temp. field calc. *(German)* 4−43193
- cylinder motion reln. to resting fluid, for small values of curvature parameter *(German)* 4−63538
- cylinder semi-infinite, heat cond. anal. 4−55400
- from cylinders in turbulent air stream 4−56414
- cylindrical tube, fluid motion and heat transfer w.r.t. exponential viscosity/temp. relation *(Russian)* 4−52401
- deep ocean off Hawaii temp. spectra 4−64856
- deformable solid, mech. energy dissipation during thermal diffusion processes 4−48707
- density interface, turbulent struct. 4−72281
- dielectric crystals, heat pulse propagation *(Russian)* 4−52948
- diffusion in non-viscous parallel channel flow with discontinuous velocity distrib. *(German)* 4−81848
- Dirichlet problem with double-layer potential density, Monte Carlo soln. 4−81256
- drop formation, analytical soln. 4−52507
- droplets, bubbles, heat and mass transfer, criterion eqns. 4−56442
- drying, diffusion theory, moisture distrib. and drying rate, expt. 4−81840
- electrohydrodynamic heat pipe, capillary struct., performance 4−63593
- electrothermal printheads to print, theory 4−42826
- embedded heat wire, thermal coupling meas., using self-balancing bridge 4−74016
- equilibrium temperature of stream of hot gas, analytic formula 4−48211
- evaporation of liquids from surface of pipeline transition element into gas stream 4−63530
- exospheric downwards conductive heat flux at mid-latitude station, diurnal and seasonal var. 4−64938
- ferrite elements, internal evolution of heat, thermoelastic props., thermophys. props. 4−66956
- film condensation, correl. of data, similarity parameter applic. 4−63534
- film condensation heat transfer in presence of noncondensable gas, effect of elec. field 4−75175
- film cooling, analysis of heat transfer 4−78586
- film cooling under real conditions in moving systems 4−66571
- film-cooled wall, influence of Mach numbers on dimensionless eigentemperature *(German)* 4−63563
- finned tubes, transfer coeff. and pressure drop in transverse air flow 4−43934
- fixed and fluidised beds, fluid-particle heat transfer 4−52489
- from flat plate to CO_2, by turbulent free convection 4−69562
- flow, in gaps and slots, including ablation effects 4−75127
- flow, laminar and turbulent flow in tube with twisted tape 4−63525
- in flow of thin layer of viscous liquid, diffl. eqn. *(Russian)* 4−56370
- fluidised bed, bed-wall heat transfer, up to 1000°C, bubble model 4−44110
- fluidised bed, conductive component of heat transfer 4−66649
- fluidised bed, gaseous, heat transfer during bubble form. 4−52505
- fluidised bed, heat transfer between fluid bed and wall *(German)* 4−48345
- fluidised bed, heat transfer coeffs. for vertical cylinder 4−66650
- fluidised bed, heat transfer to immersed objects 4−44118
- fluidised bed, multistage inclined 4−48347
- fluidised beds with heat sources, interphase heat transfer 4−75177
- forced convection heat and mass transfer, rapidly varying surface boundary conditions 4−43930
- forced oscillations in heat- and mass-transfer system with finite transfer rate 4−43205
- forces acting on body in gas caused by thermal stresses *(Russian)* 4−55398
- free convection on vertical plates and cylinders, dimensional analysis 4−48200
- fron binary mixtures, condensation, heat and mass transfer 4−69901
- fuel-coolant interactions, model 4−56445
- fusion reactors, first-wall shields for early machines, heat flux limitations 4−69339
- fusion reactors, toroidal, MHD blanket scaling 4−69345
- gas, partially ionised, transport phenomena *(Russian)* 4−75194
- gas flow around reactive body, non-equilib. chem. reactions, heat-mass transfer *(Russian)* 4−60264
- gas injection, effect of hole geometry and gas density on film cooling 4−44055
- gas injection, supersonic flow, effects of He, Ar, H injection, stagnation conditions 4−81972
- gas mixture, reactive laminar flow over plate heat transfer, friction stress *(Russian)* 4−75098
- gas mixture, turbulent flow, condensation on vertical surface *(German)* 4−56362
- gas mixtures, multicomponent, Burnett approx. *(Russian)* 4−56371
- gas mixtures, temp. factor effect on heat and mass transfer in flat parallel channel *(Russian)* 4−63533
- gas sublimation between horizontal plates, heat and mass transfer 4−66572
- gas-liquid interface, thermal interaction 4−66573
- gas-liquid interface, wavy disturbance effect on heat transfer 4−63586
- gas-ventilated charge of fine-porosity material, temp. field calc. 4−60167
- glass fibre materials, scatt. effect on heat transfer 4−64642
- glass manufacturing process, rel. to fluid flow 4−70584
- granular packing layer, heat-generating, in pipe, temp. field 4−51481
- Green's function asymptotic of Riemannian manifold Ito's stochastic integrals 4−51288
- Guadeloupe Island, Lesser Antilles heat flow meas. 4−57926
- heat and mass transfer near rotating surfaces, review 4−78588

heat transfer continued
heat conduction, time variable heat transfer coeff., boundary-value problem 4−47248
n-heptane, evaporating drops at hot wall, saturated heat transfer 4−69564
heterogeneous medium with ellipsoidal particles, effective thermal cond. *(Russian)* 4−55401
n-hexane, evaporating drops at hot wall, saturated heat transfer 4−69564
hot plasma contact with cold wall 4−78287
hot-wire anemometer, effect of fluid property variations on response 4−51241
humid air, free convective heat transfer to vertical plate under frosting conditions 4−69560
hydraulic resistance and heat exchange w.r.t. forced movement of liq. at supercrit. press. 4−52377
hypersonic boundary layer, near sharp compression and expsn. corners, momentum integral method 4−44021
hypersonic boundary layer eqn. soln. for chemical nonequilibrium in atmospheric re-entry *(German)* 4−63560
hypersonic shock layer, droplet dynamics 4−48351
ice-water sublimation into vacuum, temp. jumps and heat and mass transfer over permeable surface 4−52883
ideal gas, nonequilib. vel. distribs., information theory derivation 4−77574
incompressible liquid, in initial portion of circular tube, laws of heat supply 4−60168
incompressible liquid flow, conjugate nonstationary heat transfer 4−43959
inert gas thermal accommodation coeffs. on stainless steel and UO_2 4−59852
inhomogeneous turbulence, scalar substance transport, stat. theory 4−43948
interphase, in fixed and semifluidised beds 4−78688
Knudsen gas with rotational degrees of freedom, periodic effects 4−52325
laminar, in parallel plate flow 4−60185
laminar boundary layer, similarity transformation in heat and mass transfer 4−43931
laminar boundary layer, thermal wall gradient numerical evaluation 4−56374
laminar boundary layer, three-dimens., near stagnation pt., transpiration cooling 4−44002
laminar boundary layer, with free convection on vertical porous surface, heat and mass transfer 4−43960
laminar boundary layer streams, energy of small wave-like perturbations *(German)* 4−63557
laminar boundary layer under intensive injection and radiant heat exchange, flow behaviour 4−44007
laminar convection combined with injection 4−52378
laminar flow, circular ducts, heat transfer predictions 4−43924
laminar flow in pipes of annular cross-section, nonstationary heat exchange 4−43958
in laminar flow of NO_2 in circular pipe 4−69561
laminar fluid film under side cyclic motion 4−52392
laminar wall jet with non-isothermal surface conditions, series soln. method 4−75093
layer, extremal problems, condition of reverse motion of thermal medium 4−62760
layer counter flow apparatus and heat exchangers, transient thermal processes 4−43953
liquid, very low press. region, heat transfer intensification and boiling process stabilization 4−43957
liquid condensate film, laminar stability anal. 4−63535
liquid film, downward flow along vertical surface with attendant heat transfer 4−43947
liquid film, falling, heat exchange during evap. 4−66570
liquid film, heat transfer in nucleate boiling 4−52384
liquid film, motivated, surface wave effects on triple-phase front of dry path 4−72332
liquid film, vertical falling, hydrodynamics and heat transfer 4−48201
liquid film flow, gravitational instability in thermal entry region 4−48198
liquid jets and air in crossflow, direct contact convection 4−75178
liquid metal, bubble form. at heated wall, random walk theory 4−44131
liquid metal, eddy diffusivity, radial and tangential 4−43984
liquid metal, eddy diffusivity theory 4−43981
liquid metal, film condensation parameters 4−44667
liquid metal, incipient, superheat, slug-annular regime 4−44136
liquid metal, rel. to reactor cooling 4−43630
liquid metal, superheat, incipient boiling temp., cavity 4−44661
liquid metal, superheating, bubble nucleation mechanism 4−44663
liquid metal, turbulent MHD flow 4−44106
liquid metal MHD condenser cycle with preheating *(German)* 4−69600
liquid metal superheat, effects on dynamic boiling 4−44662
liquid metal vapour, binary condensation heat transfer 4−44108
liquid metals, conf. Trogir, Yugoslavia (1971) 4−43980
living tissue, energy conservation equation, error in 4−83295
local instantaneous heat transfer from vibrating cylinder in air 4−52369
local transfer coeffs. determ. using liq. crysts. 4−58758
low Reynolds number flow past circular cylinder, unsteady heat transfer 4−81849
LWBR, critical heat flux and press. drop tests with parallel upflow of water in rod bundles 4−66254
measurement of thermal flux, thermoelectrical compensation instrument 4−77043
measurement using Pt resist. thermometer, electrochem. system 4−68632
MHD ionised gas flow round body, heat flux *(Russian)* 4−75165
mixed oxide fuel elements of LMFBR, effects of cracks and granular structure 4−43600
narrow slit channels, forced flow 4−43949
neutral gas layer in theta-pinch reactor, Monte-Carlo calcs. 4−78279
non-Newtonian fluid, thermal boundary layer, eqns. of motion and energy 4−48204

heat transfer continued
non-stationary problem, linearization, perturbation technique 4−65847
nonequimolar transfer of matter in film column, gas phase mass transfer 4−52382
nonlinear equilibrium processes, variational principle 4−43215
nonlinear gas oscillations maintained in closed pipe by heat source 4−48334
nonlinear parabolic second initial boundary value problems, positive solns. 4−43208
Norway, heat flow and heat generation studies 4−76642
nuclear fuelled capsule heat transfer gaps meas. using neutron radiography 4−69280
nuclear power station, Caorso, core residual heat transfer to external environment, system design 4−51860
nuclear reactor, LMFBR, molten fuel-coolant interactions, reactor structural response 4−47761
nuclear reactor, rod array crit. heat flux data, sources, information 4−71984
nuclear reactor SNR-300 sodium systems 4−51864
ocean, response to large-scale surface heat and momentum flux 4−64854
one-dimensional heat flux in gas at rest, unsteady temp. discontinuity 4−52460
organic liquids, crisis during boiling, free convection 4−44666
organic vapour, condensation on immiscible water film, heat transfer 4−75084
Pacific North Equatorial Current, maintenance by thermal/mixing process 4−80291
Pacific Ocean, coeff. of turbulent heat exchange *(Russian)* 4−57995
packed bed, coupled heat and mass transfer, unsatisfied Lewis relation 4−60238
packed bed, heat transfer, axial dispersion 4−56439
packed beds, heat transfer, one- and two-phase models 4−52480
peak pool boiling heat flux in viscous liqs. 4−48217
plane turbulent mixing layer, heat transport 4−54203
plasma jet, heat exchange in stagnation pt. region of blunt body 4−44195
plate, single-layer, approx. soln. of temp. problem 4−51483
plates, in transitional flow regime 4−43935
plug regime of liquid N film boiling 4−43938
porous body, nonstationary temp. field on gas filtration 4−52527
porous media, heat exchange intensity, coolant props. depend. 4−44154
post-arc channel, gases, heat exchange, expt. 4−60175
power-law fluid, temp. depend. with heat generation, nonisothermal channel flow 4−56361
pseudoplastic solution, laminar flow in horiz. circ. tubes 4−56375
pulsating laminar flow *(German)* 4−43927
pyrolysis, in flow-reactors at high temp., energy balance investig. using models *(German)* 4−50137
quasiparticle gas, lower energy limit *(Russian)* 4−47221
radiative-conductive heat transmission in regular mode of second kind 4−74437
rarefied gas between parallel plates, arbitrary surface accommodation 4−44089
reacting gas flow in tubes, hydrodynamics and heat transfer *(Russian)* 4−52531
reactors, water-cooled, burnout, in transients, analysis 4−47748
refractory particle in thermal plasma, evaporation *(French)* 4−48372
relativistic hyperbolic heat equations 4−56457
review of 1973 literature 4−75086
role of adsorbed gas during boiling 4−69902
rotating disc, exptl. study of heat and mass transfer is laminar, transient and turbulent regimes *(Russian)* 4−60171
sand casting, heat transfer in flowing molten metal 4−45624
saturated boiling in channel, subcooled, heat transfer coeff., semi-empirical calcs. 4−72342
saturated pool boiling expt. on nonwetted surface 4−48361
screen-covered and smooth cylinders in crossflow, comparison of Nusselt number and drag coeff. 4−75106
second order boundary layer flow, dissipation effects 4−69571
self-evaporating liquid discharge, critical phenomena 4−69591
semitranslucent media, radiation 4−68974
shock wave, Mott-Smith distribution function, constitutive relations for heat flux, stress and fluid vel. 4−44038
shockwave, liq., heat flux relax. Navier-Stokes anal. 4−52439
silicone oil, natural circulation in heated inclined rectang. channel 4−72278
simulation of temp. distribs. in vacuum 4−43199
solid-liquid suspension, turbulent tube flow, heat transfer, press. loss *(German)* 4−56449
sphere, hollow, transient thermal problem 4−65698
spherical heat flow from spherisation of plane Laplace functions 4−51478
spray drying, mathematical model 4−48354
spray drying apparatus with heat supply from walls, evap. zone boundary temps. and dimens. determ. 4−43952
steam, condensing, high speed flow, nonequilib. expsn. 4−69605
steam condensation in presence of air, heat and mass transfer coeffs. 4−52875
steam-generating channel, thermo-hydraulic low-freq. stability, computer investigation using D-partitioning 4−43939
steam-liquid mixture flow through annular channel heat-transfer crisis calc. 4−63620
stratified flow, turbulent, thermal and momentum diffusivity meas. 4−48227
stream temperature in cooled channel, influence of fund. factors 4−43965
subsonic jet, heat exchange with normally disposed flat obstacle 4−44059
supersonic laminar separated flow with and without suction, heat transfer and press. distribs. 4−52419
surface transfer of MHD unsteady boundary layer 4−44102
swirling turbulent boundary layers, prediction of momentum, heat and mass transfer 4−75103
Swiss lakes, geothermal heat flow meas. 4−73501
thermally isolated materials with small vol. densities, radiant and mol. heat transfer 4−53869

heat transfer continued
- thermodiffusion in solids, dynamical problems 4−74433
- thermoelastic plates, diffusion 4−74434
- time-independent temperature field, band and layer under mixed boundary conditions 4−69566
- transient temperature fields, with finite elements in space and time dimensions 4−62757
- tubes with annular roughness elements 4−75097
- turbulence, variational theory 4−52351
- turbulent boundary layer flow with time depend wall temp., unsteady heat transfer 4−52395
- turbulent boundary layer over flat plate developing temp.-vel. fluctuations 4−69575
- turbulent boundary layer with severe press. gradient, heat transfer and flow development 4−75081
- turbulent diffusion of heat and momentum in ocean 4−57985
- turbulent flow, convective heat transfer 4−48216
- turbulent flow, heat transfer, flow meas. rel. to injection in annulus 4−43942
- turbulent flow, high-temp. gases in cold-walled tube, frictional drag 4−43936
- turbulent flow, high-temp. gases in cold-walled tube, heat transfer and frictional drag 4−43936
- turbulent flow in pipe, Nusselt number calc. using Millionshchikov model 4−78591
- turbulent flow in vertical and horizontal tubes containing water with supercrit. state parameters 4−43955
- turbulent flow of fluid at supercrit. press., model 4−48210
- turbulent gas jet, momentum-, mass- and heat transfer *(German)* 4−75149
- turbulent heat transfer in circular tube with non uniform heating 4−72276
- turbulent jet, heated, mean temp. and vel. 4−48314
- turbulent nonequilibrium gas flow, dissoc., vibr. relax., heat and mass transfer 4−60266
- turbulent pipe flow, penetration model 4−48197
- turbulent pipe flow, variable property heat transfer 4−52393
- turbulent pipe flow of gases and liquids 4−43945
- turbulent pipe flow with constant wall temperature 4−75105
- turbulent temp. boundary layers, multiparameter integration method calc. *(German)* 4−69573
- two infinitesimal surface elements in free-molecular flow, diffusion model of gas reflection *(Polish)* 4−72331
- two-phase ascending twisted stream, interphase heat transfer in film flow regime *(Russian)* 4−63614
- two-phase flow, heat flux decrease 4−78579
- upper ocean, trade wind region east of Hawaii, thermohaline struct., fronts and sea-air energy exchange 4−64855
- upper ocean layer, vertical heat flux 4−64853
- vapour condensation on jet 4−44065
- VISCO-laminar fluid, non-isothermal struct. flow in round tubes *(Russian)* 4−52346
- viscoelastic fluid heated from below, stability 4−81844
- viscoelastic laminar flow in curved pipe of elliptic cross-section 4−52374
- viscous fluid in conical diffusor *(Russian)* 4−52367
- viscous heating in circular Couette and cylindrical Poiseuille flow 4−78575
- wake of a circular cylinder, cooling effect 4−78623
- water, adiabatic evaporation, heat and mass transfer analysis 4−67029
- water, density stratification due to introduction of heated water *(German)* 4−78592
- water, local boiling on nonisothermal surfaces 4−43940
- water, turbulent flow, temp. depend. viscosity variation effect on skin friction *(French)* 4−63523
- water vapour, condensation in inclined tube, hydrodynamics, heat transfer 4−66563
- wedge flows at large Prandtl and Schmidt numbers *(German)* 4−69569
- Al, static heat transfer to boiling liq. He 4−77050
- Ar, laminar flow along electric arc in tube, heat transfer *(Russian)* 4−56378
- Ar plasma, supersonic, heat transfer to semispherical body 4−48406
- Co_2, nucleate boiling departure of h.p., temp. conditions 4−43950
- H_2O, pool boiling critical heat flux in slowly variable transient states 4−75091
- Hg, boiling in tube under forced flow 4−44132
- Hg, liq., from vertical flat plate, natural convection 4−44710
- K, boiling in short rod bundles, crit. heat flux 4−43625
- K, boiling in tubes, press. influence 4−44133
- K, non-equilib. flow, vaporizing through nozzle 4−44137
- Li-cooled mirror machine blanket, thermal energy conversion system 4−63300
- Li-Na-stainless steel CTR blanket, heat transfer and radiation damage 4−55935
- N_2, laminar flow along electric arc in tube, heat transfer *(Russian)* 4−56378
- NO_2, chemically reacting in cooled flat tube, heat and mass transfer in laminar flow *(Russian)* 4−63630
- NO_2, chemically reactive laminar flow, heat and mass transfer in triangular rod beam 4−78718
- N_2O_4 dissociating, turbulent flow, cooling in pipe, heat exchange characts. 4−78717
- N_2O_4 liquid-vapour stream, admixture content of boundary layer, effect on heat exchange *(Russian)* 4−60254
- N_2O_4 liquid-vapour stream in vertical tube, heat exchange in ascending flow *(Russian)* 4−63618
- $N_2O_4 \rightleftharpoons 2NO + O_2$ chemically reactive system in turbulent flow, heat and mass transfer calcs. *(Russian)* 4−44169
- Na, during boiling, l.p., natural convection 4−44665
- Na, heat pipe, low temperature measurements 4−81616
- Na, incipient boiling superheats 4−44664
- Na, liq., hydrodynamic instability, two-phase flow 4−44135
- Na, reactor coolant, boiling, dryout conditions 4−43627
- Na, reactor coolant, local boiling, hydraulic model 4−43626
- Na heat pipe, lined with multilayered wire netting, hot spot upon approach to press. drop limit 4−59833
- Na two-phase flow, in nuclear reactor, flow pattern, pressure drop and critical heat flux 4−81562

heat transfer continued
- NaK, liquid alloy, flowing in line through tube bundles 4−43616
- Nb, Nb-Zr type II superconductors, flux kinetics and heat flow during flux jumps 4−45043
- Nb_3Sn superconductors, Al-clad, cryogenic stability 4−59874
- O_2, liq., boiling in large vol. 4−52380
- UO_2, molten, fragmentation on contact with Na coolant in LMFBR, thermal stress mech. 4−81565

heat treatment
- *see also annealing; heat treatment of alloys; recrystallisation; work hardening*
- ceramic, emanation thermal analysis 4−62422
- fibre optic material, radiation protection, oxidation and reduction effect 4−57493
- glass, silicate, luminescence of Eu^{3+} and Tb^{3+}, effect of thermal history 4−53486
- glass, thermally toughened, NiS induced cracking *(German)* 4−76544
- glass ceramic, β-spodumene, containing ZnO, bending strength rel. to heat treatment *(German)* 4−45733
- glass transformation kinetics, crystn. statistics 4−44483
- I 4−70463
- magnetic ceramics, rate of redox reactions 4−70544
- metal rupture under influence of concentrated heat fluxes 4−70501
- m.o.s. structure, Si-gate, Si-SiO_2 interface states, heat treatment effects obs. 4−49072
- optical glass, indentation hardness and lapping hardness 4−45796
- phosphosilicate glass, effect on water adsorption 4−44760
- plasma arc remelting, N_2 absorpt. from plasma during floating electrode processes *(Russian)* 4−82886
- polycaproamide, effect on static and fatigue strength 4−80126
- pyrocarbon containing phosphorus, heat treatment 4−67933
- rayon precursors small-scale heat-treatment for stress graphitization 4−61540
- βspodumene glass-ceramics, dielec. losses, composition 4−67525
- vacuum, review *(Japanese)* 4−53754
- Al melt, heat of dissolution and modifying ability of transition metals *(Russian)* 4−79983
- Al-Zn alloy, metastable rhombohedral phase, solvus line effect 4−49635
- Al-Zn alloy, phase struct. obs., solubility limit 4−49636
- Al_2O_3, alumina, amorphous vacuum deposited films, influence on struct. and strength *(Russian)* 4−53740
- As-Se-S-Ge, amorphous film, photoexpansion, thermal contraction 4−75728
- B-O_2 polymer compound films, electrophys. props. *(Russian)* 4−75992
- BeO, thermally stimulated exoelectron emission maximum and exoelectron yield shift during powder treatment 4−49541
- C, pyrolytic, thermally induced struct. modifications rel. to deposition temp. 4−81620
- C beads, densification by heat treatment under 5 kbar press., texture changes 4−49874
- C fabric, var. of thermal and elec. cond. with temp. 4−67940
- C fibre, effects on thermal conductivity 4−44716
- C film, elec. resistivity, heat treatment effects 4−67293
- C materials, submicroporosity, effect of heat treatment, irradiation and graphite struct. 4−57792
- CdS, effect on corona charging props., powder layers 4−60842
- CdS, effect on depend. of photocurrent spectrum on bound excitons 4−44963
- CdSe, film, effect on bulk traps, donor level 4−45030
- CdSe sintered layers, phase comp. rel. to heat treatment 4−52896
- Co-Re alloys, electrodeposited, effect of 4−67707
- Co-Ti composite, effect of shock pulse on intermetallic zone, subsequent heat treatment *(Russian)* 4−70561
- Cu_2S-CdS, heterojunction photovoltaic cell, heat treatment effects 4−60824
- $Cu_2Te_{0.68}S_{0.32}$, heat treatment and Mossbauer effect, conductivity 4−67494
- Fe-Al(20 at.%), elec. resist., depend. on quenching temp., local ordering *(Russian)* 4−66858
- Fe_2O_3 roasting, effect on adsorption rate of CO-O_2 4−70581
- GaAs, crystal degradation by abrasion and subsequent heat treatment 4−49605
- GaAs, effect on electrical properties *(Korean)* 4−72797
- GaAs, effects of heat cycling on surface, Rutherford scattering channelling obs. 4−53632
- GaAs, native oxide growth, struct., comp., elec. and encapsulating props. 4−67123
- GaAs-Te, influence on struct. perfection 4−48759
- Ge, amorphous film, effect on struct. and cond. 4−75745
- Ge, heavily doped with Au 4−67730
- Ge, precip. of Li, effect of heat treatment conditions 4−82825
- Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61309
- Ge/Al, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61310
- KCl, laser window material, hot-worked, room-temp. grain growth 4−51080
- Li ferrite, ion ordering influence on pulse props. 4−67395
- LiF, thermolum., role of Mg 4−70371
- LiF:Mg^{2+}, internal friction, temp. dependence *(Russian)* 4−48705
- α-LiLa$(MoO_4)_2$, irreversible transform. to scheelite form at about 730°C 4−49557
- Mg, thermal nitridation at N_2 atm. lower temps. and pressures 4−70488
- Mo, powder preforms, hot and cold pressing characts. 4−49867
- Nb, supercond., effect on penetration depth 4−57211
- Si, behaviour during high temp., 1000 to 1100 degrees C 4−67729
- Si wafer heat cycling, thermal stress relaxation obs. 4−49603
- Si:Ni, heat-treated, i.r. quenching of photocond. 4−57138
- Si:Pd, influence on elec. props., acceptor levels 4−75857
- Si/Ag, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61309
- Si/Ag, amorphous semicond. film/metal film system, cryst. semicond. precip. form. in metal 4−61310
- SiO_2-Al_2O_3-MgO-CeO_2-TiO_2, glasses, effect of heat treatment during crystn., phase transitions 4−44475
- ZnS, effect on phase transitions, α and β phases *(Russian)* 4−67032

heat treatment of alloys
flat specimen, fatigue study, cyclic mechanical and thermal stresses 4−67969
I 4−70463
mechanical strength improvement by thermomechanical hardening *(Russian)* 4−70476
steel, alloy type, temper mechanism 4−82906
steel, austenite, recrystn. during high-temp. thermomech. treatment, carbide forming elements effect 4−61388
steel, austenitic Fe-(20%)Cr-(25%)Ni, splat-quenching, thin foil electron microscopy obs. 4−79927
steel, bainitic, deform. effect of metastable austenite on bainite morphology *(Czech)* 4−79935
steel, bainitic, warm rolling influence on fracture toughness, substruct. obs. 4−45653
steel, case hardening and tool type, used for hot working, dimensional stability *(French)* 4−45691
steel, cast, homogenization treatment and hot isostatic pressing effect on microporosity 4−45682
steel, cast structural, cold resistance after heat treatment 4−61436
steel, cavitation resistance rel. to structural conditions 4−61437
steel, cementite shape change during deform. at subcrit. and supercrit. temps. 4−73301
steel, chromium type, austenite recrystn. after thermomech. treatment *(Czech)* 4−82846
steel, chromium-type, isothermal decomp. of austenite 4−79912
steel, cold shortness threshold and impact strength *(Russian)* 4−76461
steel, Cr-Si-Mn type, influence on breaking resist. 4−67881
steel, creep-resisting 12% Cr, precip. processes, 500 and 600°C *(German)* 4−53674
steel, effect on mech. props. 4−82923
steel, fatigue crack kinetics, thermal treatment influence *(Russian)* 4−53729
steel, ferritic and austenitic, deformed, potentiodynamic curves, heat treatment influence *(French)* 4−45695
steel, fracture by intergranular microvoid coalescence, comp. and heat treatment depend. 4−45680
steel, grain size control 4−70464
steel, hardenability, accurate meas., calc. and control 4−45665
steel, hardenability, symposium, Cleveland, USA (Oct. 1972) 4−45663
steel, hardenability and diffusional growth limitation 4−45669
steel, hardenability and notch toughness, optimum boron range 4−45667
steel, hardenability and nucleation limitation 4−45668
steel, hardenability test based on austenite grain size 4−45664
steel, high Cr alloy containing distributed carbide, plasma hardening 4−53751
steel, high-C, hardenability, alloying effects 4−45666
steel, high-speed, high temp. martempering effect on physicomech. and cutting props. 4−82921
steel, high-speed EP733, isothermal transforms. of supercooled austenite 4−82834
steel, high-speed R6M5, optimal quenching and tempering conditions 4−82916
steel, high-strength, cooperative relation between temper and hydrogen embrittlement 4−82908
steel, high-strength structural, with martensitic struct., complex eval. of mech. and metallurgical characts. *(Czech)* 4−49777
steel, hot rolled carbon type, isothermal transform. kinetics of austenite 4−79911
steel, hot rolled rings, toughness and ductility increase 4−80028
steel, hot workability assessment by hot torsion tests, temp. behaviour influence *(German)* 4−82881
steel, internal friction, effect of creep, ageing and reducing heat treatment 4−49825
steel, irreversible temper brittleness 4−45697
steel, low alloy, thermomechanically tempered martensitic structures and mech. props. *(Japanese)* 4−53750
steel, low-alloy eutectoid, hardenability prediction from thermodynamic and kinetic data 4−45670
steel, maraging, heat treatment conditions effect on microstruct. and mech. props. 4−80027
steel, maraging, struct. and phase comp. of weld seams 4−45728
steel, martensite state after high temp. thermomech. treatment *(Russian)* 4−53655
steel, martensitic transform., internal stress fields and evolution during tempering *(French)* 4−79909
steel, medium-C, martensitic, carbide precip. at first stage of tempering 4−49737
steel, medium-C, transform. kinetics and hardenability, effects of cooling 4−45522
steel, optimal conditions determ. 4−76494
steel, quenched tempered, heating rate influence on austenite form. *(Russian)* 4−76415
steel, roller type, high-temp. thermomech. treatment 4−61439
steel, spring wire, ductility drop after low temp. tempering 4−82920
steel, stainless, 316, fatigue and microstructure effects of He implantation and thermal ageing at 650°C, obs. 4−55940
steel, stainless, grain refining 4−79951
steel, stainless, intercryst. corrosion and impact strength, precip. of carbides 4−79950
steel, stainless, vacuum deposited films, influence on struct. and strength *(Russian)* 4−53740
steel, stainless austenitic, weld overlays, rel. to stress corrosion cracking in high temp. water *(Japanese)* 4−45631
steel, stainless ferritic-austenitic, dispersed particle precip. 4−80029
steel, structural, sound emission correl. 4−82930
steel, structural, susceptibility to reversible temper brittleness 4−76490
steel, temper brittleness and grain boundary etching 4−64552
steel, tempering under stress influence on resist. to dynamic loads and stress corrosion *(Russian)* 4−76462
steel, thermal cycling through $\alpha\to\alpha\to\gamma$ transition, strengthening effect *(Russian)* 4−49662
steel, with protective coating, kinetics of crack development during corrosion-fatigue 4−67970
thermomechanical strengthening using substructural strengthening 4−45685

heat treatment of alloys continued
Al alloys AU2GN, hot fatigue tests, Paris law *(French)* 4−49809
Al-Mg-Si, weakly precip. hardening, low temp. thermomech. treatment 4−61440
Al-Pb (5 wt.%) alloy, obs. of annealing of liquid Pb inclusions in Al matrix 4−70493
Al-Zn-Mg, influence on stress corrosion susceptibility 4−45648
Al-Zn-Mg, SCC vel. and grain boundary precipitates 4−80007
Au-Fe solid solns., discontinuous precip. controlled by vol. diffusion *(German)* 4−70458
Be-Ni, contact spring materials, ductility reversal during age hardening 4−49768
Co-Co$_3$Nb, directionally solidified eutectic, thermal cycling, domain struct. 4−82584
Co-Fe, sulphidation props. in H_2/H_2S atm. at 700°C 4−70487
Co-Fe-Ni-Al, mag. props., effect of heat treatment and mag. tempering 4−64239
Cr-TaB(TaC) dispersion strengthened alloys, comp. and thermomech. condition effects on mech. props. 4−80010
Cu-Al FCC alloys, hot extrusion texture determ. by neutron spectroscopy 4−53783
Cu-ThO$_2$, cold working 4−73325
Cu$_2$MnAl, rel. to effect of antiphase boundaries on mag. props. of Heusler alloys 4−45142
Cu$_2$Mn$_{0.9}$Al$_{0.81}$ Heusler alloy, β phase decomp. on heat treatment, precip. phenomena *(French)* 4−45531
Fe, Armco, cold plastic deform. and subsequent heat treatment effects on mech. props. at −196°C *(Russian)* 4−49762
Fe, austenite transform. and pearlitic hardenability, cooling rate and alloying effect 4−45523
Fe, cast, thermal fatigue failure 4−82919
Fe, cast white, subject to malleableizing, susceptibility to graphitisation 4−82857
Fe-Al alloy, antiphase domain struct. during annealing, electron microscope obs. 4−53678
Fe-Co-Cu-V, semi-hard mag. material characts. *(Japanese)* 4−45139
Fe-Co-Cu-V, semi-hard mag. material characts. and prop. changes on heating *(Japanese)* 4−45140
Fe-Co-Mn, strain gauge factor and elec. props. 4−49837
Fe-Co-V, influence on microstruct. 4−79940
Fe-Co-V (2.5 to 3.0 wt.%) alloy, phase equilib., annealing, microstruct. 4−70441
Fe-Cr-Mo, effect on microstruct. 4−64544
Fe-Cr-Ni (16 wt.%, 12 wt.%), transformation cycling 4−82900
Fe-Cr-Ni-C-Mo, influence of thermal treatments on ferrite contents *(Italian)* 4−45532
Fe-Cu, tempering behaviour after quenching from liq. state *(German)* 4−53706
Fe-Mg, cast, pearlite decomp. and ferrite form. on heating *(Russian)* 4−45707
Fe-Nb-N, homogeneous precipitation of NbN in α-Fe during isothermal treatment 4−79955
Fe-P solid solns., reversible temper brittleness and phase transform. in adsorption layers at boundaries *(Russian)* 4−73315
Fe-Si, cube-on-cube texture form., hot rolling influence *(Russian)* 4−76439
GdCo, amorphous magnetic bubble domain material anisotropy factor affected by local heating 4−64236
Mg-Li, heating effect on mech. props. 4−76483
Mg-Li-Al, $\alpha+\beta$ type, stability of mech. props. rel. to thermal and thermomech. treatment *(Russian)* 4−53743
Mn-Ni-Fe antiferromag. Elinvar-type alloy characts. 4−79567
Nb-Al-Ge, metallography and supercond. 4−49109
Nb$_3$(Al,Ge), A15 type, long range order behaviour 4−45528
Ni$_2$MnGa, Heusler alloy, heat treatment effect and magnetic properties 4−79510
Ni$_2$MnIn, Heusler alloy, neutron and X-ray meas., effect of heat treatment on structure 4−82937
Ni$_4$Mo, domain struct. changes during isothermal ageing at 800°C, electron microscope obs. 4−64529
Si-Ge alloy ingots, hot-pressed, prep. and props. 4−49608
SmCo$_5$, microstruct. changes caused by O_2, sinter-annealing and thermal ageing 4−64549
Ti alloy, β-III, effects of thermal and mechanical processes 4−82901
Ti laminated composites, mech. props. after explosive welding and hot rolling *(Russian)* 4−53825
Ti-Al-Fe and Ti-Al-Cr-Fe, heat treatment and mech. props. 4−73331
Ti-Al-V plate, effects on tensile and fracture props. 4−49849
Ti-Al-V-Sn, TA6V6E2, microstruct. influence on mech. props. *(French)* 4−49796
Ti-Ni, equiatomic, interrupted treatment effects on martensitic transforms. *(French)* 4−49638
U-Cr, grain size control by double-stage heat treatment 4−43644
Y-Co powder magnet, effect on structure and magnetic properties *(Japanese)* 4−61407
Y-Sm-Co powder magnet, effect on structure and magnetic properties *(Japanese)* 4−61407
Zn-Al, eutectoid reaction control 4−49646
Zn-Cu (up to 2.0 wt.%) alloy, heat treatment, ageing, microstruct., creep resist. 4−70494
ZrCo, precip. and eutectoid decomp. after mech. and heat treatment 4−64550

heated cathodes *see thermionic cathodes*

heating
see also electric heating; induction heating; ovens; plasma heating; refractories
acquifer, solar energy accumulation, model 4−80276
Allende meteorite, thermoluminescence studies of atmospheric heating effects 4−65115
asthenosphere, thermal runaways from viscous heating 4−57925
burn up of liquid flowing through a pipe in heat transfer experiments, detection 4−42753
conductor surface heating by pulsed mag. field, minimization 4−55424
critical bandwidths, rapid estimation 4−46385
elastic electrically conducting layer, time-periodic e.m. field effect on temp. and stress distrib. *(Russian)* 4−77427
elastic waves, conversion due to heating 4−43098
furnace noise control program 4−50924

heating continued
- fusion reactor blankets, comparative study of nuclear heating 4−78291
- fusion reactor blankets, sensitivity of neutron heating to nuclear data 4−78292
- gas core reactor, gamma-ray heating calcs. using track-length Monte Carlo estimator 4−78179
- HZ Herculis (Hercules X-1), suggested cosmic-ray surface heating 4−46228
- hydrodynamic analogues of thermal ignition and extinction phenomena *(Russian)* 4−52538
- impulsive, energy profiles in metals, meas., vaporisation expansion wave 4−48746
- Joule-heating temperature jump apparatus, pressurised cell, shock wave noise elimination 4−62555
- metals by CO_2 laser, calc. 4−47395
- plastic, hysteresis heating, repeated shock bending 4−76561
- solar chromosphere, heating time in upper layers 4−76788
- solar corona and chromosphere heating above mag. regions by nonlinear Alfven waves 4−70918
- solid placed in container, temp. fields calc. w.r.t. nonlinear boundary conditions 4−51484
- upper atmosphere, photochemical heating rates, latitudinal distribs. 4−68218

heating elements
- *see also electric heating*
- convection from pipe with harmonic internal heat generation 4−75088
- graphite blackbody radiation source for spectrometer and radiometer calibration 4−80893
- thin-film sensing element for thermochem. analysis of explosive gases 4−55145
- Tokamak machine ion cyclotron rsonance heating apparatus, mech. design and fabrication 4−60299

Heaviside layer *see E-region*

heavy water
- *see also nuclear reactors*
- effect on regulatory properties of phosphohexose isomerase in Lactobacillus casei 4−71081
- electrolysis, D_2 prep., high isotopic purity 4−81031
- electrolyte solutions, deuteron mobility meas. polarographically, diffusion coeffs. calc. 4−45918
- enrichment, H_2/D_2 separation factor by electrolysis, Hg cathode, CoS_2 catalyst 4−43636
- equation of state and thermodynamic properties 4−79137
- flame emission analysis of Gd 4−77291
- leak detection and control in nuclear power plants 4−81653
- moderator, organic coolant, reactivity temperature coefficient for U and U plus Pu fuel 4−78266
- molecular collisions, ionising, with metastable excited states of He atoms 4−43881
- muonium spin relaxation rate determ. at 77K 4−49209
- nuclear reactor, heavy-water moderated, light-water cooled, natural uranium, desalination 4−81544
- production, review of chemical exchange processes *(Italian)* 4−51874
- production in Canada 4−69299
- production methods, review *(Italian)* 4−51873
- Raman scatt. cross section determ. 4−56216
- water-heavy water solns., conditions for spontaneous rupture of supercooling and supersaturation states *(French)* 4−48760
- D_2O-H_2O mixtures, coherent neutron scatt. amplitudes *(German)* 4−78156
- $H_2{}^{18}O$, γ-ray activation anal. using delayed n recording 4−77285
- KCl-D_2O solns., conditions for spontaneous rupture of supercooling and supersaturation states *(French)* 4−48760

height measurement
- aerial photography, optimization of basic parallax equations 4−64990
- barometric station altitude determ. by barometric levelling *(Russian)* 4−54341
- contour generation, optical processing systems using transparencies 4−58122
- Skylab altimetry preliminary data, geodetic analysis 4−68039

Heisenberg model
- amorphous ferromagnet, spin wave spectrum 4−67383
- anisotropic, ground state in parallel mag. field 4−57235
- anisotropic, single-particle Green's function, higher correlation functions 4−70133
- anisotropic exchange interaction, transition temp. shift exponent 4−72970
- anisotropic ferromagnet, single-magnon Green's function, generalized Hartree-Fock approx. 4−53198
- anisotropic Hamiltonian, kinetic theory 4−49145
- anisotropic Hamiltonian, sixth freq. moment of two spin correlation functions 4−76040
- antiferromagnet, cubic, two-magnon Raman scatt. in ordered region 4−57538
- antiferromagnet, deformed, impurity states, variational calc. 4−76033
- antiferromagnet, disordered, distribution of magnon modes 4−57243
- antiferromagnet, divergent transport coeffs. at critical points, renormalization-group calcs. 4−51498
- antiferromagnet, Green's function anal. of paramagnetic phase 4−67335
- antiferromagnet, isotropic, spin waves above Neel point 4−64180
- antiferromagnet, linear, two-magnon bound states 4−76034
- antiferromagnet, spin flop, supersolid, bicritical and tetracritical points 4−57275
- antiferromagnet, spin-phonon interactions, phonon spectrum and spin-lattice relax. 4−72939
- antiferromagnet, spin-phonon interactions, spin-wave spectrum 4−72938
- antiferromagnetic chain, anal. of neutron scatt. line shape representation based on moments 4−66942
- antiferromagnetic impurity levels and effects *(Russian)* 4−67340
- antiferromagnetic linear chain, susceptibility singular terms 4−45097
- antiferromagnets, substitutionally disordered, coherent potential approx. application 4−67336

Heisenberg model continued
- charge transfer molecular solid, antiferromag. thermodynamics 4−48890
- classical, with anisotropic interactions, determ. of free energy 4−67329
- crystal fields, uniaxial and biaxial, systems with biquadratic exchange 4−76031
- dilute ferromagnet, spin waves, coherent pot. approx. 4−45123
- disordered ferromagnet, generalized CPA 4−67330
- disordered spin system, two-dimensional, coherent exchange cluster approach 4−64179
- equation of state, expansion in (4-ε) dimensional model 4−53197
- ferromagnet, amorphous, coherent potential approx. at zero temp. 4−49146
- ferromagnet, biquadratic exchange effects 4−53200
- ferromagnet, correlation functions of weakly bonded impurity spin at high temp. 4−57236
- ferromagnet, disordered, distribution of magnon modes 4−57243
- ferromagnet, first order Green function theory 4−70126
- ferromagnet, i-d interaction, anisotropic, equiv. neighbour version 4−76039
- ferromagnet, local order parameter near crit. point, Monte Carlo investigation 4−76043
- ferromagnet, magnon damping caused by spin-spin exchange interaction 4−70132
- ferromagnet, microscopic mechanism for macroscopic asymmetry 4−57237
- ferromagnet, one-dimens., two spin wave states, numerical calcs. 4−49186
- ferromagnet, spin diffusion, high temp. limit 4−72947
- ferromagnet, thermodynamics calcs., $T \ll T_c$ *(German)* 4−79479
- ferromagnet, three-spin system, correlation inequality 4−67334
- ferromagnet, two-dimensional, numerical calc. of two-spin wave bound states 4−72945
- ferromagnet above critical temp. susceptibility and spin wave props. 4−53199
- ferromagnet with impurity, damping of local oscillations anal. 4−79484
- ferromagnets and antiferromagnets, 1-dimens, dynamic props. 4−57234
- free energy, inequalities and estimates using perturbation theory with variational parameter 4−68984
- free radical reactions, insertion and abstraction, selection rule 4−80171
- Heisenberg-Ising ring, $\Delta \geqslant 1$, finite temp. excitations and thermodynamics 4−67338
- Hubbard model, strong correlations, effective Heisenberg Hamiltonian 4−72949
- intelligent spin states, verification of Heisenberg equality 4−76035
- low temperature, calculation of the magnetization 4−64178
- magnetic order, Pade, random-phase and mol. field approxs. 4−60934
- magnets, amorphous and high temp. cryst., magnetisation, sp. ht. 4−70153
- many-body theory, for ions with complicated level structure 4−67326
- Oguchi Hamiltonian, zeroth approximation in diag. technique 4−49144
- one-dimensional, computer studies of spin and energy transport 4−53192
- one-dimensional, with second-neighbour interaction, two-magnon states 4−60935
- Overhauser and nuclear relax. meas., nearly one-dimens. Heisenberg system 4−64281
- paramagnet, e.s.r., interchain coupling effect 4−45170
- paramagnet, high-temp., dynamical two-point correlation functions 4−76042
- paramagnet, isotropic at infinite temp., freq.-wave-vector-depend.-relax.-shape function 4−76044
- paramagnet, second order Green function theory 4−53196
- perovskite stressed crystal, displacive transitions, polycritical points, floplike transitions 4−70155
- phase transformation theory, solid solutions, extension of cluster approximation *(Russian)* 4−82546
- singlet ground state system, surface excitations 4−45085
- singlet-triplet ferromagnet, dynamics 4−70123
- spectral moments, approximation, Green's function decoupling comparison 4−67344
- spin-1/2 anisotropic ring, thermodynamic quantities 4−67337
- spin-wave interaction effects, longitudinal dynamic susceptibility, Heisenberg ferromagnets 4−82545
- subcritical exponent, scaling corrections calcs. 4−71457
- superexchange interactions in narrow band gap materials 4−57267
- surface effects on magnetic phase transitions 4−53193
- surface magnetic order above bulk ordering temp., mag.-field theory 4−57277
- surface magnetic order above bulk ordering temperature mag.-field theory 4−57276
- tetramethylammonium manganese chloride, paramag. high temp. spin dynamics from proton spin-lattice relax. 4−53209
- TMMC, Green function decoupling, optical props. 4−45301
- $CsMnCl_3.2(H_2O)$, Heisenberg paramagnet, proton relaxation time and interchain couplings 4−82630
- $CsMnCl_3.2H_2O$, paramag. high-temp. spin dynamics from proton spin-lattice relax. 4−53209
- Cu isomorphous salts, scaling and universality hypothesis, verification from specific heat data 4−57240
- Cu(I) complex, $CuCl_2 \times 2(NC_5H_5)$, zero point effects in susceptibility obs. 4−76064
- Cu(II) complex, μ_4-oxo-hexa-μ-chlorotetrakis[(pyridine)copper(II)], rel to mag. susceptibility, 1.7-294K 4−67357
- EuO, scaling and universality hypothesis, verification from specific heat data 4−57240
- Fe, scaling and universality hypothesis, verification from specific heat data 4−57240
- MnF_2, spin-phonon interactions, spin-wave spectrum 4−72938
- MnF_2, spin-phonon interactions, phonon spectra, spin-lattice relax. 4−72939
- MnX_2L_2, X=Cl, Br, L=pyrazole, pyridine, linear-chain antiferromagnetism 4−64176

- **Heisenberg model** continued
  - NdAl$_2$, mag. excitons, dispersion relations 4−70172
  - Ni, scaling and universality hypothesis, verification from specific heat data 4−57240
  - RbMnF$_3$, antiferromagnet., departure from universal behaviour, specific heat data 4−57240
  - RbMnF$_3$, Heisenberg paramagnet, spin-fluctuation Raman scatt. calcs. at high temp. 4−57539
  - RbMnF$_3$, s.c. Heisenberg model, comparison with mag. susceptibility meas. 4−76063
- **Heising modulation** *see amplitude modulation*
- **helicity (elementary particles)**
  - *s*-channel $pp \rightarrow pp$ and $pp \rightarrow \Delta^{++}n$, polarized beam and/or target data interpretation 4−74667
  - elastic scattering helicity amplitude phases, constraints due to positivity 4−65746
  - NN scattering, helicity structure of scalarlike exchange effect 4−51730
  - Poincare group, representations of Lorentz transformations on helicity basis 4−69141
  - pomeron pole of intercept one, unitarity constraints 4−77872
  - s- and t-channel, conservation, $\pi^{\pm}p \rightarrow \pi(N\pi)_{dd}$ diffr. dissoc., 3.9 GeV/c, two-component model 4−77917
  - scattering amplitudes, polarisation phenomena as test for models of cuts generation 4−51725
  - SU(6) broken baryon spectrum 4−62903
  - tachyons, free, propagation across space-like intervals, quantized spin-1/2 theory 4−59260
  - two-body scatt. charge and hypercharge exchange, s-channel partial-wave amplitudes in peripheral and central regions 4−59627
  - vector-meson-hadron decay amplitudes in algebraic realization of $SU(6)_{w,\ currents}$ charge algebra sum rules 4−59522
  - e^+e^- annihilation into quasi-three-body final states 4−55618
  - e^+e^- one-particle inclusive annihilation with polarised beams, weak neutral current effects 4−62946
  - $pp \rightarrow pp\pi^+\pi^-$, 205 GeV/c, cross section, t-channel helicity conservation 4−63029
  - $\pi^+ \rightarrow d\pi^+\pi^+\pi^-$, 11.7 GeV/c coherent interaction, helicity and spin parity analysis 4−77925
  - πN scattering, 6 GeV/c, effects of exptl. errors on scattering amplitude uncertainty 4−59628
  - $\pi V \rightarrow \pi V$ scattering, field theoretic analysis, fixed J-plane poles and compositeness 4−59578
  - ρ^0 decay density matrix elements, relns. between Ball amplitudes and zeros 4−63020
- **helicons**
  - *see also solid-state plasma*
  - beam-plasma system, helicon mechanism of relativistic electron beam relax. *(Russian)* 4−66739
  - composite medium, helicon drift instability 4−44956
  - degenerate solid-state plasma, nonlinear conductivity calc. for strong mag. field 4−72813
  - drift instability, surface wave amplification 4−72810
  - n-InSb, helicon wave amplification, by transverse phonon-helicon interaction 4−44969
  - metal, noncompensated, doppleron spectrum model using arbitrary dispersion law 4−49028
  - nonlinear theory of helicon instability 4−70045
  - semiconductor, nonparabolicity effect on damping, extreme quantum limit 4−60822
  - semiconductor, zero-gap, low temp. propag. 4−75909
  - solid state plasma, e.m. wave excitation, antenna appl. 4−79375
  - superconductor, helicon damping during transition to intermediate state, surface electron scatt. contrib. *(Russian)* 4−76020
  - $Bi_{1-x}Sb_x$, helicon-like magnetoplasma waves obs. 4−57124
  - $Bi_{1-x}Sb_x$ alloys, semiconducting, helicon wave propag. obs. 4−57122
  - In, intermediate state, wave resist. *(Russian)* 4−79465
  - n-InAs, helicon propag. in quantised mag. field *(Russian)* 4−72815
  - InSb, electron transverse drift velocity effect 4−57125
  - n-InSb, helicon propag. in quantised mag. field *(Russian)* 4−72815
  - n-InSb, nonlinear effects during high power helicon microwave propag. 4−72787
  - K, longitudinal helicon oscills. obs., magnetoresistance and Hall coeff. meas. 4−57079
- **heliotron** *see plasma devices*
- **heliports** *see airports*
- **helium**
  - *see also helium atoms; liquid helium; solid helium*
  - adsorption by metal, effects of dispersion and surface boundary conditions 4−72630
  - adsorption isotherm for mol. sieve meas. in 10^{-11}-10^{-7} torr range at 4.2K 4−74025
  - adsorption on solid Ar, Kr, Xe 4−75701
  - adsorption on solid porous surfaces, isotherm determ. by compressibility press. plot (K method) 4−44759
  - afterglow, development of atom density and metastable molecule density *(French)* 4−69672
  - afterglow, r.f. modulated electron beam ion heating 4−44259
  - arc-jet chamber vortex expts. 4−78598
  - breakdown, laser induced, inelastic energy loss effects 4−44254
  - breakdown at low pressure, re-entrant Paschen curve 4−75356
  - breakdown time lag of short gaps 4−75365
  - bubbles, in Al, coalescence 4−70498
  - bubbles, in water, damping, from desinent threshold for subharmonic-$^1/_2$ 4−78691
  - condensons, magnetic, in high mag. fields, in homopolar crystals and He gas 4−48942
  - controlled thermonuclear reactors, transmutant-vacancy interaction effects 4−69315
  - cooling of fusion reactors, parametric analysis 4−63302
  - d.c. electric-field-induced second harmonic generation 4−47378
  - dense gas, electron density fluctuations, electron localization and trapping 4−66550
  - desorption kinetics from Ni (100) crystal 4−63988
  - diatom, second dielec. virial coeff. determ. from polarisability 4−69480
  - diffusion in borosilicate glass, Pyrex 4−61535
- **helium** continued
  - diffusion in polystyrene, temp. depend., 100-410K *(Russian)* 4−52944
  - diffusion in vitreous B_2O_3, thermal history depend. 4−67066
  - diluent cooling effect on vacuum u.v. high press. Xe laser, expt. 4−51555
  - discharge, h.f., nonequil. plasma jet parameters meas. 4−52615
  - discharge, hollow cathode, axial changes in characts. *(Russian)* 4−63720
  - discharge, microwave, in diffusion regime, stability and stationary fields 4−60357
  - discharge, modulated, plasma parameters meas. 4−60361
  - discharge, pulsed, in hollow cathode, spectral lines excitation *(Russian)* 4−63725
  - discharge, pulsed, plasma form. inside hollow cylindrical cathode *(Russian)* 4−63723
  - discharge, threshold for striations, cathode emission effect 4−75339
  - electron wave breakdown, wave speed and electron temp. meas. 4−44420
  - gas, density depend. dielec. function, short range electronic distortion 4−72273
  - gas, K^+ mobility at 293 K, pressure depend. 4−43908
  - gas, turbulent mixing with N_2, density effects, large structure 4−66569
  - gas breakdown, solutions of classical Boltzmann eqn. 4−56557
  - gas discharge, normal current density, gas press. depend., metastable interactions *(Russian)* 4−82052
  - glow discharge, cathode fall region electron distrib. Monte Carlo study 4−75402
  - hypersonic flow props. in expansion tube 4−81911
  - ion, isotope depth profiles and migration in CTR materials 4−69318
  - ion bombardment of (100) PbS surface, energy spectra of scattered ions *(Russian)* 4−67695
  - ion implantation effects on fatigue props. of Mo based TZM alloy 4−56790
  - ion stopping cross-section in Bi, Pb, W films 4−69839
  - ionization coefficient meas. by pulse technique 4−75071
  - jet, liquid air cooled, transport of recoil atoms 4−77133
  - laser spark, charact. expansion vel. 4−78789
  - magnetometer employing optical pumping excitation using ultrashort wave oscillator *(Russian)* 4−51124
  - methane-He mixtures, low density, proton spin relax. 4−52204
  - molecule, energy depend. of interatomic pots. 4−74924
  - molecule, FSGO open-shell calcs. for doublet ground states 4−52044
  - molecule, long-range interatomic pots. 4−78383
  - Moon, solar wind He in atmosphere 4−83191
  - neutron counter with moderation, based on time of flight methods 4−42881
  - nuclear particle transportation by He-jet method 4−42853
  - nuclear reaction target, highly visible 4−46792
  - permeation through vitreous silica, press. depend. 4−53814
  - plasma, a.c. mode ion probe characteristics 4−78816
  - plasma, after-glow, electronic recombination, self-similar solns. of nonlinear reaction-diffusion eqns. 4−44178
  - plasma, all metal wall theta pinch, using anodised Al rods 4−52596
  - plasma, cold, dense, θ-pinch, CO_2 laser-induced heating 4−56496
  - plasma, dye laser induced fluorescence, decay rate meas. 4−51964
  - plasma, high density, high-β, coupled collisional drift and Alfven wave 4−66732
  - plasma, high-power microwave pumping, delayed emission of cyclotron harmonics 4−69642
  - plasma, ion continuum Lyman step meas., diagnostics 4−75315
  - plasma, ion-acoustic wave excitation in r.f. field 4−44221
  - plasma, low pressure, CO_2 laser driven detonation waves in strong mag. field 4−52558
  - plasma, moderately ionized, emission profiles of laser-induced optical satellite lines 4−51956
  - plasma discharge, ion-acoustic and electron waves parametric coexcitation by h.f. electric field 4−44213
  - plasmajet, nonthermal plasma existence from spectroscopic diagnostics *(German)* 4−63695
  - polarization meas. on spectral lines from the plasma, density $10^{20}\,m^{-3}$ 4−78815
  - positive column, plasma oscillations, direct oscilloscopic analysis 4−56516
  - positive column, unstable ionization waves, dispersion curves 4−63652
  - pressure effects, on Ba II, first diffuse series doublet 4−43721
  - pulsed discharge, continuous spectrum 4−66771
  - pulsed discharge, recombination and diffusion coeffs. 4−66690
  - quantum magnetometer, width of resonance line *(Russian)* 4−80962
  - refractive index, 920-1910 Å 4−43915
  - shockwave flow field and vel. profile measurement in e.m. shock tube 4−71298
  - solar spectral line profiles in spectrophotometric anal. of 1971 Sept 30 prominence *(Russian)* 4−54404
  - in steel, stainless, effect of large concentrations rel. to use for CTR first wall 4−69320
  - steel, stainless 304L, swelling from helium pressurized tubes 4−69296
  - Stieltjes imaging of photoabsorption and dispersion profiles 4−78346
  - thermal conductivity, viscosity, effect of organic vapour mols., catharometer studies 4−66542
  - threshold excitation spectra meas., 2^2S reson. energy 4−59949
  - vinyltrimethylsilane-He(Ar), discharge, reactive plasma, ionisation, mass spectra 4−46935
  - boundary layer to N_2 boundary layer on flat plate in expansion tube 4−72311
  - CO_2-He, gas, transient cooling by absorption of Q-switched laser radiations 4−59446
  - CO_2-He-N_2 mixture, laser-induced breakdown, refraction effect on spot size depend. 4−44253
  - CO_2-He-Ne gas dynamic laser, shock tube meas. of gain 4−59386
  - CO_2-N_2-He low press. discharge, mass spectroscopy study chem. reactions *(German)* 4−80175
  - $CS_2 + O_2 +$ He, stimulated CO emission, $(1 \rightarrow 0)$ band, pulse initiated $CS_2 + O_2$ chem. laser 4−77646

helium continued
Cs-He mixtures, thermal diffusion, 400-730K, atomic absorpt. method *(Russian)* 4-52336
D_2-He mixtures, collision induced fundamental band, temp dependence 4-66522
para H-He binary gaseous mixture, Rayleigh-Brillouin scatt., relax. time and transport coeffs. 4-43917
H_2/He mixtures, ion-molecule reactions and vib. deactivation of H_2^+ ions 4-57824
H_2-F_2-He mixtures, population inversion behind blast waves 4-69041
H_2-He mixture in shock tube, duplication of stagnation region condition for Jovian entry probe 4-72308
He-active N_2 mixture, form. of $N_2(a^1\pi_g, v \leqslant 6)$ mols. investig. by chemiluminesc. emission, mechanism 4-48137
He-air mixture, accelerating laminar boundary layer flow 4-81883
He-Ar, He-Ne and He-Xe, kinetic theory of sound propagation 4-52328
He-Ar, pulsed afterglow, laser oscillation at 4765 Å 4-43306
He-Ar mixture, Ar elastic electron scatt. 4-74882
He-Au mixture prep. by co-deposition using d.c. bias sputtering and electron beam evaporation 4-79864
He-Cd, c.w. 4416 Å laser, noise and output power 4-43305
He-Cd laser, metal-ceramic, hollow cathodes, output characts 4-43299
He-Cd laser discharge, perturbation spectroscopy 4-59395
He-Cd^+ laser, development and performance *(German)* 4-47345
He-Cd^+ laser, noise generating processes 4-43290
He-Cd^+ two-anode laser, optimum operating conditions 4-55462
He-Cs, plasma inhomogeneities between coaxial electrodes in mag. field 4-69627
He-HD(N_2) mixtures, flow birefringence 4-66552
He-Hg glow discharge, cataphoresis 4-52644
He-I mixtures, iodine ion excitation, population inversion *(Russian)* 4-77662
He-I_2, c.w. laser, positive column discharge 4-43294
He-methane, u.s. absorption *(German)* 4-52823
He-N_2-methane, gas mixture, diffusion in porous γ-alumina pellets, models 4-44153
He-Ne, 0.63 µ laser emission, He + Ne*, Ne + Ne* collisions 4-51568
He-Ne, 3.39 µm laser, FM mode-locking using large locking signal 4-62835
He-Ne, coupled laser mode locking by two-quantum interaction 4-71534
He-Ne, gas laser, stimulated emission spectrum rel. to resonator tuning 4-51563
He-Ne, hollow cathode discharge, electron energy and excitation distribs. 4-78848
He-Ne, laser, optical variables ang. depend. meas. 4-51018
He-Ne, laser output rel. to high freq. excitation 4-51576
He-Ne, lasing line shapes in $^3S_2$-$^2P_4$ and $^2S_2$-$^2P_4$ transitions 4-77658
He-Ne, ring laser, synchronized, axial mag. field effect on beat freq. 4-59437
He-Ne amplifier based on 3.39 µm line, nonlinear props. *(Russian)* 4-51581
He-Ne gas laser, cone-shaped discharge tube, power increase 4-69052
He-Ne gas laser, stimulated emission due to 0.63 µ, 1.15 µ coupled transitions 4-51564
He-Ne laser, emission polarisation in mag. field, resonator anisotropy effect *(Russian)* 4-51579
He-Ne laser, freq. fluctuations at 0.63 µ in technical spectrum part 4-81307
He-Ne laser, gas pressure effect on low-freq. beats 4-77657
He-Ne laser, methane nonlinear absorbing gas as delay line 4-46708
He-Ne laser, mode crossing signal, collisional effects 4-62836
He-Ne laser, natural spatial coherence governed by spontaneous emission *(Russian)* 4-71568
He-Ne laser, resonator length effect of coupled lasing channels on standing wave interaction 4-51612
He-Ne laser, sharp resonances in two-freq. lasing regime investig. 4-71536
He-Ne laser, stabilisation method investigation for twin-modex generation *(Russian)* 4-43310
He-Ne laser, use in light-scatt. probe for turbulent diffusion obs. 4-46984
He-Ne laser, with active medium placed in mag. field, energy characts. of competing transitions *(Russian)* 4-59404
He-Ne laser compact plano-concave resonator design *(German)* 4-47344
He-Ne laser freq. stabilisation at $\lambda = 0.63\mu$ w.r.t. generation freq. $\lambda = 3.39\mu$ 4-55470
He-Ne laser freq. stabilization by saturated absorption 4-43293
He-Ne laser stabilised by saturated absorption in I_2 4-65907
He-Ne laser stabilised by saturated absorption in $^{127}I_2$, reproducibility 4-65909
He-Ne lasers, internal and external mirror types of VEB Carl Ziess JENA 4-74492
He-Ne positive column, electron temp. characts. 4-69682
He-Ne ring laser, nonreciprocity of opp. travelling waves, diaphragming 4-51613
He-Ne ring laser, stabilised, freq. reproducibility *(Russian)* 4-69071
He-Ne-Ar mixture, diffusion in capillaries, Knudsen to molecular diffusion transition 4-56347
He-Ne(N_2) mixtures, electron energy distrib. in positive column 4-75369
He-Se^+ laser, development and performance *(German)* 4-47345
He-Xe laser, improved unstable mode profles, aperture shaping 4-74489
He-Xe mixture, muonium formation 4-72105
He + H^-, absolute H^- detachment cross section 4-72096
He + H + H → H_2 + He, recombination classical mechanics via resonance complex mechanism 4-61587
He_2 excited states, stimulated emission, recombining afterglow of electron-beam discharge in He at 3 atm. 4-43287
He_2 molecule, $a^3\Sigma_u^+$ state, spin-spin electronic fine struct. investig. 4-81790

helium continued
He_2^+-N_2 mixture, stimulated emission from electron beam discharge, afterglow obs. 4-59384
He_3, He_4, nonadditivity in localised orbitals and short range mol. interactions 4-60001
^{3}He doping of Nb using ^{3}H decay technique, rel. to fusion reactor materials 4-69319
^{3}He nuclear precession magnetometer, using optically polarised gas, for geomagnetic meas. 4-70828
^{3}He/^{4}He in ultrabasic xenoliths from volcanic rocks 4-45956
^{3}He(Br_2) filled Geiger counters for slow neutrons, efficiency and γ sensitivity 4-81018
^{4}He, optically pumped parametric resonance, magnetometer for geomag. field meas. 4-70830
^{4}He-D_2(H_2) mixtures, relative diffusion coeff., 240-420K 4-66547
N_2-CO_2-He, transient glow discharge 4-75398
N_2-He mixture, photoionisation, plasma production 4-66752
N_2-He mixture, superradiance of nitrogen bands in discharge at high pressures *(Russian)* 4-71541
N_2-He pulse discharge, electrical characteristics 4-63716
Ne + He* → He + Ne*, resonant transfer cross sections, 400-600 K *(French)* 4-43745
Pd:^{3}He, film, n.m.r. from ion-implanted atoms 4-57385

helium, liquid *see liquid helium*

helium, solid *see solid helium*

helium-3 interactions
see also nuclear reactions and scattering due to helium-3
γ^3He → pd, resonance region, discussion of recent experimental data 4-77829

helium-3 scattering
see also nuclear reactions and scattering due to helium-3
No entries

helium atoms
2^3p state, lifetime meas. 4-74831
2^3S, 3^3S and 4^3S states excitation, electron impact 4-51994
$(2s3s)^1$S state, energy and width calc., Hartree-type eqns. 4-74819
atomic collision with H_2^+ dissociative, obs. of polarization of Balmer lines of H 4-60126
atomic electron scattering, ratio of forward to back scatt. 4-63367
autoionisation states, calc. by stabilization method 4-43738
autoionisation states, stabilisation method 4-78350
autoionisation states, stabilization method 4-47865
autoionization resonances, applic. of Fano CI theory 4-63352
3-body Coulomb system, generalised ang. momentum S states, eigenvalues, eigenfunctions 4-63317
in carbon tetrachloride soln., solvent effects, solvation energy 4-64725
collision with K^+ and Na^+, ion cyclotron resonance collision frequencies 4-78369
collisions, ionising, with H_2O and D_2O mols. 4-43881
dark clouds, processes governing He^+/H^+ ratio 4-50712
dipole oscillator strengths, upper and lower bounds, Hylleraas wavefunctions 4-47844
dynamic polarisability and long-range dispersion energy calcs. 4-56013
eigenenergy of 2^3P^- state using Faddeev equations 4-63331
electron and positron elastic scatt., second Born approx. 4-66332
electron elastic scattering, ang. differential cross sections 4-74885
electron elastic scattering, partial wave formalism. second order potentials 4-47875
electron impact excitation, first order many-body theory, cross section calcs. 4-74884
electron impact excitation, singlet-triplet anticrossings 4-72054
electron impact excitation cross-sections, low press. meas. 4-51991
electron impact ionisation, differential cross-section calcs. 4-78366
electron impact ionisation, threshold obs. 4-74890
electron impact radiation polarisation, Bethe theory 4-74886
electron inelastic scattering, Eikonal distorted wave method 4-47876
electron radial correlation energy, electron affinity 4-59902
electron scattering, complex excitation amplitudes and atomic orientation from electron-photon ang. correls 4-72082
electron scattering, DWBA calc. of 2^1P excitation cross sections 4-56040
electron scattering, intermediate and high energy, eikonal optical model 4-72089
electron scattering, multichannel variational calc. 4-51995
electron scattering, second order diagonalization calcs. 4-51990
electron scattering 4-47889
electron-loss cross sections for excited He at 8-160 keV in H_2 4-74874
energy levels, group O_4 representations 4-51930
excitation by electron impact, high-energy approx. for exchange scatt. 4-59946
excited singlet state, variational ionisation energy, Hylleraas-Undheim-Pekeris method 4-74817
excited states, quenching and press. shifts in liq. He 4-78338
Fermi hole calcs. for 2^3S state 4-74820
generalized open shell SCF calc. 4-63318
ground-state energies, Brillouin-Wigner perturbation calc. 4-78402
implantation effects on ductility and void swelling in V and V-Cr-Ti alloys 4-55941
implantation in 316 stainless steel, fatigue behaviour and microstructure at 650°C 4-55940
induced voids in fusion reactor cladding void induction in fusion reactor cladding 4-55938
integral-transform trial functions, shape function optimisation 4-74814
interstellar He, resonance scattering source of nighttime He I 584 A line 4-46289
ion mobility, H^+, H^-, H_2^+, H_3^+, in He,H_2 calc. from ion-neutral pot. 4-78515
ionisation potential calc. in intense laser beams 4-59937
isoelectronic sequence, $2^3S_1 \rightarrow 1^1S_0$ transition rates, Dirac-Hartree-Fock calc. 4-63333
isoelectronic sequence, Coulomb hole in 2^3S state 4-59901
isoelectronic sequence, scaling in S and P states, screening consts. 4-55998

helium atoms continued
isoelectronic series, variational perturbation calcs., nonrelativistic results for $1s3s^3S$ 4−74815
lifetime of 4^1P_1 level determ. from gas discharge alignment studies 4−74847
lifetimes of non resonant levels, delayed coincidence meas. *(Spanish)* 4−47849
'local' energy, origin of Hund's rule investig., energies of $1snl_{max}$ configuration calc. 4−47819
long-range interactions, intra- and interatomic forces, double perturbation theory 4−56045
metastable, deactivation of 2^3S state by thermal electrons 4−47874
metastable, electron impact excitation cross section 4−59956
metastable, ionisation of mol. gases in spark chamber 4−81824
metastable, relaxation at pyrex walls during afterglow *(French)* 4−51982
metastable, time of flight spectra obs., effect of electron gun pulse width 4−46890
metastable atomic beam source using nozzle 4−56044
Moon, exosphere models, H, H_2, He density distrib. 4−50509
multiphoton excitation and ionisation, in intense laser beam 4−59931
multiphoton transitions in intense e.m. field 4−74833
muonic, initial population and decay rate of 2S level 4−66355
muonic, liquid He polarized neutral atom investigation, hyperfine struct. possibilities *(German)* 4−78386
muonic, transition rate calcs. for μ^- capture 4−72103
nebulae, He I singlet spectrum optical thickness 4−46310
negative ion excited states and energy determ. by electron detachment in elec. field *(Russian)* 4−78354
nuclear-radiation-induced excitation, population inversion 4−81311
optically pumped spin laser, noise effects on linewidth 4−59380
Orion Nebula, He I abundance in dense core 4−50718
photoionisation, random phase approx., square-integrable basis functions 4−72064
photoionization cross section for 3^1P, 4^1P, 3^3P and 4^3P states, polarized light 4−66316
photoionization cross sections for 2^1S, 2^3S, 2^1P and 2^3P states 4−63351
positron scattering length, zero energy Kohn variational calc. 4−72083
quiescent prominences theoretical He I emission line intensities 4−80461
resonance broadening of 7281 Å and 6678 Å lines in gas discharge at 1 atmosphere 4−43757
secondary electron emission from contaminated Cu-Be surface 4−82777
self-adjoint operator, least eigenvalue determ. from continued fraction to Brillouin-Wigner expansion 4−55321
singlet-triplet mixing, consequence in electron excitation expts. 4−47881
solar He I and II lines, widths from rocket spectrograph obs. 4−70877
solar He/H line intensity ratios in quiescent prominences 4−62008
spectra, random phase approximation, second order optical props. and van der Waals coeffs. 4−66302
split-shell wavefunctions, perturbation calcs. 4−55995
Stark effect, allowed and forbidden transitions, $\lambda=4471.5$, 4470 Å 4−56010
supersonic beam, sputtering of Ag(111) surface 4−76343
three body problem, formal solution in He theoretical chemistry 4−55986
triplet state excitation on electron impact, secondary electron contrib. 4−72081
$Ar+He^+$, L-shell ionization by 50-600 keV ion impact 4−74913
$CO+{}^3He^{2+}$, mol. ionisation and dissoc., secondary ion form. 4−75054
$Cd^+ + He$ collision, Cd $5^2P_{3/2}$, $5^2P_{1/2}$ states lifetime and depolarisation, Hanle effect meas. *(French)* 4−47904
$D_2+{}^3He({}^4He)$, vibr. relax. of Raman excited D_2 at 300K 4−52284
$F^+ + He \rightarrow F + He^+$, 14-100 keV, charge exchange cross-section meas. 4−60127
H II regions, low abundance due to selective absorption by dust, towards galactic centre 4−50703
H + He, elastic and inelastic scatt., differential cross sections, Born formulation 4−47870
H + He, inelastic collisions, first Born approx. calcs. 4−66321
H + He collision, H excitation, eikonal distorted wave approx. 4−72075
$H+He^+(H^+)$, elastic and inelastic collisions, Born approx. calcs. 4−66340
$H+He^{2+}$, 1s-3d excitation of H 4−56041
$H^- + He \rightarrow H + He + e$, 5-120 eV, electron detachment obs., cf with complex potential theory 4−59970
$H^+ + He$, reson. profile of $2s^2\ {}^1S$ state of He 4−52002
H_2-He mixture, radiative relaxation behind strong shock waves 4−72043
$H_2+{}^3He^{2+}$, mol. ionisation and dissoc., secondary ion form. 4−75054
H_2 + He, total integral cross section, equivalence and conservation rules 4−63471
He I, laser produced plasma, obs. of forbidden transitions 4−74836
He I, spectral line broadening, including ion dynamic correction 4−72035
He I, Stark profiles of neutral lines, forbidden components 4−47842
He I 4471 Å profiles for B-type stars, improved line-broadening theory 4−65148
He I and II, beam-foil spectra, coherent orientation by asymmetric collision 4−72052
He I latitudinal var. from e.u.v. obs. of 584 Å airglow emission 4−50319
He II, 304 Å resonance line, Stark profile in plasma source 4−74829
He II, plasma line broadening, relaxation theory 4−44171
He II excitation, electron collisional cross sections 4−66337
He II resonance lines, plasma polarization shifts in Z-pinch plasma 4−47834
He isoelectronic sequence, electrostatic pot. boundary at nucleus, nuclear diamag. screening 4−51933
He isoelectronic sequence, electron impact excitation of metastable ions 4−63361

helium atoms continued
He-like ions, electron radial correlation energy, electron affinity 4−59902
He-like ions, magnetic dipole transition probability, leading radiative correction 4−72029
$He+CO_2$, vibr. relax., spectrophone method 4−69535
$He+CO(H_2)$, low energy collisions, classical trajectory study 4−78526
$He+D_2(HT)$, quantum mech. scatt. of asymm. mols. 4−75058
$He+e^+$, cross sections, phase shifts below 19 eV 4−59945
$He+e^+$, low energy scatt., variational calc. 4−51999
$He+e^+$, lower bound calc. adiabatic approx. 4−47892
$He+e^+$ scattering, annihilation rate parameters 4−51993
$He+F^{x+}$, (x=7-9), K X-ray transitions 4−72047
He + H, stripping collisions, 1-10 keV, small-angle ion scatt. 4−81728
$He+H_2$, binary encounter stopping cross sections 4−56030
$He+H_2$, collisional dissoc. probability and cross section, calcs. for 30-50 eV 4−75051
$He+H_2$ collisions, anal., use of harmonic and Morse oscillator wavefunctions, comparison 4−72070
$He+H_2$ vibr. inelastic collision, potential surface dependence 4−60123
$He+H^-$, collisionally produced autodetaching states, electron energy spectra 4−56042
$He+H^+$, elastic and inelastic 2^1S and 2^1P differential cross sections 4−72094
$He+H^+$ influence of apparatus geometry on differential cross-sections 4−69434
$He+H^+(D^+)$ 3s, 4s electron capture cross section 4−47908
He + He, ${}^1\Sigma_g{}^+$ potential, inter-intra coupling in ab initio CPMET calcs. 4−59977
He + He, intermolecular energy, perturbative ab initio calc. 4−56075
$He+He_2$, semiclassical collision theory, Feynman path integrals, vibr. excitation 4−55328
$He+He(H_2)(N_2)(Ar)(Kr)$, He electron loss cross sections 4−72095
$He+I_2{}^*$ inelastic collision, entropy analysis of rot. and vibr. state distribs. 4−63488
He + LiF, atom-solid elastic scatt., pot. depend. 4−73220
He + methane, linewidth broadening effect, ν_3 fundamental 4−69506
He + methane ion collision, ion dissoc. mass spectra, isotope effects, 2-25 eV *(French)* 4−48110
He + multielectron atom, binary encounter stopping cross sections, target Z dependence 4−56031
$He+N_2{}^+$ collision, $N_2{}^+$ excitation and first negative emission spectrum 4−56320
He + NaF (001), scatt. obs. 4−78360
He + Ne collision-induced i.r. absorption 4−72032
He + Ne(Ar)(Kr)(Xe), gas systems, diff. coeffs. rel. to conc. determ., pot. parameters calc. 4−48179
He^-, long-lived doublet state, field detachment meas. 4−51932
He^- single-photon electron detachment, depend. on light polarisation 4−74858
He^+, D-F transitions, n=4 state, r.f. induced 4−81720
He^+, electron impact, coupling effect in distorted wave polarized orbital approximation 4−47878
He^+, electron impact ionisation and excitation, cross section meas. 4−59952
He^+, resonance line excitation in electron-ion collisions *(Russian)* 4−72056
He^+, $S_{1/2}$-$P_{1/2}$ Lamb shift in n=5 and n=6 states 4−43715
He^+ 304 Å atmospheric radiation, satellite obs. and interpretation 4−50367
He^+ afterpulse in photomultiplier, effect on atomic and mol. lifetime meas. 4−80898
He^+ backscattering spectra from rough and smooth Si surfaces 4−69953
He^+ beam, elemental analysis by ion excited X-ray emission 4−74179
He^+ blister formation and erosion rates of annealed 304 stainless steel first wall in fusion reactor 4−55936
He^+ content of solar wind, upper limits at 1 AU 4−62003
He^+ low-energy ions, absorption by low-carbon steel *(Russian)* 4−69834
He^+ reson. level excitation in electron-atom, electron-ion and ion-atom collisions *(Russian)* 4−78368
He^+ + methane reaction, rate constants, product distrib., ion cyclotron resonance technique 4−50147
$He^+ + {}^{14}N_2({}^{15}N_2) \rightarrow N_2{}^+ + He$, thermal energy charge exchange react., mol. isotope effect investig. 4−47900
$He^+ + Ar$, inelastic collisions, vac. u.v. spectral obs. 4−74916
$He^+ + CO_2$, electronic excitation spectra, 200 eV-25 keV, form. of $CO_2{}^+$ 4−53978
$He^+ + CO_2$ ion collisions, vibr. energy distrib. of $CO_2{}^+$ investig. 4−69532
$He^+ + Cd$, charge exchange cross section meas. *(Russian)* 4−78377
$He^+ + La(Y)$, hybrid charge transfer/Penning reactions 4−66343
$He^+ + Ne$, WKB theory, inelastic collision transition probabilities 4−74905
$He^+ + Ne$ inelastic collision, uniform WKB theory 4−66345
$He^+ + Se$, 300-500 keV, diff. cross sections 4−78375
$He^+ + Zn$, charge exchange mechanism in metal vapour laser 4−74907
$He^* + H$, Penning ionisation, electron energy spectrum, semi-classical uniform approx. 4−56029
$He^{2+} + H$, mass depend. of charge transfer cross section 4−74911
$He^{2+} + H$ collision, mol. treatment, HeH^{2+} wave function expsn. 4−74906
$He(Is^2)+H^+$, electron capture cross section 4−66347
$He({}^1P)$ electron impact excitation, Glauber cross section 4−72086
${}^3He$, ${}^4He$, >1 GeV/nucleon, isotope abundance ratio, in primary cosmic rays *(Russian)* 4−83162
${}^3He$, gas, longitudinal spin relax. time 4−56018
${}^3He$, optically oriented, longitudinal and transverse relaxation in nonuniform mag. field 4−47856
${}^3He$ ion + Pb collision, L-X-ray production 4−63373
${}^3He^+ + {}^4He$, charge transfer reaction, rate const., ion cyclotron reson. study 4−72092
${}^3He + {}^3He$ collisions, disorientation of ${}^3He\ {}^1D$ states 4−78355

- **helium atoms** continued
  - ^{4}He atomic beam scattering from clean surfaces of Si and Ge 4−56043
  - ^{4}He ion, energy loss in solid compounds, test of Bragg rule 4−60527
  - ^{4}He optically oriented metastable atoms, parametric relaxation resonance in magnetic field *(Russian)* 4−78344
  - ^{4}He/LiF, gas/solid energy transfer, close-coupling anal. 4−56962
  - $^4He^+$, excited states, fine struct. obs. by fast beam r.f. resonance 4−66275
  - ^{4}He + ^{4}He, elastic total cross section meas., deconvolution methods 4−78359
  - $(^4He\mu)^+$ muonic atom, polarisability contribution to energy levels 4−59980
  - He*-He scatt., long range pots., metastability exchange 4−78383
  - He* + Ar, Penning ion ang. distrib. 4−47911
  - He* + Ar(Kr)(Xe)(Hg)(CO)(N_2), Penning electron ang. distribs. 4−74880
  - He* + Ar(Xe)(Kr) collisions, ArII, XeII and KrII excitation 4−66323
  - He* + H_2 → HeH_2^+ + e collision reacts., associative and rearrangement ionisation investig., cross sections determ. 4−72248
  - He* + H(D) → $HeH(D)^+$ + e, merging beam reacts. investig., effective cross sections determ. 4−61580
  - He* + O_2, chemisorption O_2^+, O^+ and O^- production 4−75022
  - He* + XY (XY = H_2, N_2, O_2, CO), Penning ion ang. distribs., pot. barrier effects 4−63489
  - He(2^3S) + Ar(Ne), second type collision rates, thermal energy structs. 4−51981
  - He(2^3S) + He collision, ionisation of He*, diabatic mechanism 4−66322
  - He^+(2s), deexcitation rates in atomic and molecular collisions 4−72076
  - He(e,2e)He^+, n = 1, 2 differential cross section ratios, CI versus HF wave functions 4−69437
  - He($n^{1,3}$P), photoionization, absolute cross sections 4−51973
  - I^- + He, autoionising spectra of I^- 4−43751
  - Li- + He, dipole-quadrupole Van der Waals constants, pseudo-state method 4−69409
  - Mg^+ + He collisions, excitation of Mg $2p^6$ configuration, 15-75 keV 4−74918
- **helium compounds**
  - $HeC^{2+,+}$ molecule-ions, Roothaan-Hartree-Fock calcs. 4−59991
  - HeH^+, HeH^{2+}, excited sigma state energies, expansion method of calc. 4−60024
  - HeH^+, singlet-triplet differences, $^{1,3}\Pi$ states 1/Z expansion analysis 4−72139
  - HeH^{++}, pot. energy surfaces in complex plane, rational fraction calcs. 4−81767
  - HeH^{2+}, polynomial wavefunction calcs., ground state energy 4−78397
  - He_nH, He_nH^+, n = 1,...4, ground state LCADO-SCF-MO calcs., He_2H^+ pot. energy surface, stabilities calc. 4−52032
  - $HeLi^{4+}$, polynomial wavefunction calcs., ground state energy 4−78397
- **helium gas** *see helium*
- **helium nuclei** *see nuclei with $A \leqslant 5$; nuclei with $6 \leqslant A \leqslant 19$*
- **Hellman-Feynman theorem** *see quantum theory*
- **Hertzsprung-Russell diagram** *see stellar evolution*
- **heterodyne detection** *see demodulation*
- **high-energy cosmic ray interactions**
  - air showers, longitudinal behaviours realistic model 4−83165
  - atmospheric, influence of hadron component composition on plurality of γ-quanta *(Russian)* 4−65031
  - education, Heisenberg's explosion shower model, high energy cross sections, Froissart bound 4−73949
  - electron-nuclear cascades in dense substance above 200 GeV *(Russian)* 4−58163
  - fast cluster model, role of fluctuations in anal. of families of photons and hadrons *(Russian)* 4−65030
  - galactic multiply charged particles, 1.4 GeV/nucleon, interaction with heavy emulsion nuclei anal. *(Russian)* 4−80447
  - hadron-nucleus collisions, Gottfried's model of multiple production of particles 4−43522
  - inclusive hadron-nuclear reactions, ang. distribs. and scaling at very high energy *(Russian)* 4−65028
  - inelastic interaction of hadrons with air and Pb nuclei, energies > 1TeV, cross section determ. *(Russian)* 4−65027
  - meson multiplicity in high-energy nuclear interactions, hadronic collision space-time struct. effects 4−43441
  - multiplicity of secondary particles *(Russian)* 4−58180
  - muon generation up to 10^{13} eV, automodel behaviour at sea level energy spectrum *(Russian)* 4−65036
  - nonrelativistic multiply charged particles, 100-500 MeV/nucleon, emulsion cloud chamber, secondary particle distribs. *(Russian)* 4−80446
  - nuclear, γ-quanta meas. in X-ray emulsion camera in range 8 to 35 TeV *(Russian)* 4−58179
  - nuclear interactions of cosmic ray hadrons in thick targets, energies ⩾ 10TeV *(Russian)* 4−65026
  - nuclear interactions of primary cosmic rays, 10^{12}-10^{13}eV *(Russian)* 4−65025
  - nucleon attenuation in atmosphere, calculation based on rising inelastic cross-section 4−65035
  - primary nuclei collisions with air nuclei, computer simulation of EAS 4−58175
  - primary particles, computer simulations of EAS, fluctuations in shower development 4−58176
  - ultrahigh, consequences of discrete space-time lattice 4−74381
  - μ, 3.8-3000 GeV, underground coupling function calcs., range 20-1000 hg. 4−70856
  - μ e.m. interactions, possible multiparticle processes, differential energy spectra obs. *(Russian)* 4−65037
  - μ nuclear interactions, energies up to 10^{13} eV apparatus *(Russian)* 4−65034
  - νN energies > 10GeV, total cross section behaviour determ. from muon spectrum *(Russian)* 4−65033
  - p-air inelastic cross section, 0.5-20 TeV, from neutral to charge ratio in unaccompanied atmospheric hadron fluxes 4−68306
  - p^- nucleus collisions in photographic emulsions, 67 and 200 GeV, angular distributions 4−43521
- **high-energy cosmic ray interactions** continued
  - pN, at 200 GeV, ang. distrib. of secondary particles *(Russian)* 4−58181
  - pN inelastic, 20 to 70 GeV/c, multiparticle production reln. to cosmic-ray interactions *(Russian)* 4−58178
  - π production, scaling at high and superhigh energies *(Russian)* 4−58185
  - π^0 inclusive spectra, cosmic ray and ISR data, decay of uncorrelated clusters 4−77930
  - π^-N inelastic, 20 to 70 GeV/c, multiparticle production reln. to cosmic-ray interactions *(Russian)* 4−58178
  - πp at 40 GeV, ππ cluster formation anal. *(Russian)* 4−58184
  - υ resonance interactions with electrons and nucleons, cross section for intermediate boson production *(Russian)* 4−58187
  - Pb + hadrons, 200 to 2000 GeV inelastic interaction, calc. of sorting double-fireball showers *(Russian)* 4−58177
  - Pb + p, 13 GeV, reln. to shower meas. in stratosphere *(Russian)* 4−58182
- **high-energy nuclear reactions and scattering**
  - ^{103}Rl + ^{14}N, 81 to 121 MeV study of charged particle emission from ^{117}Te compound nucleus 4−55877
  - approximation procedures from Glauber eikonal approximation 4−63123
  - backward emission of p, d, t, following 0.7-6 GeV particle bombardment, invariant effects 4−59723
  - cross sections, proton induced, superhigh energies, model with logarithmic scatt. phase *(Russian)* 4−81448
  - deuteron induced elastic scatt., disintegration and stripping reactions, diffraction model *(Russian)* 4−43549
  - deuteron-nucleus relativistic collisions, Fermi-motion effects in neutron stripping cross sections, proton ang. distrib. 4−47706
  - dynamic correlations of nucleons, electron scatt. by nuclei, high energies *(Russian)* 4−66184
  - emulsion nuclei, 50 GeV protons, coherent particle generation 4−51833
  - fission of ^{209}Bi, ^{197}Au, ^{nat}W, ^{nat}Yb, 1 GeV proton-induced, fragment energy and mass distrib. *(Russian)* 4−78132
  - hadron-nuclei, diffractive production as shadow of hadronic bremsstrahlung 4−71865
  - hadron-nucleus collisions, Gottfried's model of multiple production of particles 4−43522
  - hadron-nucleus scattering amplitudes, asymptotic behaviour 4−43525
  - hadronic interactions, short-time behaviour 4−69246
  - hadronic processes, dynamical model of high energy interactions, applicable to nuclear multiparticle production 4−66159
  - heavy nuclei disintegration, 9 to 67 GeV incident protons, fast helium nuclei emission *(Russian)* 4−66211
  - inclusive pion production by incident protons, generalized Glauber theory 4−47694
  - intranuclear cascade model for MeV to > 10 BeV energies 4−63118
  - knockout, fast fragments, 0.2-1.0 GeV protons, A(p, pX), X = d, ^{3}H, ^{3}He, ^{4}He *(Russian)* 4−78045
  - lepton scattering on complex nuclei, possibility of quark production 4−66055
  - light nuclei + hadrons, pion^0 and gamma production *(Russian)* 4−58183
  - magnetic monopole search with 300 GeV protons on steel beam dump 4−63178
  - meson multiplicity in high-energy nuclear interactions, hadronic collision space-time struct. effects 4−43441
  - multiparticle production in 200 GeV/c proton interactions with nuclear emulsion 4−59754
  - multiple diffraction theory, optical pots., alternative approach to nuclear high energy scatt. 4−74742
  - multiplicity of nonlepton-nonlepton inelastic reactions, and inelastic interactions with nucleus *(Russian)* 4−71758
  - multiplicity of secondary particles *(Russian)* 4−58180
  - multiplicity scaling in proton-nucleus collisions at 200 GeV 4−81499
  - neutron total cross section meas. on protons and nuclei at 28 to 54 GeV 4−78062
  - nuclear density and particle distrib. anal. in multiple scattering theory 4−51823
  - nucleus-nucleus collisions, validity of factorisation hypothesis 4−63205
  - photoemulsion heavy nuclei, 7.5 and 17.5 GeV pions and 67 GeV protons, secondary trace characteristics *(Russian)* 4−71956
  - photoemulsion nuclei + heavy cosmic ray nuclei at E > 1 GeV, He emission meas. 4−47726
  - photoprocesses, incoherent, anal. of two-body correlations 4−71872
  - photoproduction of $\pi^\pm$ from nuclei, dynamical correls. contrib. 4−81484
  - photoproduction vector mesons and (virtual) nuclear optics 4−69161
  - rare-earth elements radioactive source prod. by 660 MeV p irradiation of lanthanide targets 4−77162
  - 10 + 13p shower event in nuclear emulsion, secondary pion distrib. 4−55690
  - spallation of heavy emulsion nuclei, 200 GeV proton induced rapid helium nuclei prod. *(Russian)* 4−71911
  - total cross section, 26 to 54 GeV neutron interactions with protons and nuclei *(Russian)* 4−66210
  - Van Hove model for nuclear diffraction dissociation of pions, exact and perturbative solns. 4−74740
  - (α,x) spallation on ^{9}Be, ^{12}C, ^{16}O, and ^{27}Al, cross-section meas. at 920 MeV 4−63193
  - (d,p) stripping reaction on photoemulsion nuclei, 9.38 GeV/c. 4−43546
  - (e,e), vector mesons and (virtual) nuclear optics 4−69161
  - (e,e′), 500 MeV quasielastic scatt. on a = 6 to 208 nuclei 4−66180
  - (e,e′) reactions, DWBA anal. 4−47689
  - (γ,p), on C, Cu, Ag and Au, reaction anal. 4−66177
  - ^{4}He(π^+, π^-)^{4}p, 100 MeV, total cross section determ. 4−66234
  - K^- interactions with emulsion nuclei at 6 GeV/c, hyperfragment study *(Spanish)* 4−47727
  - K^- interactions with emulsions, 800 MeV/c, 6 GeV/c, prod. frequencies of ^{8}Be, ^{8}Li, ^{9}Li and ^{8}B *(Spanish)* 4−47728
  - K^0 production, by 70 GeV protons on Al nuclei, momentum spectrum meas. *(Russian)* 4−71910
  - $K_l \rightarrow K_s$ differential regeneration cross section in Pb and Cu, coherent production and optical models 4−47729

high-energy nuclear reactions and scattering continued
K_x^0 regeneration on nuclear targets, coherent production model 4−55890
μ production in Cu and W targets by 300 GeV protons 4−63160
μ^- induced e^+e^- production in nuclear emulsion at 15.8 GeV 4−59740
(n,n) reactions on nuclei with A=48 to 209 3.2 MeV, polarisation meas. optical model anal. 4−43527
N-nucleus scatt. pionization effects using unitary model 4−71892
$\nu_\mu(\bar{\nu}_\mu)Z \to \mu^\mp\pi^\pm Z$, 3.50 GeV, cross section calc. *(Russian)* 4−71658
(p,γ), 1.65 GeV/c, on ^{12}C, ^{14}N, ^{16}O, ^{27}Al and ^{28}Si 4−78053
(p,p′) scatt. on ^{6}Li, ^{9}Be, ^{12}C, ^{24}Mg and ^{28}Si at 100 MeV, differential cross-section meas. 4−69239
(p,π) reaction theory, 185 MeV incident energy 4−63148
p collisions in nuclear emulsion, 200 GeV, angular distrib., unexpected transparence 4−66214
p-induced, 1350 GeV, atomic number dependence of inelasticity coefficient *(Russian)* 4−71912
p-nucleus, 200 GeV/c, study of multiplicity distributions of relativistic and slow particles *(Russian)* 4−47622
p-nucleus, very high energy, intuitive model interpretation, meson multiplicity distribution 4−66213
p-nucleus collisions super-high energy, ang. distribs. of emitted particles 4−81496
p-nucleus reactions, 200 GeV, obs. of nuclear transparency, energy flux cascade model 4−71890
p^- nucleus collisions in photographic emulsions, 67 and 200 GeV, angular distributions 4−43521
p + emulsion nuclei, 24 GeV/c, transverse momentum distribs. 4−69238
π charge exchange scattering in (3,3) resonance region following leptonic production 4−74767
π electroproduction, 1.1-1.2 GeV, Fermi gas model anal. *(Russian)* 4−66181
π production and charge exchange scattering in (3,3) resonance region, nuclei with neutron excess 4−74768
π-nucleus, scatt., relativistic impulse approx. 4−78119
π-nucleus scatt. Pauli blocking at 200-400 MeV 4−78120
π^- ^{12}C, multiplicity and correlations of secondary particles, 40 GeV/c 4−59660
π^- coherent dissociation into ($\pi^-\pi^-\pi^+$) on C, Al, Cu and Ag at 23 GeV/c, partial-wave analysis 4−51735
$\pi^-C \to \pi^+\pi^-\pi^-C^*_{4.44}$, Reggeized Deck model calc. in Monte Carlo approach 4−55891
$\pi^- {}^{12}C \to \gamma(\pi^0)$ + anything, 40 GeV/c, γ quanta and π^0 spectra obs. *(Russian)* 4−71756
π^-Xe, 3.5 GeV/c, distrib. of secondary-charged and neutral particles 4−59640
Ag 1 GeV proton interaction, light fragment energy spectra *(Russian)* 4−81498
Ag(p,d), 24 GeV/c, investigation of deuteron production mechanism 4−81491
Al, inelastic interactions of cosmic ray hadrons, cross section meas. *(Russian)* 4−55824
Al bombarded with 300-400 GeV protons, search for massive long lived particles 4−74665
^{27}Al(e,e′), high momentum transfer at 250 and 500 MeV, cross-section meas. 4−63143
^{197}Au(^{14}N,4n), 70-120 MeV anal. of new $i_{13/2}$ isomer ^{207}Rn^m 4−78115
^{197}Au(α,f), 600 MeV bremsstrahlung, meas. of fission product yields 4−63222
^{197}Au(γ, α), 500 MeV bremsstrahlung, alpha-particle energy and ang. distribs., cascade-evaporation model 4−43512
^{9}B + π^+, 200 MeV, charge exchange reactions, multiple scattering formalism 4−59806
^{10}B(p,π^+)^{11}B, 154 MeV, ang. distrib. meas., comparison with one-nucleon mechanism 4−51832
^{10}B(p,π^+)^{11}B, 185 MeV, energy spectra, ang. distrib. for proton capture 4−74751
^{11}B + π^+, 200 MeV, charge exchange reactions, multiple scattering formalism 4−59806
Be + p, 200, 300 GeV/c, meas. of $\pi^\pm$, K$^\pm$, p and p prod. 4−71893
^{8}Be, generation by bremsstrahlung γ-quanta, 1.5, 2.0, 3.0 GeV 4−59739
^{9}Be(p,π^+)^{10}Be, 185 MeV, theoretical anal. 4−51828
Be(γ,p), 125 to 1000 MeV, photoproton spectra meas. 4−66176
Be(γ,π), total photoprod. cross section up to 220 MeV 4−78034
^{209}Bi, high energy proton bombardment, formation cross sections of nucleides 4−47702
Br(p,d), 24 GeV/c, investigation of deuteron production mechanism 4−81491
C target, inelastic cross section for K$^\pm$ mesons at 2.95 GeV/c 4−55889
^{12}C elastic scattering with ^{11}He, ^{12}C, ^{16}O, 2.1 GeV/nucleon, coherent droplet model 4−55869
^{12}C + π^- inclusive reactions, 40 GeV/c, π^0 and γ spectra 4−59663
^{12}C(^{14}N,p), E=29.4 GeV, nuclear cascade by Monte Carlo methods 4−43564
^{12}C(^{20}Ne,^{16}O)^{16}O, 108 and 147 MeV direct α transfer 4−74763
^{12}C(γ,n)^{11}C, 150 to 63 MeV, photodisintegration cross section, neutron distrib. 4−71871
^{12}C(p,d)^{11}C, E=700MeV, angular distributions, DWBA analysis 4−78064
^{12}C(p,π^+)^{13}C, 185 MeV, theoretical anal. 4−51828
^{12}C(p,π^+)^{13}C$^{(*)}$, E=185 MeV, reaction mechanisms 4−66186
^{12}C(π,π'), 100 to 300 MeV, DWIA anal. 4−63210
^{12}C(π^-, π^-), optical potential angle transformation 4−55887
^{12}C(π^+, π^0)^{12}N$^* \to$ p + ^{11}C, 400 MeV/c, differential cross sections and energy spectra 4−66233
^{12}C(π^+, π^+), 115 to 242 MeV, determ. of Coulomb interference 4−55886
^{12}C(π^+, π^+p)^{11}B, 130 MeV, anal. using modified DWIA 4−47731
^{12}C(τ,α)^{11}C, 216 MeV, reaction mechanism study 4−78092
^{13}C + π^+, 200 MeV, charge exchange reactions, multiple scattering formalism 4−59806
^{40}Ca(e,e′p), 700-750 MeV, obs. of 1s proton state 4−78041
^{40}Ca(p,p$^{(1)}$); 1 GeV, analysis via multiple scattering series for optical potential 4−63163

high-energy nuclear reactions and scattering continued
^{40}Ca(p,p′), 180 MeV, DWBA anal. of isoscalar direct excitations 4−63174
^{40}Ca(p,π^+) 185 MeV, spectra and ang. distrib. meas. 4−69242
C(γ,p), 125 to 1000 MeV, photoproton spectra meas. 4−66176
C(n, pπ^-), 10 to 28 GeV/c, diffraction and Coulomb dissociation 4−66195
Co + p, 588 MeV, ^{52}Fe production for medical use 4−78056
C(p,p) scattering, polarized, 2.1 GeV/c, closure approx., differential cross section and azimuthal asymmetry meas. *(Russian)* 4−71909
Cu, photoproduction of quarks 4−74623
Cu spallation, multireaction detectors, flux and energy spectra meas. of high energy hadrons 4−74149
Cu target, inelastic cross sections for K$^\pm$ mesons at 2.95 GeV/c 4−55889
Cu + α, spallation at 410, 710 MeV, formation cross-section determ. 4−71934
Cu + p, 588 MeV, ^{52}Fe production for medical use 4−78056
Cu(^{14}N, spallation), 3.9 GeV, comparison with p induced spallation 4−78073
^{63}Cu, ^{65}Cu, high energy proton bombardment, formation cross sections of nucleides 4−47702
Cu(n, pπ^-), 10 to 28 GeV/c, diffraction and Coulomb dissociation 4−66195
Cu(p, spallation), 3.9 GeV, comparison with ^{14}N induced spallation 4−78073
Fe, nucleon inelastic interaction cross sections 0.6 to 4.0 TeV *(Russian)* 4−69247
^{56}Fe(α, α), 104 MeV, generalised collective model anal. 4−59788
^{1}H(d,d)^{1}H, large angle elastic scatt., 100-400 MeV, Kerman-Kisslinger model anal. 4−71888
^{1}H(p, p), phase shift calc. using Mongan-type interaction 4−59767
^{1}H(p,p)^{1}H, 0 to 500 MeV, effects of Coulomb rotation on forward scatt. amplitude 4−63177
^{2}H diffraction dissociation on diffused edge nuclei 4−55846
^{2}H electrodisintegration, semi-relativistic theory 4−43417
^{2}H target, coherent scattering, formalism in Glauber theory including spins 4−55799
^{2}H(α, αp)n, 165 MeV kinematically complete expt., differential cross-section, ^{5}He resonance obs. *(French)* 4−43552
^{2}H(α, αp)n, 78 to 165 MeV, semiphenomenological anal. 4−47713
^{2}H(e,e′p)n, 1200 MeV, determ. of momentum distrib. of nucleons in ^{2}H *(Russian)* 4−71882
^{2}H(p, 2p)n, breakup at 65 to 100 MeV, spectra meas. and model anal. 4−59747
^{2}H(p, pn)p breakup at 65 to 100 MeV, spectra meas. and model anal. 4−59747
^{2}H(p,d)N*, 0.5 to 1 GeV, cross-sections calc. 4−63169
^{2}H(p,p) double scatt. Glauber theory anal. 4−71903
^{2}H(p,p) elastic backscattering, spin alignment of recoil deuterons 4−66206
^{2}H(p,p)^{2}H, large angle elastic scatt., 100-400 MeV, Kerman-Kisslinger model anal. 4−71888
^{2}H(p,p)^{2}H backward scatt., 14-2500 MeV, phenomenological anal., meson-plus-nucleon exchange 4−78054
^{2}H(p,pn)p, 156 MeV differential cross section, multiple scatt. effects 4−78070
^{2}H(p,pp)n, 156 MeV differential cross section, multiple scatt. effects 4−78070
^{2}H(π,π)^{2}H elastic differential cross section, 3-3 resonance region 4−43427
^{2}H(π^-,π^-p)n, 1.05 GeV/c; reaction mechanism study *(Russian)* 4−66237
^{3}He, π photoproduction processes up to 800 MeV 4−59733
^{3}He(p,p)^{3}He, 600 MeV elastic scatt., recoil and charge exchange *(Russian)* 4−78081
^{4}He elastic hadron scatt. calc. using BHF wave functions 4−63120
^{4}He elastic scattering with ^{11}He, ^{12}C, ^{16}O, 2.1 GeV/c nucleon, coherent droplet model 4−55869
^{4}He(e,e′p)^{3}H, 1187 MeV, ang. distrib. of protons *(Russian)* 4−78043
^{4}He(p,2p)^{3}H, 600 MeV, DWIA anal. 4−66204
^{4}He(p,d)^{3}He, 35-125 MeV, DWBA anal. 4−71905
^{4}He(p,p), 1 GeV, precise single-scatt. optical potential fit 4−78074
^{4}He(p,p)^{4}He, 600 MeV elastic scatt., recoil and charge exchange *(Russian)* 4−78081
^{4}He($\pi^\pm$, $\pi^\pm$)^{4}He, differential cross sections for elastic scatt. at 68 and 154 MeV, phase-shift anal. 4−43567
Hg(^{12}C,xn), 70-120 MeV, anal. of new $i_{13/2}$ isomer ^{207}Rn^m 4−78115
^{127}I(^{40}Ar, xn), (^{40}Ar, pxn), (^{40}Ar, 2pxn), (^{40}Ar, 3pxn), 150-280 MeV, total fusion cross section, compound nucleus mechanism 4−43561
^{84}Kr + ^{82}Se, 347 MeV, ang. momentum effects on continuum gamma-rays 4−71941
^{6}Li(e,e′α) and ^{6}Li(e,e′d), 520 MeV momentum distrib. of clusters 4−78042
^{6}Li(e,e′d), 2.5, 2.7 GeV, coincidence cross-sections meas. 4−71876
^{6}Li(e,e′p), 2.5, 2.7 GeV, coincidence cross-sections meas. 4−71876
^{6}Li(p,2p)^{5}He, 100 MeV, spectra and cross section meas. 4−63155
^{6}Li(p,p^{3}He) 156, 590 MeV, cross-section calc. for quasifree scatt. 4−66205
^{6}Li(p,pd), 156, 590 MeV, cross-section calc. for quasifree scatt. 4−66205
^{6}Li(p,pt) 156, 590 MeV, cross-section calc. for quasifree scatt. 4−66205
^{6}Li(π^-,π^-d)^{4}He, momentum transfer and cross section estimation, 1.06 GeV/c *(Russian)* 4−71955
Li(γ,π), total photoprod. cross section up to 220 MeV 4−78034
^{24}Mg(α,α')^{24}Mg, 166 MeV inelastic scatt., test of new shell model wave functions 4−55855
^{24}Mg(e,e′), high momentum transfer at 250 and 500 MeV, cross-section meas. 4−63143
^{24}Mg(p,x), ^{10}Be production at 600 MeV, cross-section meas. astrophysical applications 4−63166
Mn + p, 588 MeV, ^{52}Fe production for medical use 4−78056
^{55}Mn(γ,3n)^{52}Mn^{g,m}, 0.3 to 1 GeV, isomeric yield ratio 4−74744
^{14}N(p,x)^{10}Be, spallation, 150, 600 MeV, cross-section meas. astrophysical applications 4−63166
Nd(^{40}Ar,X), 257 to 282 MeV, A=142 to 150, recoil anal. of charge capture 4−71937
Ni + p, 588 MeV, ^{52}Fe production for medical use 4−78056

high-energy nuclear reactions and scattering continued
- ^{58}Ni(α,α')^{58}Ni, 166 MeV inelastic scatt., test of new shell model wave functions 4−55855
- (^{16}O, f) reaction on nuclei near Ag, 137 MeV, influence of ang. momentum on fissibility *(Russian)* 4−71967
- ^{16}O elastic hadron scatt. calc. using BHF wave functions 4−63120
- ^{16}O elastic scattering with ^{11}He, ^{12}C, ^{16}O, 2.1 GeV/nucleon, coherent droplet model 4−55869
- ^{16}O levels excitation by 1 GeV protons *(Russian)* 4−74753
- ^{16}O(γ,n)^{15}O, 150 to 63 MeV, photodisintegration cross section, neutron distrib. 4−71871
- ^{16}O(p,π^+), 185 MeV, spectra and ang. distrib. meas. 4−69242
- ^{16}O(τ,α)^{15}O, 216 MeV, reaction mechanism study 4−78092
- ^{18}O + π^+, 200 MeV, charge exchange reactions, multiple scattering formalism 4−59806
- Pb, inelastic interactions of cosmic ray hadrons, cross section meas. *(Russian)* 4−55824
- Pb, nucleon inelastic interaction cross section 0.6 to 4.0 TeV *(Russian)* 4−69247
- Pb + hadrons, 200 to 2000 GeV inelastic interaction, calc. of sorting double-fireball showers *(Russian)* 4−58177
- Pb + p, 13 GeV, cosmic ray shower meas. in stratosphere *(Russian)* 4−58182
- ^{208}Pb(^{16}O, ^{14}C)^{210}Po, 104, 140 MeV, DWBA anal. 4−59804
- ^{208}Pb(p,p$^{(1)}$), 1 GeV, analysis via multiple scattering series for optical potential 4−63163
- ^{208}Pb(p,p). 15-1000 MeV, optical model anal. 4−71902
- Pb(n,pπ^-), 10 to 28 GeV/c, diffraction and Coulomb dissociation 4−66195
- Pt(p,f), 14-23 GeV, cross-sections for binary and ternary fission 4−71969
- ^{32}S(e,e'), high momentum transfer at 250 and 500 MeV, cross-section meas. 4−63143
- ^{121}Sb, (^{40}Ar, xn), (^{40}Ar, pxn), (^{40}Ar, 2pxn), (^{40}Ar, 3pxn), 150-280 MeV, total fusion cross section, compound nucleus mechanism 4−43561
- ^{77}Se + ^{40}Ar, 71 to 107 MeV study of charged particle emission from ^{117}Te compound nucleus 4−55877
- ^{77}Se + ^{40}Ar, at 146 to 200 MeV, ^{117}Te compound nuclei charged particle emission 4−55876
- ^{18}Si(p,π^+) 185 MeV, spectra and ang. distrib, meas. 4−69242
- ^{28}Si(α,α')^{28}Si, 166 MeV inelastic scatt., test of new shell model wave functions 4−55855
- ^{28}Si(e,e'), high momentum transfer at 250 and 500 MeV, cross-section meas. 4−63143
- ^{28}Si(p,x), ^{10}Be production at 600 MeV, cross-section meas. astrophysical applications 4−63166
- ^{118}Sn(^{40}Ar, xn), (^{40}Ar, pxn), (^{40}Ar, 2pxn), (^{40}Ar, 3pxn), 150-280 MeV, total fusion cross section, compound nucleus mechanism 4−43561
- ^{88}Sr(e, e), elastic and inelastic, 45 to 121 MeV, weak coupling model anal. 4−59741
- ^{181}Ta(p,spallation), 28 GeV, charge dispersion and mass yields of rare-earth nuclei 4−71899
- ^{48}Ti(α, α), 104 MeV generalised collective model anal. 4−59788
- U + p, 740 MeV, n production spectra determ. 4−59751
- ^{238}U + ^{84}Kr, 605 MeV, cross sections, mass yield distribs. 4−69257
- ^{238}U + p, 11.5, 300 GeV, cross-sections and recoil props. in $A = 130$ region 4−71900
- ^{238}U + p, 300 GeV, cross sections and thick target recoil props. 4−59755
- U(p,x), 4.8 GeV, neutron-excess isotopes detection in Li to N region, particle stability 4−55831
- Xe, π^- interactions at 3.5 GeV/c, energy and angular spectra of emitted protons *(Russian)* 4−78122
- ^{89}Y(e, e), elastic and inelastic 45 to 121 MeV, weak coupling model anal. 4−59741

high field effects
- *see also Poole-Frenkel effect*
- anthracene, deep and shallow trapping of holes, anal. of s.c.l. and thermo-currents 4−44861
- anthracene, double injection, free carrier densities 4−67220
- anthracene, trap depth anal. by thermal and optical release of carriers 4−72781
- anthracene crystals, high-field drift mobility meas. 4−60805
- current filament motion in transverse elec. and mag. fields, linear theory 4−72788
- diffusion of charged particles in solids, difference eqn. solns. 4−64095
- double injection theory for compensated semicond. with deep acceptors in forbidden band 4−82474
- double injection theory for compensated semiconductor with deep acceptors and electron traps *(Russian)* 4−57162
- electron impact ionisation, detection of mol. beams 4−63496
- epoxy polymer, decaying and steady currents at high fields 4−64097
- Gunn diode, anomalous current oscill. mechanism, low temp. 4−72786
- impact ionisation theory for electron traps in semiconductors 4−64100
- lattice vibrations, interaction with optical polarons 4−75874
- metal, high field magnetoresistance data anal. 4−60780
- microwave conductivity of semiconductors, measurement 4−71216
- nondegenerate semiconductor, magnetoresistance in strong mag. field 4−60816
- photoconductivity due to impact ionisation, theory 4−79383
- polymer, cond. mechanisms, a.c. and d.c. 4−72792
- polymer, high field current oscillation obs. *(French)* 4−53100
- polymer passivating layers on Si, elec. characts., carrier injection 4−57171
- semicondcuctor, cond. in strong crossed elec. and mag. fields, theory 4−75879
- semiconductor, electron diffusion, generalisation of Fick's law 4−75846
- semiconductor, electron-phonon interactions, drag effects 4−63868
- semiconductor, helicon damping, nonparabolicity effect 4−60822
- semiconductor, high-resistivity, Poole law, theory 4−60807
- semiconductor, many valley, odd magnetoresist. in heating elec. fields, pressure influence 4−75896
- semiconductor, microwave cond. in high electric fields 4−64101

high field effects continued
- semiconductor, one-dimens. superlattice, existence of mobile high field domain 4−48996
- semiconductor, quantum transport and i.r. spectroscopy 4−75882
- semiconductor, two valley, intervalley, transfer effect, theory 4−72783
- semiconductor, with Kane electron spectra, nonlinear galvanomagnetic phenomena 4−49013
- semiconductor, zero-gap, helicon propag. at low temps. 4−75909
- semiconductor with nonparabolic band struct., plasma-electric effect in strong electric field 4−57127
- n-Si, odd magnetoresist. in heatng elec. fields, pressure influence 4−75896
- As_2S_3, film, high field absorption current and space charge meas. 4−82507
- $As_2(Se_{1/3}Te_{2/3})_3$, amorphous, bulk and film comparison 4−64009
- As_2Te_3, localised band tail and extended states cond. 4−75867
- B_2O_3, liq., I-V characts., strong electric field effects 4−57103
- CdS, current oscillations due to moving temp.-elec. domains 4−57100
- CdS, current saturation 4−82424
- CdS, photocond., high elec. field domain nucleation due to acoustoelec. flux 4−44968
- n-CdTe, domain elec. instability 4−60809
- $CuO.P_2O_5.V_2O_5$, liq., I-V characts., strong electric field effects 4−57103
- GaAs, drift. vel. calc., electron-phonon interactions 4−48992
- n-GaAs, electrons velocity meas. in range 20 to 50 kV/cm 4−70024
- n-GaAs, impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
- GaAs, impact ionised, recomb. radiation from Landau states 4−82751
- GaAs, nonsaturating velocity-field characts., domain meas. 4−75870
- GaAs, Schottky barrier avalanche photodiodes, obs. of unequal electron and hole impact ionisation coeffs. 4−60800
- GaAs, small signal characts., numerical calc. 4−60802
- GaAs-AlAs superlattice, domain generation, cond. oscill. 4−70027
- $Ga_xIn_{1-x}Sb$ velocity field characteristic 4−75869
- GaN:Zn-In, metal-insulator-n-type diode, electrolum. model 4−70367
- p-GaSb, Hall coeff., uniaxial stress effect 4−49008
- GaSe, elec. cond. change due to strong microwave fields 4−70035
- p-GaSe, tunnelling in high fields, rel. to switching mechanism 4−57152
- Ge, electron-hole plasma, high field domain 4−70032
- n-Ge, instability of injected carriers subjected to strong electric fields 4−67226
- p-Ge, plasma-electric effect in strong electric field 4−57127
- n-Ge, small signal characts., numerical calc. 4−60802
- Ge:As(P)(Sb), impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
- $Ge(Se_{1/3}Te_{2/3})_2$, amorphous, bulk and film comparison 4−64009
- InP, drift. vel. calc., electron-phonon interactions 4−48992
- InP, high field domains, transient behaviour 4−57102
- n-InP, magnetoresistance meas., reson. impact ionisation 4−57107
- InP, small signal characts., numerical calc. 4−60802
- p-InSb, compensated, nonlinear oscills. obs. 4−48999
- n-InSb, nonlinear effects during high power helicon microwave propag. 4−72787
- n-InSb, plasma-electric effect in strong electric field 4−57127
- n-InSe, hot carriers generation by strong microwave electric field 4−75877
- Na_2ZnGeO_4:Mn, properties of ionisation domains, luminous spots obs. 4−67664
- Nb_2O_3, amorphous film, nonlinear high-field cond. mechanisms 4−75993
- PbS, resist., He temps. 4−72785
- PbS(Se)(Te), photodiode, quantum efficiency and impact ionisation 4−75957
- $Pb_xSn_{1-x}Se(Te)$, photodiode, quantum efficiency and impact ionisation 4−75957
- Sb_2O_3, liq., I-V characts., strong electric field effects 4−57103
- Se, Se:Te(Ge), liq., I-V characts., strong electric field effects 4−57103
- Se-Ge, nonohmic behaviour, tunnelling process 4−75881
- Se-Te, nonohmic behaviour, tunnelling process 4−75881
- Si, surface inversion layers, hot carriers, field-dependence behaviour 4−60801
- n-Si, transverse linear magneotocond. calc. in heating elec. field 4−72801
- Si_3N_4, amorphous thin film, conduction under non-uniform electric fields 4−64098
- SiO_2, impact ionisation, m.o.s. high cond. state mechanism 4−60875
- SiO_2 film, amorphous, trap ionisation by electron impact, effect of Na centres 4−60891
- Ta_2O_5, sandwich structures, reactively sputtered, high field elec. cond. meas. 4−79428
- ZnSe Schottky barrier diode, impact ionisation 4−57166

high-frequency discharges
- diatomic gas, charge variation at self-excitation limits *(French)* 4−52633
- diatomic gas, l.p., photometric characts. *(French)* 4−72401
- laser produced plasma, additional spectral excitation of vapour cloud by h.f. discharge *(German)* 4−63693
- low-pressure, glow and arc states 4−78854
- nonequilibrium, in wave fields, self-consistent distribs. of e.m. field and plasma *(Russian)* 4−75341
- plasma formation, in high-temperature state 4−78782
- r.f. glow discharge sputtered ionic species, mass spectrometric analysis 4−51218
- s.h.f.-discharge at atmos. press. 4−75381
- torch discharge, const. elec. field effect *(German)* 4−60367
- unipolar, electrode voltage drop determ. 4−60365
- unipolar, macro- and microparameter relationships 4−60362
- unipolar, superimposed by d.c. field, intensity depend. of h.f. current 4−60366
- Ar, 30-60 MHz in quartz tubes, plasma production 4−69677
- Ar, microwave discharge, stationary 4−75336

high-frequency discharges continued
Ar, s.h.f., excited by mm waves, plasma props. *(Russian)* 4−72404
Ar-N_2 mixture, electrodeless r.f. discharge breakdown voltage obs. 4−75383
CO, electrodeless induction discharge, excitation props. *(Russian)* 4−60370
H, ion beam extraction, resonance conditions 4−82056
He, nonequil. plasma jet parameters meas. 4−52615
InCl, band spectrum in r.f. discharge, 3800-3350 Å, vibr. struct. 4−72177
N, l.p., electron energy distrib. meas. *(Russian)* 4−60343
N_2, avalanche current increase mechanism, V-I charact. *(Russian)* 4−75342
N_2, r.f. discharge, vibro-rotational anal. 4−43808
Ne torch discharge, microparameter diagnostics 4−60364
Ne-Cs torch discharge diagnostics 4−60363
O_2, electrodeless induction discharge, excitation props. *(Russian)* 4−60370

high-frequency effects
see also helicons; hot carriers; skin effect; solid-state plasma
ionic crystals, h.f. breakdown, Fokker-Planck formulation 4−53372
metal, semi-infinite cyclotron resonance, excitation of h.f. waves 4−64017
metal in magnetic field, dispersion equation for e.m. waves *(Russian)* 4−82446
metal plate, selective transparency due to e.m. and acoustic wave interaction 4−73214
m.o.s. capacitance at high frequency, improved formula 4−60863
nonparabolic band conductor, nonlinear pulse propag. 4−75914
semiconductor, excitation of higher harmonics by free carriers 4−72812
semiconductor, high freq. phonon amplification by e.m. wave field 4−75912
semiconductor, light absorption by free carriers, instability 4−72808
semiconductor, nonequilib. electron high freq. cond. props. in quantizing mag. field 4−75910
semiconductor, phonon heating effect on propag. of h.f. e.m. waves 4−57126
semiconductor, quasienergy spectrum of electrons, Kane dispersion law 4−72703
semiconductor, surface e.m. wave excitation 4−79387
semiconductor, with positive differential cond., possibility of generating oscills. 4−49033
semiconductor obeying non-quadratic dispersion law, nonlinear plasma wave propag. 4−79377
semiconductor thin film, degenerate with diffusively scattering boundaries, h.f. conductivity calc. *(Russian)* 4−53160
As_2S_3, As_2Se_3, glass, i.r. and microwave cond. 4−82448
As_2Se_3, liquid semiconductor, cond. transition 4−75881
Cd, doppleron propag. in inclined mag. field 4−79376
n-Ge, microwave complex cond. anisotropy due to hot electrons 4−60804
p-InSb, compensated, microwave emission, 77K 4−61251
pInSb, h.f. breakdown, 77K *(Russian)* 4−70046
InSb, in crossed elec. and mag. field, microwave propagation 4−64111
InSb, microwave Faraday effect, transport props. at cryogenic temps. obs. 4−64110
n-InSb, transversely magnetised semicond. plasma, microwave propag. 4−75911
Se-Te, liquid semiconductor, cond. transition 4−75881
p-Te, microwave Faraday effect, carrier props. 4−44952
$Tl_2SeAs_2Te_3$, glass, i.r. and microwave cond. 4−82448

high-frequency electronic transport *see high-frequency effects*

high-frequency heating *see radiofrequency heating*

high-pressure effects in solids
alkali halides, Hugoniot curves, Gruneisen parameter, high press., lattice model calc. 4−72545
alkali halides, polymorphism, crystal binding model 4−63788
alkali silicate, glass, e.p.r. spectroscopic investigation of struct. at high press. 4−48510
anhydrite, deformation by axial compression under mantle conditions *(German)* 4−76647
benzene, crystalline, vib. spectra under high press. rel. to I-II transform. 4−79717
calcite, volume compression data to 40 kbar 4−68078
carbons oriented heterogeneous graphitization under high pressure 4−53864
columbite phases, MV_2O_6 compounds ($M=Ni$, Mg, Co, Zn, Mn, Cd, Cu), high-pressure synthesis 4−72448
faulted rocks, friction at high temperature and pressure 4−76652
granites, pore spaces and elastic wave vels. at high pressure 4−70629
kaolinite, pressure effects on structure, X-ray line broadening study 4−48751
magnesian ilmenite from kimberlite, isothermal compressions 4−44587
magnetite, isothermal compression to 320 kbar and phase transformation 4−44672
materials research *(German)* 4−45413
melting, most effective vibr. mode determ. 4−48742
minerals, optical absorption bands, pressure shifts 4−73473
olivine-spinel transformation in Ni_2SiO_4 and incongruent melting of Ni_2SiO_4 olivine 4−73477
organic, on hydrogen bonds 4−78941
polymer crystallization, h.p. investig. technique 4−78936
polyoxymethylene, high press. phase transform. 4−63913
semiconductor, cubic, band struct. changes induced by local press. 4−57039
stishovite, pressure effects on lattice parameters 4−44586
thermodynamics and the Gruneisen parameter 4−63932
triglycine fluoroberyllate, Curie point and polarisation changes 4−70263
triglycine sulphate, Curie point and polarisation changes 4−70263
TTF-TCNQ, metal-semiconductor transition temperature 4−53132
Ag, Fermi surface, hydrostatic press. effects 4−79271
$AgBF_4$, polymorphic behaviour at elevated temps. and press., phase transitions investig. *(German)* 4−69909
$AgClO_4$, polymorphic behaviour at elevated temps. and press., phase transitions investig. *(German)* 4−69909

high-pressure effects in solids continued
β-AgI, single crystals, h.p. phase transform., optical absorpt. obs. 4−63918
Ag_3SX, $X=Br$ or I, elec. cond. meas. as function of hydrostatic press., activation vol. determ. 4−44951
Al high resistance alloy, fracture toughness meas. under hydrostatic pressure *(French)* 4−67865
As_2S_3, press.-Raman effects, vibrs. scaling laws 4−70304
Au, Fermi surface, hydrostatic press. effects 4−79271
Au-Fe alloy, dil., press. effects on impurity-impurity interactions, resist. obs., 1.2-30K, 0-60 kbar 4−53214
BP, metal-to-insulator transition under high press. 4−44975
BaF_2, Raman spectra meas. rel. to press., phase transform., Gruneisen coeff. investig. 4−76246
Bi, thermoelectric power press. depend. meas. up to 60 kbar 4−50996
Bi-In, superconductivity, high press. transition 4−79446
Bi-Sb, alloy, high pressure, high temperature, behaviour 4−67024
Bi_2Se_3, polymorphic transitions obs. at high press. by electrical resist. meas. 4−69908
BiSn, high press. phase, vol. change meas. 4−76428
CaF_2, Raman spectra meas. rel. to press., phase transform., Gruneisen coeff. investig. 4−76246
$CdAs_2$, stable and metastable equilibria near melting curves up to high pressures 4−52860
CdF_2, Raman spectra meas. rel. to press., phase transform., Gruneisen coeff. investig. 4−76246
$Cd_xHg_{1-x}Te$, galvanomagnetic props. under pressure *(Russian)* 4−82436
CdS, effect of pressure on spectral distrib. of photosensitivity *(Bulgarian)* 4−57131
n-$CdSnAs_2$, elec. cond. and complex band struct., pressure depend. to 10 kbar 4−75856
Ce, electronic γ-α transition, thermopower obs. at 7 kbar 4−79302
Co_2MnSn ferromagnetic alloy under 14 kbar pressure, Mossbauer effect *(Russian)* 4−82647
Co_2SiO_4, isothermal compressions of synthetic spinel phase 4−44587
Cr, heat capacity nr. Neel transition 4−49171
Cu, Fermi surface, hydrostatic press. effects 4−79271
Cu, spherical particles, pressing effects on sintering kinetics *(German)* 4−73338
$CuFeS_2$, single cryst., metal-semiconductor transition, 65 kbar 4−72718
Eu monochalcogenides, electronic and struct. transformations 4−60741
Fe-Mn alloy, phase transform., shock loading induced, stability 4−64540
γ-Fe_2SiO_4, pressure intensification 4−53830
$Ga_xIn_{1-x}Sb$, scattering processes, transport phenomena 4−57096
GaP, one and two phonon Raman spectra up to 128 kbar 4−57533
GaP, semiconductor-to-metal transition under high press. 4−44975
GaP:N, electroluminesc. and photocond. changes 4−45365
GaSe, optical absorpt. edge press. depend. 4−45321
H_2, Raman spectra, press. depend. *(French)* 4−49336
^4Hd, close packed structures, high press., X-ray diffr. 4−82304
n-InSb, existence of donor states occupying two non equivalent lattice sites 4−49007
$K_{3/4}Bi_{1/4}Zn_{1/6}Nb_{5/6}O_3$, press. effect on dielec. relax. 4−61103
KCl, healing of isolated pore under hydrostatic press., dislocation mechanism 4−72474
KNO_2, effect on dielec. props. 4−45236
$KNiF_3$, hydrostatic press. effect on Neel temp. 4−49170
$K_2Pt(CN)_4Br_{0.3}.3H_2O$ press. depend. of metal-semiconductor transition 4−67264
$KTaO_3$, phonon energy var., Raman scatt. meas. 4−60574
$LiBH_4$, melting and polymorphism investig. rel. to temp., press., phase transitions investig. *(German)* 4−72563
LiF, pressure intensification 4−53830
LiH, cryst. struct. up to 120 kbar, no change 4−63798
MgO, pressurization effects on microstruct. and mech. props. 4−61498
MgO-NaCl composite, pressure intensification, obs. and model 4−53830
Mn_2SiO_4 (olivine) high-pressure decompositions rel. to mantle transformations 4−68088
Mo-C system, stabilization of carbide phase 4−53664
ND_4Cl, neutron scatt. meas. of order-disorder transition as function of temp. and press. 4−75612
$(NH_4)_2BeF_4$, ferroelectric, hydrostatic press. effects on phase transitions 4−64352
Na, thermoelec. power, press. depend., up to 3 kbar, 5-14K 4−79333
NaCl, healing of isolated pore under hydrostatic press., dislocation mechanism 4−72474
$NaH_3(SeO_3)_2$, influence of hydrostatic pressure on α-β transition 4−57486
$NbSe_2$, superconducting transition temp. and transport props. 4−64150
Ni-Pd, magnetocrystalline anisotropy, hydrostatic press. effects 4−49189
Ni-Pt alloys, ferromag. props. at high field and press. near crit. conc. for ferromagnetism 4−53256
$NiCr_2O_4$, hydrostatic press. effect on cooperative Jahn-Teller phase transition temp. 4−48753
Pb, superconductor, mechanical pressure effects on critical transport props. 4−72912
PbF_2, Raman spectra meas. rel. to press., phase transform., Gruneisen coeff. investig. 4−76246
$Pb_5Ge_3O_{11}$, ferroelec. Curie temp., hydrostatic press. effect 4−57482
$Pb(ZnW)_{1/2}O_3$, paraelectric-antiferroelectric transition temp., press. depend. 4−73083
Pd-Fe(Co), Curie temp. changes, Mossbauer spectra 4−67371
Pd-Ni, dilute alloys high press. mag. behaviour obs. 4−76121
Pt-Fe(Co), Curie temp. changes, Mossbauer spectra 4−67371
S_8, press.-Raman effects, vibr. scaling laws 4−70304
SbSI, ferroelectric phase transitions under high press., theory 4−64347

high-pressure effects in solids continued
Se amorphous, very pure, crystallization under compression, conductivity obs. *(German)* 4−52888
Si, uniaxial press. effect on 1.8 μm absorption peak of divacancies 4−57588
SiC, metal-to-insulator transition under high press. 4−44975
SiO_2, glass, crystn., positron lifetime spectra 4−60615
SiO_2, thermal expansion and phase-transition 4−63884
$SrTiO_3$, permittivity maxima changes, temp. depend. 4−57456
TaS_2, 1T and 2H, pressure-induced semimetal-metal, metal-metal transitions 4−70054
ThO_2, ThO_2-$YO_{1.5}$ solid solns., construction mechanisms at high oxygen pressures 4−52929
TiO_x, Hugoniot data from shock wave compression up to 600 kbar 4−66985
Tl superconducting transition temperature, effects of pressures up to 12 katm. *(Russian)* 4−79448
TlN_3, mode coupling and press. induced phase transition 4−73123
V, supercond. transition temp., pressure depend. up to 250 kbar 4−79444
V-Ru, supercond. and stability, 0 to 25 kbar 4−79436
V_3Si, A15 superconductor, press. induced room temp. phase transition 4−67037
YIG:Pr^{3+}, ferromag. relax. mechanism, press. induced change 4−79605
Yb, de Haas-van Alphen effect 4−79270
Yb monochalcogenides, electronic and struct. transformations 4−60741
YbS(Se,Te), light absorption, 0.4-1.1 μ, band gap change 4−61182
$ZnAs_2$, stable and metastable equilibria near melting curves up to high pressures 4−52860

high-pressure phenomena and effects
see also high-pressure effects in solids
acetane, hypersound speeds 1 to 1000 atm. 4−52818
benzene, dried liquid, elec. cond. meas., pressure depend. up to 5 kbar 4−60797
benzene, hypersound speeds 1 to 1000 atm. 4−52818
cholesteric mesophases, light reflection *(German)* 4−48504
close packed structures, melting curve at h.p., asymptotic behaviour, geophys. implications 4−63900
gas-gas equilibrium, high-press. limit, phase separation 4−60617
liquid equation of state, molecular acoustic derivation *(German)* 4−52854
liquid metal, absence of first order electronic transition, high pressure shock wave data 4−44822
methane, liq. and high-press. gas, mol. motion neutron scatt. obs. 4−63750
methylclyclohexane-N_2, Poynting effect, 50-400 bar 4−82258
nematic mesophase, hydrostatic pressure effects on phase transition temp. 4−52682
p-ozoxyanisole, pVT diagram, 110-147°C, up to 400 atm. 4−82260
phase transitions of organic compounds by i.r. and volumetric studies 4−63911
pyrophyllite characts. w.r.t. use as high press. medium 4−54857
seawater, thermal conductivity at pressures from atmospheric to 1400 bars 4−80289
seawater freezing point at pressures up to 100 bars 4−50267
strain gauge, resistance type, hydrostatic press. effect *(German)* 4−62417
toluene, depolarized doublet spectra at high press. 4−53418
water, self-diffusion up to 2100 bar at 25°C 4−79173
Ar, liq. and high-press. gas, mol. motion neutron scatt. obs. 4−63750
CS_2, hypersound speeds 1 to 1000 atm. 4−52818
H_2, metallic modification, chemical bond collapse *(German)* 4−52089
H_2O and D_2O, effect of pressure on liquid structure 4−48497
n-heptane-methylcyclohexane-N_2, Poynting effect, 50-400 bar 4−82258
n-heptane-N_2, Poynting effect, 50-400 bar 4−82258
Hg, viscosity, up to 1000 kg cm^{-2} 4−82285
N_2-He mixture, superradiance of nitrogen bands in high press. discharge *(Russian)* 4−71541
NH_3, classical microwave and i.r. pressure broadening theory 4−43880
NH_3, liq., high press. pulse radiolysis, solvated electron yield, spectra and press. depend. 4−68027
N_2O, enthalpy-press. behaviour determ., Joule-Thomson effect studies 4−78554
Ne, compressed, sound vel. meas., 4 kbar, 25-200°C 4−60144
O_2, slow electron attachment at very high pressures of N_2, ethane and ethylene 4−52273
S, melting curve to 300 degrees C and 12 kbar 4−63890

high-pressure techniques
apparatus for simultaneous adiabatic and isothermal compressibility meas., test data for Ar 4−50997
arc, vacuum UV emission 4−78814
beam condenser for use with high-press. diamond anvil cell 4−71191
cell for n.m.r. of liquid samples 4−58876
chamber for inelastic neutron scatt., autofrettage technique of construction 4−55004
coal-H_2, high-press. reacfion kinetics, apparatus for meas. 4−83026
convertor, electrical, sensitivity improvement *(Russian)* 4−46613
DTA, high pressure attachment *(German)* 4−62431
flowmeter, for small liquid flows 4−65600
gas gun, snap-action pneumatic valve 4−54859
gas phase thermophysical parameters determ. apparatus, steady state operation 4−42755
instrumentation gland, medium to high hydraulic pressures 4−50998
intensifier for O_2 use to 4 kbar 4−80858
mechanical pressure intensification, small dimension apparatus 4−54858
neutron diffraction, 4.2-300K cryostat to function at 40 kilobars 4−54854
neutron diffraction crystallography apparatus, for use up to 50 kilobars 4−60385
n.m.r. work, pressure vessel, electrical feedthrough and seals 4−42849
piston cylinder type apparatus; analysis of pressures generated 4−71175

high-pressure techniques continued
piston gauge press. meas. during diamond synthesis 4−58771
polymer crystallization, h.p. investig. technique 4−78936
pressure chamber, water heated 4−77060
pressure vessels, new device 4−42762
pyrophyllite characts. w.r.t. use as high press. medium 4−54857
rheology, h.p. measurement apparatus design and operation difficulties 4−42976
sound velocity meas. in shock-compressed fluid, stimulated Brillouin scatt. 4−54831
specific heat meas. at h.p. by pulse technique 4−62432
static pressure measurement, review 4−58770
thermoelectric power press. depend. meas. up to 60 kbar 4−50996
window seal for flow cell in high temp. and high pressure spectroscopy 4−54860
Al_2O_3-Na_2O, high press. cryst. growth, edge-defined film-fed growth technique 4−45428
Ce-Bi-Tl coaxial wire produced by extrusion for electric resistance pressure meas. 4−54861

high-temperature phenomena and effects
anhydrite, deformation by axial compression under mantle conditions *(German)* 4−76647
ceramic, high temp. deform., review 4−61481
faulted rocks, friction at high temperature and pressure 4−76652
graphite, polycryst., heat transport meas. to 2600°C, reference material 4−60652
graphite, sublimation temperatures, carbon arcs and crystallite erosion 4−75623
ionic transport in high-temp. oxides, statistical-mechanical theory of vacancies 4−52935
magnetite, high-temp. magnetostriction of natural and synthetic crystals 4−70638
plasma formation in microwave discharge 4−78782
pressure measurement with piston gauge during diamond synthesis 4−58771
solid, thermal props. investigs. at Moscow Univ. 4−52897
thermally ionized gas, spectral characts., 5000-30000K 4−60317
thermodynamic singularities of dense gas 4−69547
$AgBF_4$, polymorphic behaviour at elevated temps. and press., phase transitions investig. *(German)* 4−69909
$AgClO_4$, polymorphic behaviour at elevated temps. and press., phase transitions investig. *(German)* 4−69909
Al alloy AU2GN, hot fatigue tests, Paris law *(French)* 4−49809
Bi-Sb, alloy, high pressure, high temperature, behaviour 4−67024
$(Cr_{0.01}V_{0.99})_2O_3$ high-temp. resistivity anomaly, 200° to 900°K 4−53114
GeO_2 meas. of enthalpy and sp. ht., method of mixtures 4−69913
LiF, charged dislocation mobility 4−72468
LiF, dislocation glide mobility, point defect velocity limitation 4−72469
Mg_2GeO_4, olivine-spinel transition, enthalpy, olivine-spinel-phenacite stability relations, thermodynamics 4−67043
S, melting curve to 300 degrees C and 12 kbar 4−63890
W, solubility of C at 1400 to 2000°C, obs. *(German)* 4−49738
$Zr_{0.85}Ca_{0.15}O_{1.85}$ space-charge polarisation at 400° to 950°C, obs. 4−53374
ZrO_2, Ca-stabilized, solid electrolytes, partial conductivity at 900° to 1200°C, obs. 4−52932

high-temperature techniques
see also refractories
automotive power plants, materials 4−76521
bakebale vacuum microbalance, metal oxidation kinetics determ. 4−67121
creep testing, high temp. vacuum unit 4−61575
diffusion measurement at boiling point, three-compartment cell 4−59022
electrical conductors, high temp., thermophysical props. meas. technique 4−50985
electrical measuring instrument, thermal radiation in specified i.r. band *(German)* 4−46755
e.m.f. measurement on solid and liquid electrolytes at high temperatures 4−62489
ferrite complex permeability and permittivity meas. at high temp., 0.1 to 10 GHz time-domain system 4−65498
fluidic sensor, with cooled signal tube 4−54850
furnace for small angle X-ray studies 4−71172
fusion reactor blanket-coupled MHD conversion at 2500K. 4−55956
gas phase thermophysical parameters determ. apparatus, steady state operation 4−42755
gas temperature meas., rapidly changing, using thermocouple and resistance probe *(Czech)* 4−54847
gas-discharge heat sources, 10000 to 18000K, null-modulation optical meas. 4−80850
graphite blackbody radiation source for spectrometer and radiometer calibration 4−80893
graphite tube electric furnace, meas. elec. props. of MgO single crystal 4−58764
heat resistance testing of alloys with protective coatings, weighing device 4−58763
III-V semiconductor metallography *(Czech)* 4−64508
microphotometry and microdilatometry of inhomogeneous materials 4−80852
microscope, based on model KM-6 cathatometer 4−65445
microthermobalance, automatic recording 4−74188
oven, adaptation for thermocouple installation 4−46602
plasmas, high temp. and density, X-ray diagnostic equipment 4−60328
preparation of discrete samples of C-containing material for microstruct. analysis 4−67939
pressure chamber, water heated 4−77060
Raman spectra of fused salts 4−61166
refractories, transition metals, enthalpy 4−63930
shields, radiation, heat transfer props. 4−42754
solids, Derivatograph, combined thermal methods 4−65394
specific heat meas. by modulation method 4−58760
spectroscopic temperature measurement, gases and plasmas 4−50987
temperature precision measurement, thermophysical investigations, solids 4−62438

- **high-temperature techniques** continued
  - thermal conductivity meas. of C foam, 1400-2000K, special technique *(German)* 4−50986
  - thermal diffusivity meas. by pulse methods 4−62441
  - thermogravimetry, transducer device for automatic meas. 4−65598
  - tribology in nuclear reactors, National Centre of Tribology 4−61572
  - two-wavelength technique for simultaneous meas. of high temp. and emittance temp. depend. 4−58759
  - u.s. resonance-pulse method for inelastic and elastic meas. on small specimens 4−42717
  - vacuum seal, sapphire to Nb, suitable for operation from 2 to 2000K 4−58774
  - window seal for flow cell in high temp. and high pressure spectroscopy 4−54860
  - X-ray crystallography, review *(German)* 4−52655
  - Ag vapour pressure at 1160 to 1360K, dynamic Knudsen-effusion-torsion balance 4−65407
  - Al alloy AU2GN, hot fatigue tests, Paris law *(French)* 4−49809
  - U liquid, high temp. containment, to 9000K, eqn. of state 4−63888
- **high vacuum gauges** *see vacuum gauges*
- **high-voltage engineering**
  - fusion reactor direct collection unit h.v. breakdown expts. 4−55958
  - gas lasers, electron beam controlled, h.v. pulse generator and other design problems 4−59408
  - impulse meas. systems, e.m. interf. 4−48391
  - insulators in vacuum, impulse flashover, effect of d.c. prestress, expt. 4−68729
  - porblems of fusion research, symposium, Princeton (1973) 4−55933
  - CO_2 lasers, electron beam controlled, 1 kJ and 10 kJ systems 4−59407
  - SF_6 insulated apparatus, breakdown from stable partial discharges *(German)* 4−56552
- **high-voltage techniques**
  - 10 kV d.c. voltage divider for absolute volt determ. 4−65353
  - 100 kV regulator with $^1/_4$ p.p.m. stability for electron microscopy 4−65550
  - Cockcroft-Walton 100 kV d.c. supply, using h.v. semicond. diodes *(Polish)* 4−54978
  - impulse testing, 500 kV, air gap residual ionisation levels, effects 4−48181
  - insulation, for cryogenic apparatus, electrical props. and design 4−80856
  - insulation and overvoltage protection for plasma implosion heating expt. 4−60302
  - pulse generator design for plasma implosion heating expt. 4−60301
- **history**
  - American and English attitudes to scientific education during 19th century 4−50935
  - astronomy in the Ancient World, discussion, London, England (December 1972) 4−46141
  - causality, role in physical thought throughout history 4−42680
  - cometary motions, from pre-Copernican era to present time 4−61974
  - Einstein's theory of general relativity and gravitation, development and contradiction *(Hungarian)* 4−81234
  - Faraday to Einstein, the story of their discoveries, book 4−58666
  - Indian astronomy at time of Copernicus 4−73939
  - Lorentz transformations, early work by Larmor and Voigt 4−68585
  - meteorological instruments, review 4−50408
  - modelling in physics, conceptual basis *(German)* 4−59078
  - Newton's Principia, publication, editors 4−46534
  - nonradiative transition problem 4−63453
  - Prandtl's mixing-length theory, origin 4−48212
  - SI units 4−77023
  - spectroscopy, contribution Sir John Herschel 4−54764
  - superconductivity, survey and Nobel prizes *(German)* 4−60894
  - Van der Waals, influence on gas and liquid theory 4−71147
  - Van der Waals equation, historical origins 4−71148
  - Venus transit of 1874 December 8, 19th cent. obs. and techniques 4−73637
- **hodoscopes** *see cosmic ray apparatus; radiation detectors*
- **hole mobility** *see carrier mobility*
- **hole theory of liquids** *see liquid theory*
- **holes** *see charge carriers*
- **hollow cathodes** *see cathodes*
- **holmium**
  - antiferromagnetic, ultrasonic absorption, 10 to 70 MHz, temps. down to 80K, magnetic field effects 4−45164
  - bivalent oxidation state, creation by irradiation 4−64718
  - desorption from W, action of elec. field *(Bulgarian)* 4−48848
  - elastic constants and magnetoelasticity obs. from 4.2 to 300K 4−67414
  - electrical resistivity meas. for liquid and solid states, room temp. to 1600°C 4−60776
  - exchange and one-ion anisotropies calcs. 4−57257
  - Hall coefficient anisotropy of single crysts. above Neel pt. *(Russian)* 4−60778
  - Hall effect, anomalous in single crysts. in helicoidal mag. ordering region *(Russian)* 4−79337
  - h.c.p., phonon dispersion curves in modified Sharma-Joshi model 4−48712
  - magnetic structure, coherent neutron scatt. nuclear polarisation depend. 4−70161
  - u.s. identification of new spin-ordering phase transition 4−76085
  - $BaYF_5$:Yb,Ho luminophors, thermodynamic limits on efficiency *(Russian)* 4−53526
  - $CaF_2:Ho^{2+}$, ENDOR spectrum anal. 4−73050
  - $CaF_2:Ho^{2+}$, spin-lattice relax. with spherical lattice waves and cubic cryst. field 4−64259
  - $CaF_2:Ho^{3+}$, 4f to 5d transitions, absorpt. spectra obs., 1280 to 1600Å 4−64412
  - $CdF_2:Er^{3+}$, Yb^{3+}, Tm^{3+}, Ho^{3+}, Tb^{3+} absorption and fluorescence spectra, obs. 4−57610
  - $(Er,Lu)AlO_3:Ho^{3+}$, spectroscopic and laser props. 4−53471
  - Ho II, $4f^n5d$ configuration, $f^{11}d$ energy levels *(French)* 4−51934
  - $Ho:^{111}Cd$, temp. depend. of mag. hyperfine field 4−76201
  - Ho^{3+} in $YAsO_4$, measurement of forbidden $\Delta M = 0$ and $\Delta M = 1$ e.p.r. transitions *(German)* 4−79585
  - $YAlO_3(Y_3Al_5O_{12}):Ho^{3+}$, radiationless relax., coupling strength depend. 4−53499
- **holmium** continued
  - Y_2O_2S-Er-Ho-Yb, radiative and non-radiative transitions 4−53518
- **holmium alloys**
  - Ho-Co(Fe) amorphous films, differences in T_c of amorphous, cryst. states, mechanism 4−76128
  - Ho_5In_3, cryst. struct. 4−63792
  - HoPd, cryst. struct. 4−82132
  - Ho_5Pd_2, cryst. struct. and lattice const., X-ray obs. 4−75480
  - HoSb, sp. ht. and resistivity above Neel temp. 4−67368
  - HoSb, tricriticality, sp. ht. and resist. calc. in terms of mol. field model 4−67369
  - HoZn, sp. ht., mag. props., 20-300K 4−70156
- **holmium compounds**
  - *see also holmium alloys*
  - Ho^{3+} compounds, anal. by dye laser amplified absorpt. spectrometry 4−65578
  - $HoAsO_4$, magnetic ordering, specific heat and spectroscopic meas. 4−82564
  - HoB_{12}, mag. suscept. investigation between 100 and 300K 4−45089
  - HoB_4, prod., thermal expansion meas. 4−82282
  - HoF, absorption spectrum, 4500 to 5650 Å 4−47991
  - HoF_3, impurity-controlled solid-solid transition and melt growth 4−60614
  - HoF_3, polymorphism and cryst. struct. 4−48589
  - $(1-x)HoF_3.xErF_3$ single crysts., solid solution behaviour 4−48764
  - $HoFeO_3$, dipolar interactions 4−82568
  - $HoFe_2O_4$, synthesis of new compound, unit cell parameters determ. 4−82144
  - Ho(III) complex with 2-pyridineamidoxime, refl. spectra, nephelauxetic effect 4−72137
  - $HoMn_2O_5$, phase comparison method, appl. to complex magnetic structure, interaction matrix calc. 4−76089
  - Ho_2O_2S, lattice contrib. to specific heat, 1.4-80K 4−48773
  - $HoPO_4$, magnetoelec. susceptibility meas. simple two sublattice Ising antiferromag. model 4−72955
  - Ho_2SiO_5-$CaSiO_3(SrSiO_3)$ system, phase relations, i.r. spectra obs. *(Russian)* 4−61168
  - $HoTiNbO_6$, i.r. spectra, 30-1500 cm^{-1}, interpretation *(Russian)* 4−79737
  - $Ho_xY_{3-x}Fe_5O_{12}$, mag. anisotropy, field depend. *(Russian)* 4−72988
  - $KHoBeF_6$, cryst. struct. isotypism *(French)* 4−69758
  - $Tb_xHo_{1-x}FeO_3$, paramag. susceptibility meas. by mag. balance *(Bulgarian)* 4−51116
- **holographic instruments**
  - *see also holography*
  - acoustooptic modulator as switchable beam splitters 4−77102
  - bench, design, vibration insulation 4−80925
  - camera, motion picture, real-time, front surface detail recording from moving digit 4−68701
  - cameras, bore hole, with compact holographic system 4−62479
  - double exposure technique, clay swelling detection 4−57791
  - educational aids, for undergraduate laboratories 4−54792
  - glow discharge plasma detectors for microwave holography 4−51073
  - interferometer, direct straightness testing of cylindrical surface generatrices 4−46571
  - interferometer, gas density meas. in high velocity flows 4−46992
  - interferometer, meas. of absorbed energy distribs. in water from pulsed elec. beams 4−74075
  - interferometer, radial shear, optical testing appl. 4−74061
  - interferometer for gas dynamic measurements 4−71299
  - interferometer sensitivity regulation technique, for refr. index distrib. meas. *(Russian)* 4−54948
  - interferometer with radial and lateral shear 4−77094
  - kinoform lens construction using c.r.t. circular plotter 4−46688
  - masks application *(Polish)* 4−68704
  - mass stores, page composer and detector matrices *(German)* 4−80917
  - stereo colour TV system *(Russian)* 4−77105
  - CdS dynamic holographic gratings with characteristic lifetime of 5×10^{-9} sec 4−46683
- **holography**
  - *see also acoustic holography; holographic instruments; laser beams; optical storage devices; optical stores*
  - 3-D two-step photographic process, using relatively simple camera 4−58856
  - adhesion fault detection by nondestructive holographic inspection *(French)* 4−73403
  - air + water, critical flow slip ratios, holographic technique 4−68852
  - aircraft wing plank slices, holographic NDT 4−46684
  - alphanumeric characters, holographic reading limitations 4−51069
  - analog techniques in nonoptical holography 4−58841
  - anamorphotic properties of holographic optical elements 4−74474
  - antenna phase nonuniformities correction using holographic matched filters 4−42816
  - aperture of composite objective, holographic synthesis 4−71212
  - applications in science and technology *(German)* 4−46682
  - bi-directional information storage, dichroism of F_a centres in KCl:Na 4−80923
  - biased time averaged holograms, construction eqns. 4−59366
  - binary synthetic holograms, feasibility 4−65876
  - bleached hologram characts., rel. to light exposure stability 4−54951
  - bleached holograms, parameters for Agfa spectroscopic plates 4−65459
  - cathode-ray tube with laser screen, for hologram recording 4−80927
  - chalcogenide materials applic. as reversible media 4−80926
  - chalcogenides, recording holograms, diffr. efficiency time depend. 4−58834
  - character reading, optical correl. technique 4−58838
  - character recognition, low-, high- and band-pass filters for simple characts. 4−69021
  - character recognition by digital holography, spatial filters 4−58840
  - coded reference holograms property, displacement effect on quality of reconstructed image *(Japanese)* 4−43266
  - coherent optical processing systems, constant background component reduction method 4−42815
  - computer generated holograms for 3-D display 4−77100
  - computer generated synthetic real-imaginary hologram pair, expt. results 4−46671

holography continued
computer holograms for image processing, reduction of sample number 4−46672
computer holographic method for optical reconstruction of mol. image from X-ray diffraction 4−56583
conference, Washington, USA, Spring (1974) 4−46624
contour generation, white light reconstruction 4−77099
contour holography methods, theoretical comparison 4−62812
conversion of holograms by computer, Fresnel transform to Fourier transform 4−43272
copying systems, laser beam deflection *(German)* 4−46679
crack detection in concrete cubes and cylinders 4−45883
crack detection in large metal objects, holographic interferometry obs., appl. to trainwheels 4−45889
deblurring filter made with flying spot scanner exposure device 4−58837
deconvolution of coded aperture images, three-dimens. X-ray objects 4−81045
deformation, symm. and anti-symm., hologram interferometry meas. 4−58741
deformation tolerance of hologram media, wave-front aberration analysis 4−62811
deformation tolerance of hologram medium, aberration types, evaluation 4−77625
diazo photosensitive film, recording characts. 4−58839
dielectrics, microwave holographic imaging of anomalies 4−51074
diffraction gratings, finite cond. effects in grating theory *(French)* 4−80921
diffusion of gas in liquid, double holograpic obs. 4−60633
digital and optical image reconstruction from suboptical diffr. patterns 4−43264
displacement, three-dimens., meas. by double-exposure hologram scanning 4−58738
displacement measurement using holographic recording by spatial filtering 4−73990
double beam interferometry based on single exposure *(Russian)* 4−68710
double-exposure holographic interferometry using reflection holograms 4−51072
dye removal from holographic films 4−74086
dynamic three-dimensional hologram recording, imaging props. of travelling intensity waves 4−74476
educational aids, for undergraduate laboratories 4−54792
electron microscope, spatial filtering method as holography approach 4−71261
electronic processing of interferograms 4−51070
evanescent wave, diffr. efficiency theory for s-polarised light 4−81287
eye safety considerations, intense diffuse illumination 4−77101
flow visualisation, double exposure method in holography 4−55169
flow visualisation, nozzle flow quality by interferometry 4−72307
foam insulation on large metallic structs., pulsed laser interferometric holographic inspection 4−47391
focused image, processes involved in recording and reconstruction 4−62813
Fourier transform, in optical deconvolution of seismic traces *(French)* 4−61892
Fourier transform, optical recording and reconstructing systems design 4−58836
Fresnel in-line holograms and reconstructed images, spectral quality 4−43269
fundamentals, and applications *(German)* 4−46681
gamma-ray imaging system using Fresnel zone plate aperture, multiwire proportional counter, computer reconstruction 4−54683
gas laser cavity stability meas., warm-up time rel. to hologram recording 4−65923
grating production, inherent phase error of substrate irregularities, removal 4−80924
heat exchanger, holographic investigation of reduced temp. boiling *(German)* 4−50973
high pass filters, directional sensitivity, character recognition 4−47316
high speed, and kineholography *(Russian)* 4−46691
holograms, classification and properties, book 4−62810
image reconstruction, speckle reduction by spatial freq. sampling 4−43270
image storage, spatial division in Fourier plane 4−51065
image storage holograms, high density, random phase sampling method 4−74066
imagery evaluation, spherical or plane waves 4−59365
imaging capability, sub-channel capacity and noise 4−80922
imaging resolution limitations *(French)* 4−65877
incoherent, use for increasing signal to noise ratio of images in nuclear medicine 4−58561
integrated, review *(German)* 4−51538
interferogram analysis, average wavefront displacement determ. in hologram plane *(French)* 4−59368
interferogram analysis from single view 4−43263
interferometric, obs. of high density plasmas 4−56520
interferometric analysis of fine uniform motions, use of holographic subtraction 4−46569
interferometric cylindrical shell deformation measurement 4−50951
interferometric grating production, phase correction 4−58787
interferometric method, discrete illumination of 3-D object, phase raster 4−68707
interferometric system, optical homogeneity obs. of CO$_2$ laser discharge 4−74484
interferometry, appl. to shock wave propag. in solids 4−66992
interferometry, bolted plates, deformation meas. 4−65374
interferometry, in-plane deformation meas. 4−68612
interferometry, isothermal differential diffusion coeffs. determ. in electrolytic liquids *(French)* 4−45915
interferometry, localisation of interference fringes 4−62470
interferometry, non-sinusoidal vibr. meas. 4−68609
interferometry, shifted reference, comments 4−59364
interferometry, surface roughness measurement 4−52975
interferometry, two-beam, gasdynamic studies applic., review 4−48286
interferometry applics. in exptl. mechanics 4−74071

holography continued
interferometry of rigid-body motion and homogeneous deform., fringe interpretation 4−42700
isopachic and isochromatic fringe patterns 4−74070
kinoform Fourier domain phase nonlinearities and phase clipping 4−51075
large field depth hologram, gas laser recording 4−68706
large-displacement, fringe freq. reduction technique 4−80835
laser beams, axial brightness enhancement by holographic phase correction 4−46687
lens holographic technique for analysing symmetrical aberrations of camera system 4−68708
lens system model, finite source, zero order light 4−43268
lensless Fourier transform holography, plane objects synthesis 4−58833
liquid crystal, 1024 bits page composer for holographic memories 4−58832
localization of interference phenomena for lateral shifts of scatt. objects *(French)* 4−43267
loudspeaker vibration mode detection by holographic interferometry 4−50970
mass transfer coefficients using holographic interferometry, general principles and appl. to flat plate 4−74192
Maxwell's theory applications *(Dutch)* 4−47318
measurement technique 4−77098
memories in gigabyte region 4−46673
memory, computer connection *(French)* 4−46686
memory, holographic page synthesis for sequential input of data 4−46676
memory, page-oriented associative 4−46677
memory, read-write, three dimens. storage 4−46674
memory system, image reconstruction using semicond. laser screen of cathode ray tube 4−77104
microhologram, high resolution, injection laser recording 4−80929
microhologram carrying textual information, reconstruction with injection laser 4−80928
microholograms, video recording and reproduction, use of laser cathode-ray tubes *(Czech)* 4−54953
microscopic interferometry, of laser produced plasmas 4−56493
microwave, by spherical scanning 4−42812
microwave amplitude and phase distrib. meas., holographic methods 4−65485
microwave high resolution imaging of objects obscured by dielectric media 4−58842
microwave technique for objects in randomly perturbing medium 4−77106
mm-wave, resolution of optically reconstructed images *(Japanese)* 4−74068
motion-blurred image formation without coherent light 4−51076
multichannel real-time holographic recording system 4−51077
multiple exposure versus single exposure holograms 4−59363
nuclear fuel-core inspection using holographic tomosynthesis technique 4−81609
nuclear medicine, Fresnel zone plate imaging systems, noise analysis 4−54705
off axis reference beam divided from object beam 4−65457
optical computing international conference, Zurich (1974) 4−51532
optical stores, block-organised, tape, materials, review 4−46678
optimum sampling of functions specified on hemispherical surface 4−59369
organic recording medium, volume-phase holograms, performance 4−65458
painting damage detect. on wooden panels, holographic interferometry appl. 4−74065
particle size and velocity meas. in two-phase flow *(French)* 4−66655
phase hologram reconstruction, influence of injection laser parameters 4−77103
phase shifter, deterministic, characts. for holography 4−71210
photochromic glass, potential appl. 4−53385
photoelasticity, optical retarder inaccuracies influence on isochromatics and isopachics 4−42726
photoelectrochemical recording, semiconductor film *(Russian)* 4−46690
photographic material sensitivity, meas. method *(Russian)* 4−51103
photographic material sensitivity *(Russian)* 4−50197
photographic materials, development effects and m.t.f. 4−74072
photographic materials for holography, interferometric apparatus for investigation 4−68698
photoholoelasticity, isochromatic erasure 4−74069
photoresist hologram and replicas, characts. 4−58830
photosensitive thin layers, optical props., photographic and holographic applics. 4−65470
Pockels readout optical modulator, Itek, holographic filter storage appl. 4−77097
production component metrology by holographic and speckle pattern interferometry 4−51068
pulsed, discussion and appl. as practical industrial tool 4−42813
pulsed laser holography, l.c.d. device for fault finding 4−58835
quantitative holographic interferometry extension by fringe control techniques 4−51071
radiographic film storage, physical aspects 4−50830
random-access holographic memory, electro-optic/electronics interface features 4−46695
reflection filters for compacting optical processors 4−51064
reflection grating, holographically formed, stigmatic soft X-ray focal isolation 4−58828
refractive index inhomogeneous distrib. meas., Moire-holography method 4−68702
review of basic principles, appl. to particle sizing techniques 4−74073
ROM, commercial Holoscan system, credit verification appl. 4−58831
sandwich hologram interferometry, comparison of object deform. 4−73973
shadow of moving body, fixed background 4−74475
single pulse, temporal coherence meas. of injection lasers 4−80930
sinusoidal grating, diffraction anomalies, theory 4−43271
spatial pulse modulation for coherent optical densitometry 4−59362
speckle reduction by moving aperture, theory and meas. 4−71506

holography continued
speckle reduction by random spatial freq. sampling 4−69020
speckle reduction by spatial sampling 4−51526
storage density analysis, theory and exp. 4−46680
stores, development trends 4−46685
strain and displacement meas. method 4−42721
strain and displacement meas. methods 4−42719
strain distribution and elastic const. meas. using holographic and speckle-pattern interferometry 4−42720
stress analysis using birefringent coating on object 4−47317
stress measurement, transient, interferometric technique 4−42725
stroboscopic interferometry, two sinusoidal modes simultaneous vibration 4−71156
submerged diffusely reflecting opaque object, techniques 4−80918
subtraction and addition theory, appl. for material props. testing 4−81286
superresolution, real time, using u.s. light diffractor and TV system 4−58829
surface deformation determination, fringe localization conditions *(French)* 4−59367
surface stress meas., holographic interferogram processing 4−50965
synthetic, information processing applic., trends, present state *(German)* 4−80919
system with large viewing angle 4−68705
televised holograms, TV camera tube faceplate effect on quality 4−54954
thermal stress studies using holographic interferometry 4−70595
thermoplastic-photoconductor film, holographic recording 4−46675
thick holograms, principles, materials, advantages, limitations and future applics. 4−51067
three-dimensional optical image reconstruction, microwave technique 4−46689
transient, reference wave formation 4−51539
two reference source set-up *(French)* 4−80920
two wavelength interferometry, appl. to exploding wires 4−78843
two-phase gas-liquid flow, single-beam Fraunhofer holography 4−77322
tympanic membrane vibration, holographic interferometry anal. 4−65554
velocity constant motion, holographic addition for time-average interferometry 4−46558
vibrating object contour generation, weighted subtraction of holograms 4−58737
volume holograms, bit capacity *(German)* 4−65878
wavefront aberration elimination in phase difference amplification, holographic interferometry appl. 4−74473
X-ray holographic microscopy, expts. on 2- and 3-dimens. distributed objects 4−74074
X-ray holography using scattered radiation 4−51187
zone plates, large zone numbers, soft X-ray imaging 4−81044
As_2S_3, evap. films, etch rate, light exposure history depend. 4−42817
KCl:Na, highly efficient dichroic phase hologram storage 4−42814
KCl:NaCl, F_a-centred cryst., in-line holography by three dimens. recording 4−71211
$LiNbO_3$, laser scattering induced holograms, diffraction cones 4−68700
$LiNbO_3$, multiphoton photorefractive processes for holographic storage 4−74067
$LiNbO_3$, Rh doped and undoped, Cu diffused layers for reversible holographic storage 4−51066
$LiNbO_3$, thick phase hologram form. mechanism 4−43265
$LiNbO_3$ holographic storage performance rel. to doping levels 4−46693
$LiNbO_3$:Fe, sensitivity control, Mn addition, photochromic behaviour 4−42811
$LiNbO_3$:Fe three-dimensional read-write phase holograms, diffraction efficiency 4−46692
$LiTaO_3$, for holographic recording, sensitivity and fatigue 4−68703
Mn-Bi, thermomagnetic recording, repeated cycling, appls. *(French)* 4−54952
MnBi, film use in holographic memory stores 4−68709
$Pb(Zr,Ti)O_3$ electro-optical modulators for 100 Mb/s holographic recording 4−46694

homopolar generators
fusion reactor pulsed power supply from homopolar motor-generator 4−59863

homopolar motors
fusion reactor pulsed power supply from homopolar motor-generator 4−59863

homopolymers *see polymers*

hopping conduction
see also diffusion in solids
alloy, binary, off-diagonal randomness from comp. depend. hopping energies 4−44823
amorphous semiconductor, calc. method 4−79359
amorphous semiconductor, d.c. model calc. 4−79354
amorphous semiconductor, Debye a.c. type, model depend. 4−79356
amorphous semiconductor, percolation theory 4−79355
amorphous semiconductor, thermally activated 4−75851
amorphous semiconductor, variable range, temp. depend. 4−67215
amorphous solid, dispersive transient photocond. model 4−79384
amorphous system, a.c. cond., numerical calc. 4−79357
amorphous system, calc. for finite array of N random points 4−53097
anthracene, freq.-depend. cond., 10^{-6} Hz to 32 GHz 4−67213
d.c. limit, rate eqn. formulation, stochastic interpretation 4−70018
diffusion of charged particles in solids, difference eqn. solns. 4−64095
disorder effects, space and energy, a.c. cond. of hopping system, numerical study 4−53094
electrolyte, ionic polarons, activation energy of cationic hopping calc. 4−82426
epoxy polymer, decaying and steady currents at high fields 4−64097
ferrimagnetic spinels, photomag. effects 4−49038
p-Ge, impurity distribution by measuring d.c. hopping conductivity 4−75858

hopping conduction continued
ice, intermol. proton tunnelling effect, model, soln., mechanism for ionic migration 4−48786
molecular crystal, transport processes and localization, review 4−64071
Mott insulators, Hubbard model, small hopping probability, quasi-particle energy calc. 4−79487
multielectron transitions, correlation effects 4−48978
oxides, interdiffusion and diffusional creep, obs. on cation vacancies 4−44697
polymer, cond. mechanism anal. 4−72792
random impedance network generalisation 4−75865
semiconductor, disordered, Green's function approach to hopping conductivity theory 4−82399
semiconductor, exponential magnetoresistance theory 4−72802
semiconductor, impurity distribution, d.c. hopping cond. meas. 4−75858
semiconductor, thin amorphous barrier layers, I/V characts. *(German)* 4−79422
stochastic interpretation of rate eqn. formulation, d.c. hopping analogues, appl. percolative models 4−82404
vanadium-bronze, microwave Hall mobility 4−48972
violanthrene-iodine complexes, Meyer-Neldel rule, conduction in amorphous semiconductors 4−67211
AlF_3 film, cond., 10^{-1}-10^3 Hz 4−53154
As, amorphous film, cond. mechanism 4−82503
CuCl, exposure to Cl_2, elec. props. and acceptor levels investig. 4−54085
FeO-P_2O_5 glasses, semicond., a.c. cond. 4−72766
GaAs, conduction in disordered layers produced by ion implantation 4−57092
n-GaAs impurity conc. depend., 4.2K, shallow levels 4−72774
GaSb:Li compensated, Hall effect meas., obs. of free hole and hopping props. 4−53110
Ge, amorphous film, elec. struct., microstruct. 4−75987
n-Ge, influence of impurity conc., Monte Carlo method 4−48982
p-Ge:Ga, d.c. magnetoresist. in hopping cond. range 4−75889
n-InSb, impurity hopping cond., mag. field effects 4−75861
$(P_2O_5)_2(TiO_{2-x})_{4.5}$, glass, a.c. cond., 77-300K, polaron mechanism 4−64082
Sb, amorphous film, meas. 30 to 160K 4−60888
Si, d.c. conductivity of inversion layers, 0.4-4.2K, nearest-neighbour and variable-range hopping 4−48916
a-Si, photocond., temp. depend., mechanism 4−79379
n-Si, rel. to influence of compensation on magnetoresist. 4−57111
V_2O_5-KPO_3 glass, elec. cond., thermoelec. power and optical absorpt. obs. 4−70021

horology *see time measurement*

hospital administration
see also medical information processing
chest radiograph reporting, with short list of disease processes 4−50870
diagnostic radiology, information system, DRIS 4−50868
nuclear medicine, computer applic. 4−50857
radiological reporting, automated system development 4−50872
radiology report coding, automated system 4−50866
radiology reporting, computerised, word retrieval using MTST 4−50867
radiology reporting, on-line computer system, further development and initial use 4−50871

hot carriers
see also semiconductors
degenerate semiconductor, low temp. hot electron mag. susceptibility 4−60733
n-InSb, low temp. hot electron susceptibility 4−60733
m.i.m. diode, tunnelling device, double layer insulator 4−45017
negative differential conductivity, in transverse mag. field, hot carrier instability 4−44928
optical, semiconductor, conductivity in strong crossed electric and magnetic fields, theory 4−75879
polar crystal, rate of momentum loss to longtudinal optic phonons 4−44934
semiconductor, conductivity in strong crossed electric and magnetic fields, theory 4−75879
semiconductor, degenerate, hot-electron mag. susceptibility at low temp., effect of non-parabolicity 4−57247
semiconductor, diffusion rel. to differential mobility 4−57101
semiconductor, energy transfer between heated carrier systems by inter-carrier scatt. 4−70028
semiconductor, Faraday rotation due to electron recomb. 4−48998
semiconductor, ferromag., hot electrons, magnon scatt. processes 4−72791
semiconductor, magnetophonon oscillations of conductivity 4−53113
semiconductor, many valley, odd magnetoresist. in heating elec. fields, pressure influence 4−75896
semiconductor, polar, hot electron conductivity, theory 4−67222
semiconductor, with positive differential cond., possibility of generating oscills. 4−49033
semiconductors, hot electrons, energy and momentum loss to lattice, Green's function method 4−79361
n-Si, odd magnetoresist. in heatng elec. fields, pressure influence 4−75896
single injection diode, scaling law 4−82427
statistical ensemble, nonequilibrium states from luminesc. lineshape 4−61219
Bi, mutual drag effect on propag. of strong e.m. waves 4−70029
CdSe, photoexcited hot electrons and excitons, obs. of recomb. radiation at 2K 4−53519
Cu, film, photoexcited hot electrons, attenuation length determ. 4−75975
Cu film, hot-electron scatt. length determ. by electron spin polarisation meas. 4−64479
GaAs, compensated, hot electron mobility, 4.2K and 1.8K 4−60806
GaAs, energy relax. effect of hot electrons, 77-300K, theory and expt. 4−64094
GaAs, optical absorption edge modification 4−45322
GaAs, photoexcited hot electrons, energy relaxation 4−44930
GaSe, elec. cond. change due to strong microwave fields 4−70035

- **hot carriers** continued
  - p-Ge, 10μ radiation h.f. modulation by field heating of carriers 4−72809
  - Ge, hole scattering, cyclotron resonance obs. 4−64021
  - n-Ge, microwave complex cond. anisotropy due to hot electrons 4−60804
  - p-Ge, mobility, noise temp. and diffusivity of hot holes 4−44931
  - Ge, n-type, anisotropy of the photogradient e.m.f. 4−67224
  - p-Ge, optical heating of carriers, photocarrier mobility and lifetime 4−72830
  - Ge, optical phonon interaction const., optical carrier heating method 4−72823
  - n-Ge, relax. time, microwave complex cond. meas. 4−44929
  - n-InP, magnetophonon effect, warm electron relax. 4−57107
  - n-InSb, cyclotron resonance obs. 4−48993
  - n-InSb, effect of mag. field on electron heating 4−49017
  - InSb, hot electrons, drift vel. and average energy 4−72789
  - n-InSe, generation by strong microwave electric field 4−75877
  - Ni film, hot-electron scatt. length determ. by electron spin polarisation meas. 4−64479
  - PbS, Monte Carlo calc. of hot electron mobility 4−67225
  - Sb, mutual drag effect on propag. of strong e.m. waves 4−70029
  - Si, surface inversion layers, hot carriers, field-dependence behaviour 4−60801
  - n-Si, transverse linear magneotocond. calc. in heating elec. field 4−72801
  - Si-SiO_2 interface in m.o.s. struct., injection mechanism *(French)* 4−60874
  - Te, fast photocond. by laser irrad. obs. of hot holes 4−53121
  - Te, undeformed and plastically deforemd, conductivity by warm and hot carriers meas. 4−82411
- **hot cathode tubes** *see thermionic tubes*
- **hot cathodes** *see thermionic cathodes*
- **hot electrons** *see hot carriers*
- **hot shortness** *see brittleness*
- **hot strength** *see tensile strength*
- **household appliances** *see domestic appliances*
- **Hubble model** *see cosmology*
- **hue** *see colour*
- **Hugoniot diagrams** *see equations of state*
- **human engineering** *see ergonomics*
- **human factors**
  - *see also biocybernetics; ergonomics*
  - biomedical engineering and human perception, interdisciplinary communication and interaction 4−73874
  - textile pattern matching assessors' severity and inconsistency 4−54891
- **human relations** *see social and behavioural sciences*
- **humanities**
  - *see also archaeology; art; history; language translation and linguistics*
  - music, impossibility of perfectly tuned 12-note scale 4−58662
  - music score scanning with PEPR system 4−80261
- **humidity**
  - *see also atmospheric humidity; hygrometers*
  - dispersed solids, equil. humidity at various temps. 4−45848
  - generator, diffusion of vapour into flowing gases 4−75068
  - effect on thermoluminescent dosimeters, for personnel monitoring 4−58627
- **humidity control**
  - absolute atmospheric humidity, using heated LiCl *(Dutch)* 4−83142
  - atmosphere, using heated LiCl in Hickes absolute hygrometer *(Dutch)* 4−80400
- **humidity measurement**
  - *see also hygrometers*
  - absolute atmospheric humidity, using heated LiCl *(Dutch)* 4−83142
  - atmosphere, using heated LiCl in Hickes absolute hygrometer *(Dutch)* 4−80400
  - sensor, resistance, using hygroscopic polymer and conductive grains 4−80945
- **h.v. engineering** *see high-voltage engineering*
- **hybrid computer methods**
  - bile salt stimulated biliary cholestrol excretion, system parameters, hybrid computer model 4−65242
  - flight turbulence, modelling 4−43979
- **hybrid integrated circuits**
  - *see also flip-chip devices*
  - three-dimensional analysis by Auger electron and secondary ion mass spectra 4−53628
  - trimming using laser beam *(German)* 4−43356
- **hydrated electrons** *see solvated electrons*
- **hydraulic control equipment**
  - development trends in construction *(Norwegian)* 4−54763
- **hydraulic systems**
  - development trends in construction of equipment, pump noise control *(Norwegian)* 4−54763
- **hydraulic turbines**
  - petrochemical liquid turbine flowmeter test methods 4−77326
  - reversible pump-turbine, flow meas., on-site efficiency tests, comparison 4−42970
- **hydroacoustics** *see underwater sound*
- **hydrodynamics**
  - *see also flow of liquids; jets; liquid oscillations; liquid waves; magnetohydrodynamics; viscosity of liquids*
  - approximation, spatial spectrum of random wave propagation in nonlinear media *(Russian)* 4−77355
  - arbitrary centres of revolution, hydrodynamic characteristics by a variational method *(Russian)* 4−78670
  - bibliography, resource letter for students 4−48185
  - binary fluid, freq.-depend. transport coeff. determ. 4−56894
  - Bogolubov functional method, nonlinear and nonlocal time and space thermodynamics *(Russian)* 4−74420
  - Bogolyubov hydrodynamics, condensate density 4−75656
  - Brownian motion, limitations of Langevin, equation based on hydrodynamic models 4−43176
  - Brownian particles, diffusion, two dimens. 4−74418
- **hydrodynamics** continued
  - bubble, gas, translating, in liq., instability under effect of pressure step 4−60255
  - Cepheid atmospheres hydrodynamic model including radiative transfer 4−54467
  - chromosphere-corona transition region, dynamical homogeneous model 4−54384
  - circular cylindrical shells, mixed hydroelastic problem 4−47138
  - circular vane in ideal liquid, flutter problem *(Russian)* 4−52534
  - coefficients in random rotational field, generalised integration algorithm *(Russian)* 4−56354
  - conference, finite-amplitude wave effects in fluids 4−68551
  - cumulus cloud size and spacing by hydrodynamic eqn. numerical integration 4−70707
  - cylindrical channel lifetime in liq. phase *(Russian)* 4−56461
  - cylindrical shell vibrs. in liq. at interface, two-dimens. problem 4−77468
  - dilation group and dimensionless quantities in classical and relativistic hydrodynamics 4−63516
  - droplet separation from tip of jets, associated electrification investig. 4−78694
  - elastohydrodynamic lubrication of thin elastic layer, Grubin-type formula 4−75202
  - fibre optics, appl. for hydrodynamic porous media microscopical study *(French)* 4−42974
  - fluctuations in many-body system with non-local interactions, microscopic derivation 4−71426
  - fluidised bed, degree of dust contamination effect 4−66653
  - fluidised bed, variational approach 4−66651
  - forces acting on vibrating hydrofoil submerged in fluid 4−78669
  - friction forces in starved point contact considering cavitation 4−75200
  - galaxies, vortex flow around singularities rel. to Jeans' hypothesis 4−58415
  - Galaxy, explosions in nucleus, relation of 3 kpc arm 4−50657
  - Grad type equations, statistical derivation, appl. to rarefied gas 4−55395
  - gravitational sound waves, instability, influence of natural damping heat diffusion and viscosity 4−81939
  - hard sphere fluid, mol. dynamics calcs. of Brownian motion onset, binary collision rates calc. 4−51464
  - hose, flexible, with flowing fluid, induced vibrs. 4−77469
  - hydromechanic-thermodynamical fundamental eqns., approx. for non-rel. velocities including conductive momentum density *(German)* 4−81233
  - infinite lattices of plates, hydrodynamic interaction during relative motion *(Russian)* 4−52344
  - Kama reservoir, water inflow forecasting *(Russian)* 4−83068
  - Kutta's trailing edge condition, ideal fluid stationary flow round hydrofoil profile foundation *(German)* 4−81891
  - laser-Doppler meter *(German)* 4−46701
  - liquid film, free and on solid surface, spontaneous rupture, hydrodynamic stability 4−44752
  - meridian profile of obstacle displaying minimum resist. for given vol. in Stokes region *(French)* 4−48186
  - molecular torque in mixed dense fluids, Monte Carlo perturbation comparison 4−60395
  - Navier-Stokes equations integration for axisymmetrical vortex flow of incompressible fluid 4−81858
  - neutron star rotating superfluid 4−62124
  - nonlinear hydrodynamical functional, absence of hydrodynamical-pole contribs. 4−51449
  - NRL progress report in hydromechanics 4−75196
  - Onsager symmetry relations, hydrodynamic propagating modes, maximum number 4−48188
  - open channel diversion, dam influence on flow distrib. *(French)* 4−52402
  - oscillations, part full axisymmetric stationary containers, calc. 4−60224
  - partial differential equation system, iterative soln. *(German)* 4−74232
  - pipe, suppressions at downstream end due to rupture, relative parameters applic. *(French)* 4−78716
  - potential problems involving annulus 4−59054
  - pulsating stars Doppler splitting of spectral lines 4−62122
  - pulsed stream, mean discharge determ. *(Russian)* 4−52535
  - quantum fluid in external field, hydrodynamic eqns. and Green's functions 4−51461
  - Reynolds' drainage model, initial transients 4−52491
  - river hydraulics near islands *(Russian)* 4−83069
  - ship, structural dynamics, modal anal. 4−77487
  - shock wave interaction with small disturbances *(Russian)* 4−66617
  - sonic-boom focus, N-waves, overpress., shock-following method 4−78630
  - spheroid/liquid, rot. friction coeffs. of spheroids in viscous fluid with slip 4−66554
  - spiral disc galaxies, gaseous flows 4−50660
  - squeeze films, thermohydrodynamic performance 4−75198
  - stability, rel. distrib. local props., eigenvalue spectrum 4−48187
  - stability of flow over complex membrane covered surfaces *(Russian)* 4−52529
  - stability waves in plane shear layers 4−69597
  - statistical nonlinear, Mori's memory function formalism 4−74405
  - steam-generating channel, thermo-hydraulic low-freq. stability, computer investigation using D-partitioning 4−43939
  - superfluid, anisotropic, two-fluid hydrodynamics *(French)* 4−60656
  - superfluid Bose system, sources of particles in Hamiltonian, behaviour under time inversion 4−52954
  - supernova remnants, spherically symmetric hydrodynamic code 4−50557
  - suspended solid particles in turbulent liquid 4−48365
  - Taylor instability in solids 4−48703
  - three-component axisymmetrical flow of viscous fluid, self-similar solns. 4−78597
  - turbidity currents, vertical progress of turbulent friction and viscosity *(Russian)* 4−81841
  - two-liquids mixture, microscopic theory with dissipative effects, linearized eqns. and Green functions 4−52951

hydrodynamics continued
- two-liquids mixtures microscopic theory with dissipative effects, hydrodynamic eqns. 4−52950
- vanes near separation boundary, convergence of small parameter expansion *(Russian)* 4−52340
- He, superfluid, fourth sound, hydrodynamic theory in clamped conditions 4−60662
- ^{3}He, superfluid, spin waves in hydrodynamic regime 4−82301

hydrogen
- *see also deuterium; hydrogen ions; hydrogen neutral atoms; hydrogen neutral molecules; protons; tritium*
- absorption in Ni, negative magnetoresist. disappearance 4−72755
- adsorption by condensed CO_2 at 20K *(German)* 4−82316
- adsorption in Nb crystal 4−78252
- adsorption on n-ZnO, surface activity investig. after γ-irradiation 4−57887
- adsorption on Ni, LEED, Auger spectroscopy, desorption, electron energy loss, and work function obs. 4−67097
- adsorption on Ni film, surface pot. meas. rel. to deposition, adsorpt. temps., struct. 4−48840
- adsorption on Pd, heats on adsorpt. determ. for Pd single phase α and β regions 4−48839
- adsorption on Pt/Al_2O_3 catalyst, isotherm determ. by i.r., heat of adsorpt. calc. 4−44767
- adsorption on quartz-Pd resonator, effect on freq. *(German)* 4−68809
- adsorption on refractories, temp. depend. of atom recomb. coeffs. 4−52998
- adsorption on Si:Cs,O(100) surface, effect on thermionic emission 4−57662
- adsorption on transition metals, group orbital calcs. 4−56993
- adsorption on W single cryst. 4−52985
- afterglow, r.f. modulated electron beam ion heating 4−44259
- arc, stabilised characteristics rel. to gas transport props. 4−75349
- arc, temp. and electron density radial distribs., spectroscopic meas. 4−75346
- biopolymers, H-D exchange, rapid transfer apparatus for obs. of i.r. absorption spectrum 4−58808
- breakdown in electric discharge, cathode surface effect 4−75355
- bubble chamber, with Ne/H mixtures, bubble growth and density meas. 4−46867
- bubbles, in water, damping, from desinent threshold for subharmonic-$^1/_2$ 4−78691
- carbon tetrachloride-H_2-N_2 gaseous system, diffusion coeff. meas. *(Japanese)* 4−81822
- catalysis of p- to o- conversion on nonmetallic mag. surfaces, theory and expt. 4−57882
- cavity fuel for c.w. HF laser, comparison with HBr 4−71527
- chemisorption in simple solids, extended Hartree-Fock approx. 4−72634
- chemisorption on metals, role of collective many body effects 4−67110
- chemisorption on Ni, absolute desorption rate meas. 4−48855
- chemisorption on Ni, magnetocatalytic effects, expt. evidence 4−57883
- chemisorption on W, relative sticking coeffs. 4−56990
- chemisorption on W(100), surface reflectance spectroscopy studies 4−72637
- chemisorption on W(211) 4−75712
- coal-H_2, high-press. reaction kinetics, apparatus for meas. 4−83026
- cold moderator, slow neutron spectra meas. by time of flight method 4−78140
- compressed gases in ball-plane system of electrodes *(Russian)* 4−56550
- coreduction of NbCl and SnCl, for Nb_3Sn coating prep. 4−45032
- d.c. impulse discharge, leakage time constant variation 4−48456
- desorption, isothermal and programmed thermal, H_2 from Ni surface, clarification 4−63990
- detection apparatus, ultrasensitive description and application 4−51001
- determination in atmospheric particulate matter, particle size separation technique 4−77267
- diffusion and permeability in liq. Al alloys *(Russian)* 4−79925
- diffusion in β-PdH_n at high press. investig., relax. method 4−67062
- diffusion in Co, 200-500°C 4−52941
- diffusion in Fe, resist. recovery at low temps. 4−76446
- diffusion in Fe and steel, microvoid effects, model 4−79188
- diffusion in Fe and steel, microvoid effects, model 4−79189
- diffusion in liquid Al, coeff. determ. 4−82284
- diffusion in metals, stationary flow method 4−53637
- diffusion in Nb, room temp., coeff. and heat of transport determ. 4−52940
- diffusion in Ni, isotope effects 4−67069
- diffusion in Pd, proton spin-lattice relax. in rotating frame obs., 170 to 300K 4−56912
- diffusion in Ta, neutron quasi-elastic scatt. 4−72589
- diffusion in Ta *(Russian)* 4−67063
- diffusion in TiH_{2-x}, proton mag. relax. spectroscopic investig. *(German)* 4−67476
- discharge, h.f., photometric characts. *(French)* 4−72401
- electrode thermodynamics *(Spanish)* 4−54015
- electromigration and permeation in Ag 4−82287
- electromigration in Zr, 300°C *(Japanese)* 4−44698
- embrittlement of Zr-Cr-Fe alloys, effect on corrosion resistance and mechanical props. 4−64594
- energy-carrier, combustion *(German)* 4−54007
- enthalpy measurement, 1 to 100 bar, 367.00 to 222.15K 4−66543
- f.c.c. metallic, low temp. thermostatics 4−75606
- gas, K^+ mobility at 293 K, pressure depend. 4−43908
- gas, stimulated Raman line prod. with focused laser beam 4−43347
- glow discharge, electron energy distrib. and elec. characts., chlorine addition influence 4−75337
- glow discharge, positive column, radial electron energy distribution 4−60358
- o-H_2, solid, model, constant coupling approx. for lambda transition 4−48727
- heat of adsorption, H on Pt clean polycryst. filaments 4−63980
- inclusions in steel, near surface, obs. method *(German)* 4−73308
- interstitials, in single crystal Ta, nuclear acoustic reson. meas. 4−82624

hydrogen continued
- isotope permeation through fusion reactor materials, analysis and expt. 4−63298
- laser, emissions obs. in u.v., prod. by travelling-wave transverse excit. laser *(French)* 4−43298
- laser, high power, u.v., transverse discharge pumped, stimulated emission at 160 nm 4−81310
- laser, simple low-divergence, at 160 nm 4−59397
- laser, vac. u.v., inversion mechanism 4−43292
- laser spark, charact. expansion vel. 4−78789
- liquid, isotopes, shock compression anal. of intermol. pot., metallic transition, investig. 4−60550
- liquid, ortho-para conversion using FeO(OH) gel as catalyst 4−73414
- liquid, shock compression and rarefaction to produce high vel. shock tube flows 4−72315
- liquid metallic, thermodynamic props., hard-sphere perturbation theory 4−48493
- maser, automatic tuning of atomic clock resonant cavity *(French)* 4−65331
- maser, freq. standard development 4−80827
- metal-H coherent systems, internal stresses in α-α' phase transition 4−73282
- metal-H system, model calc. for α-α' phase transition 4−79139
- metallic, eqn. of state anal. for pressures from 0 to 110 Mbar 4−75615
- metallic, struct. expansion for ground state energies 4−53035
- monitoring in Na coolant of fast breeder reactor, equilibrium mode of operation 4−81569
- plasma, collision integrals, thermal conductivity 4−75220
- plasma, column perturbations leading to disruptive instability in Tokamak T-6 4−44226
- plasma, effect of cluster integrals on three particles on calc. electron density 4−60270
- plasma, heating by relativistic electron beam 4−44291
- plasma, laser produced, Brillouin backscattering and parametric double resonance 4−48425
- plasma, low pressure, CO_2 laser driven detonation waves in strong mag. field 4−52558
- plasma, magnetized, parallel and oblique shock waves 4−75243
- plasma, slow-mode shock waves 4−75244
- plasma, thermal cond. meas. in stabilized elec. arc 4−69647
- plasma, thermally ionized gas, spectral characts., 5000-30000K 4−60317
- plasma formation in microwave discharge 4−78782
- plasma production by intense relativistic electron beam 4−78791
- plasma temperature and electron density determ. by laser absorption 4−72396
- production by thermochemical water splitting processes in nuclear reactors, development trends 4−51863
- rarefied, mag. field depend. of heat flux *(Russian)* 4−69550
- rarefied gas flow in capillary network, temp. depend. *(Russian)* 4−69596
- shock waves, use in shock tube study of SF_6, SF_5Cl equil. decomp. 4−45901
- solid, dielectric constant, temp. depend. 4−57454
- solid, dynamic local field approx. for ground state props. 4−67088
- solid, in order state, nucl. spin-lattice relax. time meas., 4.2 to 0.5K 4−79621
- solid, Raman spectra, press. depend. *(French)* 4−49336
- solid, solubility of Ne *(Russian)* 4−44677
- solid clusters, penetration in plasma 4−44281
- solubility in Al alloys, quantitative meas. methods 4−49632
- solubility in compound semiconductors 4−48762
- sorption by Pd, surface area effects 4−63971
- sorption by Ti, kinetic data, flash filament technique 4−56964
- streamer chamber gas, u.v. detection system using high sensitivity TV tubes 4−81014
- superfluid, quantum crystal melting temp. 4−72547
- superfluidity, an approach to cavitation effects 4−78696
- thermal conductivity, viscosity, effect of organic vapour mols., catharometer studies 4−66542
- track-sensitive target in Ne-H bubble chamber, geometrical reconstruction of events 4−55075
- underdense, CO_2 laser-driven absorpt. waves 4−48460
- u.s. wave propagation, force parameters and energy produced calcs. 4−60145
- Z-pinch, instability development, neutron emission 4−78764
- para H-He binary gaseous mixture, Rayleigh-Brillouin scatt., relax. time and transport coeffs. 4−43917
- o-H_2, solid, band structure, non-selfconsistent KKR calcs. 4−67158
- o-H_2, solid, conduction band determ. using mol. o.p.w. method 4−67162
- o-H_2, solid, isotropic Compton profile 4−79816
- H_2-air fuel cell, chem. and electrochem. processes, load-capacity *(German)* 4−50172
- H_2-air mixture, accelerating laminar boundary layer flow 4−81883
- H_2-D_2 liquid and solid solns., excess thermodynamic functions *(Russian)* 4−52910
- H_2-D_2 mixture, relative diffusion coeff., 240-420K 4−66547
- H_2-F_2 chemical laser, electron beam initiated, 0.2 GW pulses 4−62831
- H_2-F_2-He mixtures, population inversion behind blast waves 4−69041
- H_2-H_2O glow discharge, positive column, radial electron energy distribution 4−60358
- H_2-HD mixture, relative diffusion coeff., 240-420K 4−66547
- H_2-He liquid metallic mixture, thermodynamic props., hard-sphere perturbation theory 4−48493
- H_2-He mixture in shock tube, duplication of stagnation region condition for Jovian entry probe 4−72308
- H_2-methane, u.s. absorption *(German)* 4−52823
- H_2-methane-air mixtures, inflammability limits at room temp. *(French)* 4−50135
- H_2-O_2 flames, lean, OH chemiluminescent radiation 4−76595
- H_2-O_2 mixture, detonation front irregularities at h.p. *(Russian)* 4−52437
- H_2-O_2 mixture, e.m. detonation in mag. annular shock tube 4−44041
- H_2-O_2 mixture, hypersonic flow past blunt body, detonation wave 4−48297

hydrogen continued
H_2-SF_6 chemical laser, repetitively pulsed electron beam initiated 4−55460
H_2 + air, flame, numerical predictions *(German)* 4−64708
HD, gas, thermomag. force on small spheroidal particles 4−75066
HD, solid, effect of one phonon scatt. on thermal cond. 4−52850
HD-D_2 mixture, relative diffusion coeff., 240-420K 4−66547
HD-Ne(Ar)(He) mixtures, flow birefringence, transport-relaxation eqns. 4−66552
^{4}He-H_2 mixture, relative diffusion coeff., 240-420K 4−66547
LiF:H, U band absorption, peak positions meas., 77K, using synchrotron radiation 4−79761
Mo-Re alloy, impurity heat of soln., and electron struct. by X-ray spectroscopy *(Russian)* 4−82351
Nb:H, scattering of slow neutrons, obs. of one phonon excitations, and defecton mechanism of diffusion 4−48803
Nb-H, anomalous Debye-Waller factors, quasielastic neutron scatt. 4−67009
Nb-H, coherent system, internal stresses in α-α' phase transition 4−73282
Ne-H_2 condensed system, vapour press. near Ne triple pt. 4−67026
Pd:H, critical point behaviour, diffusional relaxation process and specific heat 4−45541
Pd:H(D) system, supercond., isotope effect 4−70090
Pd-Cu(Au,Ag)-H(D), high supercond. transition temps., H ion implantation 4−53177
Si:Be, H, i.r. absorp., Be-H complexes obs. 4−49400

hydrogen bonds
see also molecular bonds
acetone, n→σ^* band, universal internal interactions, intermol. H-bonds 4−66426
acetone in chloroform-d, D quadrupole coupling 4−57421
N-2-acetyl-1,3-indanedione quinolinium iodide, i.r. absorption, H-bonding 4−60064
N-acetyl-alanine-N-methylamide, L and DL compounds, cryst., mol. structs., isomerism, stereochem. determ. 4−56700
acridine, extinction of fluorescence, effect of acid-base interactions *(Russian)* 4−70364
adenine dihydrochloride, cryst., mol. struct., parameters determ., hydrogen bonds, investig. 4−56706
D,L-alanyl-L,D-methionine, cryst., mol. struct., parameters determ., hydrogen bonds investig. 4−56707
alcohols, intramol. hydrogen bond energies *(Russian)* 4−52121
alcohols, Raman fundamentals and i.r. overtones of O-H stretching vibrs. investig. 4−70289
alcohols, specific hydrogen bonds, i.r. spectroscopy *(Russian)* 4−70604
amine-alcohol systems, gas phase hydrogen bonding, i.r. spectroscopic investig. 4−66396
amine-methanol systems, gas phase hydrogen bonding, thermodynamic parameters from PVT meas. 4−66397
amines, Raman fundamentals and i.r. overtones of N-H stretching vibrs. investig. 4−70289
6-amino-6-acetylbenzodioxanes-1,4, H-bonding, electronic spectra *(Russian)* 4−78443
apigeninidine chloride monohydrate, cryst., mol. struct., parameter determ., hydrogen bonding investig. *(French)* 4−56699
aromatic complexes, external deuterium isotope effect, spectroscopic obs. 4−45353
6-azauracil, cryst., mol. struct. and parameters determ., intermol. hydrogen bonding 4−56696
bromodichloroethane-d-diethyl ether-d_{10}, ^{2}H and ^{35}Cl coupling constants 4−79640
αchloroacrylonitrile, geminal proton coupling and H-bonding 4−57397
complexes, i.r., Raman ν(XH) stretching band in X-H...Y, profile, model 4−43858
copolymers of unsaturated acids with styrene, hydrogen bond form., struct. influence *(Russian)* 4−56334
crystal density of states plots, H-bonded cryst. formamide, formic acid, urea 4−75474
crystallisation of compounds with hydrogen bonds *(Russian)* 4−52715
L-cystine dihydrochloride, cryst. and mol. struct. 4−48597
diammonium vanadyl oxalate dihydrate, cryst. struct. determ. by X-ray anal. 4−60489
2,6-dichloro-4-bromophenol, rel. to phase transitions in solid 4−52890
diethyl ether in chloroform-d, D quadrupole coupling 4−57421
5,5-diethylbarbituric acid-hexamethylphosphoramide, triclinic 1:2 complex struct. 4−48607
5,6-dihydro-2-thiouridine, cryst., mol. struct., parameters determ., hydrogen bonding investig., conformational anal. 4−56709
7,8-dihydro-8-hydroxy-3H,6H-(1,3)thiazino(3,2-b)(1,2,4)triazine-3-one, cryst., mol. struct., parameters determ., hydrogen bonding 4−56720
3α,6α-dihydroxy-5β-cholan-24-oic acid, cryst., mol. struct., parameters determ., hydrogen bonding investig. 4−56698
disordered chain, vibr. spectra calc. using negative eigenvalue theorem 4−48011
enamino thiones, inter- and intramol. hydrogen bonds involving thione proton acceptor group 4−43788
formaldehyde dimer, intermolecular interactions, SCF-MO calc. 4−60132
formamide, cyclic dimer, ab initio calcs. of simultaneous proton motion in hydrogen bonds 4−56147
formycin hydrobromide monohydrate, cryst., mol. struct., parameters determ., configuration, conformation investig. 4−56705
gas, second virial coefficient, empirical correl. H-bond effects 4−69546
glycolic vinyl and isopropenylacetylene series, specific hydrogen bonds, i.r. spectroscopy *(Russian)* 4−70604
gymnemagenin, triterpene, cryst., mol. struct., mol. parameters, hydrogen bonding determ. 4−56697
heterocyclic N-oxide complexes with halogenoacetic acids, i.r. and n.m.r. obs. 4−45937
hydrocarbon π radical, ^{1}H and ^{13}C n.m.r. shift 4−43868
hydrogen bonded complexes, relative strengths of H and D bonds 4−72140

hydrogen bonds continued
hydroxyantimonates and deuterated derivatives, i.r. absorpt. spectra, vibr. assignments *(French)* 4−76256
ice II crysts., CNDO/2 hydrogen bonding calcs. of struct. parameters 4−72446
isotope effect (anomalous) investig., mech. and elec. anharmonicity mechanism 4−66384
Kapron, oriented at elevated temps., breakage of polymer chains, i.r. spectra 4−45818
liquid, Raman scatt. cross section determ. 4−56216
lithium formate monohydrate, neutron diffr. anal. 4−69792
localised MO's calc. from INDO and CNDO/2 wavefunctions 4−72123
magnesium acetate tetrahydrate, p.m.r. obs., hydrogen bonding scheme for water molecule protons 4−45189
maleic acid, proton mag. resonance spectra determ., proton shielding, hydrogen bonding 4−64277
mesitylene in chloroform-d, D quadrupole coupling 4−57421
N-methylacetamide-N, N-disubstituted (methyl or phenyl) amide complexes, H bonding, i.r. spectroscopic studies 4−52062
molecular crystal, hydrogen bond geom. and van der Waals interact. at O-H...O contacts 4−78946
nitroaromatic radical, solvated, SCF-INDO-MO calc. of H bonding and conformation 4−43782
organic compounds, H-bond breaking by fluorocarbons, anaesthetic props. 4−65238
organic compounds, internal field effect, Raman scattering cross section 4−53430
organic solids, effect of pressure 4−78941
phenol molecules in soln., fluoresc., energy depend. and solvent effects 4−66458
N-phenyl-(5-anilino-2,4-pentadienylidene) ammonium bromide hemihydrate, cryst. struct., mol. parameters determ., hydrogen bonds investig. 4−56701
o-phenylenediamine dihydrochloride, cryst., mol. struct., parameters determ., hydrogen bonds investig. 4−56715
phenylhydrazines, i.v. spectra, intramolecular bonding effects 4−52178
photochromic cpds., electronic spectra rel. to mol. interaction determ. 4−43823
picrylsulphonic acid tetrahydrate, neutron diffr. studies of cryst., mol. struct., hydrogen bonding investig. 4−69780
polar state, effect on phase transition in KH_2PO_4 type crystal *(Russian)* 4−44644
polycaprolactam, moisture and mech. stress effects on i.r. spectra 4−49354
polywater, extended plane structure, experimental and theoretical evidence compared 4−78542
potassium citrate monohydrate, single cryst., i.r. spectra, citrate ion vib., symm. 4−79713
potassium D-gluconate monohydrate, A and B forms., cryst., mol. struct. determ., conformational anal. 4−56695
potassium hydrogen succinate, cryst., i.r. absorpt., spectra, symm. hydrogen bonding 4−82691
proton vibrations investig., cryst. system *(German)* 4−66849
pyridine-2,3-dicarboxylic acid, neutron diff. obs. of short asymmetrical intramolecular H bonds 4−60488
L-serine, crystal and molecular struct. determ. using rotation and translation functions 4−48619
silica, adsorption of organic molecules, hydrogen bonding 4−69960
solid, deuteron quadrupole coupling constant 4−44506
symmetric $[AHA]^-$ and $[BHB]^+$ complexes in acetonitrile, i.r. obs. 4−43789
2,4,6-tribromophenol, rel. to phase transitions in solid 4−52890
trichloroacetic acid-DMSO complex, n.m.r. spin-lattice relax. time meas. 4−49252
trifluoroethanol-triethylamine complex, temp. effect on hydrogen bond ν_s bond, liq. phase obs. 4−52167
trimethylammonium halide, i.r. and Raman band profiles, H-band and isotope effects 4−66428
uracil, H-bonded cryst., i.r. spectrum, deuteration fine struct. changes 4−61141
L-valine hydrochloride cryst., mol. struct. determ., neutron diffr. studies, hydrogen bonding 4−75516
water, proton chem. shift temp. and press. depend. 4−79617
water, Rayleigh scatt. spectra, hydrogen bonding, mol. reorientation, polarisability anisotropies investig. 4−76244
water, role in self diffusion processes 4−72582
water, structure and thermodynamics, Monte Carlo method 4−44461
$Al(OH)_3$, and anodic oxide films, deuterated, n.m.r. investig. of structs., hydrogen-bonding 4−61041
α-$Ba[AlO(OH)_2]_2$, and deuterated analogue, i.r. spectra., vibr. 4−45282
$D(OH_2)_2^+$, hydrogen bonded, quadrupole coupling consts. 4−69526
FH, hydrogen bonding interaction using molecules in molecules theory 4−52052
FH_2^+, SCF LCGO MO calcs. and hydrogen bonding interaction with FH 4−56066
$HCl(v=2)+HCl(v=0)=HCl(v=1)+HCl(v=1)$ interaction probability temp. depend. 4−56312
$(HF)_n$ chains LCAO-MO studies 4−78426
H_2O, D_2O in organic solvents, hydrogen bonding, i.r. vib. spectra 4−43839
H_2O, self diffusion coefficient, collective drift component calc. 4−79177
H_2O dimers, calc. by SCF-perturbation theory 4−52086
$(H_2O)_2$, hydrogen bonded, struct. form microwave spectra 4−56254
$(H_2O)_n$ chains and clusters, LCAO-MO studies 4−78426
H_5O_2+ ion, hydrogen bonding investig. using semiempirical model and IR data comparisons 4−52078
$H_3O^+...(H_2O)_n...OH^-$, n=1 to 3, linear polymer, SCF CNDO calcs., simultaneous proton transfer mechanism 4−47928
$H_3PO_4.{}^1/_2\,H_2O$, cryst., mol. structure and parameters determ. by neutron diffr. 4−56661
HX_2^-, X=Cl, Br, I, hydrogen bonding using semiempirical model 4−56132
$KDCO_3$, X-ray diffr. struct. anal. 4−48545
$KHCO_3$, single crystal, low temp. Raman spectra 4−57530
$KHCO_3$, X-ray diffr. struct. anal. 4−48545
KH_2PO_4, paraelectric phase, Raman spectra temp. depend. 4−57509

hydrogen bonds continued
$K_2SnCl_4.H_2O$, i.r. study of location of H atoms in cryst. and evidence of bifurcated H bond 4−79712
$Li_2Cr_2O_7.2H_2O$, neutron diffr. studies, cryst. struct. and state of water mols. 4−75507
$Li_2Cr_2O_7.2H_2O$, p.m.r. study of localization of protons, hydrogen bonding 4−52740
$Mg[B_3O_3(OH)_5](H_2O)_4.H_2O$, kurnakovite, cryst. struct., hydrogen-bonding investig. 4−78958
$NH_4H_2AsO_4$, γ-irradiation, $HAsO_3^-$ radical ENDOR obs., H bond antiferroelectricity depend. 4−61064
NH_4HSO_4, ferroelectric, i.r. absorption vibration spectra, ordering effects, ferroelectric transition 4−49342
$(NH_4)_3H(SO_4)_2$, antiferroelectric, i.r. absorption vibration spectra, ordering effects, ferroelectric transition 4−49342
$NH_4H_3(SeO_3)_2$, neutron diffr. 4−82138
$NH_3.H_2O$, molecules in molecules theory applic. to hydrogen bonding interaction 4−56109
$Na_2Cr_2O_7.2H_2O$, p.m.r. study of localization of protons, hydrogen bonding 4−52740
Ne-HF interaction, hydrogen-bonding investig., Hartree-Fock calc. of pot. energy surface 4−81813
Pd complexes, $[PdCl_4]H_2$ with aniline derivatives, strength of intermolecular H bond 4−56178
$RbHSO_4$, ferroelectric, i.r. absorption vibration spectra, ordering effects, ferroelectric transition 4−49342
$ZnF_2.4H_2O$, struct. determ., probable hydrogen bonds 4−52735

hydrogen compounds
see also deuterium compounds; ice; steam; tritium compounds; water
acid, inorganic, effect on Ca absorpt. in acetylene-air flames *(Russian)* 4−42966
diatomic hydrides, first- and second-row AH, $AH^{\pm}$, AH^*, Hartree-Fock-Roothaan wavefunctions 4−52060
halide, dissociative electron attachment, diabatic capture 4−66490
halides, vibr. excited, bibliography on kinetics of chemiexcitation and energy transfer 4−80188
heteropolyacids, $H_n[XM_{12}O_{40}]$ with X = Si, P and M = W, Mo, vibr. spectra *(French)* 4−43845
hydrides, stable diatomic, thermodynamic quantities and isotope effects on partition functions 4−72110
hydrocarbons, liquid, X-ray absorption anal. of S content 4−51188
upper atmospheric distrib. between 50 km and exobase 4−76732
AH, (A = first row element) electrostatic binding, mol. dissoc. energy correl. 4−47913
Ar + HCl elastic scatt., differential cross section, Ar-HCl interaction potential determ. 4−63497
$F + HF \rightarrow FH + F$ exchange reaction, barrier height calc. 4−54008
FH, hydrogen bonding interaction using molecules in molecules theory 4−52052
FH_2^+, SCF LCGO MO calcs. and hydrogen bonding interaction with FH 4−56066
FH_2^+ struct. and protonation path of HF *(French)* 4−59985
$GeCl_4$-HCl-H_2O system, water vapour meas., using static method *(Polish)* 4−68654
H_2-D_2, Van der Waals complex, i.r. spectrum, rot. transitions 4−60061
HBS, Zeeman effect obs. 4−43855
HBr, cavity fuel for c.w. HF laser, comparison with H_2 4−71527
HBr, chemical laser, SF_6 addition, enhanced output 4−43289
HBr, electron elastic scatt., cross section threshold struct. 4−75040
HBr, HCl, Ar-buffered, vibr. energy transfer from DF investig. rel. to temp. 4−48141
HBr, i.r. Raman scatt. parameters 4−56249
HBr, influence on hydrocarbon + oxygen mixture pressure temp. ignition profiles and cool flames 4−50164
HBr, rot. relaxation, distorted wave approx. 4−74966
HBr, u.v. spectra, 800-1000Å, assignment of autoionising Rydberg states 4−48002
HBr, vibration rotation band in sunspot spectrum 4−70879
HBr chemical laser, transversely excited, mechanism 4−71532
HBr + Cl, laser photolysis, total absolute reaction rate consts. 4−64719
HBr + H(Br) systems, Monte Carlo quasi classical trajectory study, energy transfer, kinetics 4−73423
HBr^+, transition moment variation in $A^2\Sigma^+ \rightarrow X^2\Pi_i$ transition 4−52137
HBr(HCl) + Br*, laser excitation, electronic-to-vibr. energy transfer, i.r. emission obs. 4−51979
$HBrO_2$, autocatalytic prod., velocity of spatial wave propag. 4−57837
HCN, anharmonic zero-point energy 4−66413
HCN, c.w. 337 μ laser, gain saturation and oscill. linewidth, expt. results 4−51557
HCN, c.w. laser as sub mm source, 4m length 4−71529
HCN, chemical laser, excitation mechanism 4−43304
HCN, deuterium role in vibr. analysis 4−63408
HCN, electron impact spectra, Rydberg states 4−52258
HCN, geometries of excited electronic states 4−56127
HCN, isotopes, microwave spectra, 100 MHz-300 GHz, data summary 4−69502
HCN, laser plasma, Faraday mode splitting meas. of electron density 4−48447
HCN, mol. photodissoc., predissoc. investig., quantum mech. model 4−75021
HCN, nuclear shielding, magnetic hyperfine structure 4−48093
HCN, quartic force field calcs. using expansion variables 4−78432
HCN, rotational excitation by collisions with low energy He atoms 4−78523
HCN, vacuum u.v. photolysis, energy partitioning in photodissociation and photosensitization 4−61633
HCN formation in dense interstellar clouds, laboratory meas. of some related ion-molecule reactions 4−73839
HCN laser, c.w., output power stability 4−69045
$H^{12}C^{14}N$ and $H^{13}C^{14}N$ line emissions at 80 GHz from Orion Nebula, $^{12}C/^{13}C$ ratio determ. 4−68458
H_2CN^+, quantum mechanical calcs. rel. to interstellar abundance 4−80644
H_2CN_2, two electron integrals, careful neglect 4−47927
HCNO, i.r. bending-rot. spectrum, quasilinear mol. model 4−52162

hydrogen compounds continued
HCNO, i.r. spectra, vibr.-rot. assignments and mol. consts. 4−52163
H_2CO 3_{12}-3_{13} transition at 28.975 GHz, obs. of Sagittarius A 4−76911
H_2CO formation mechanisms in interstellar clouds 4−76912
H_2CO interstellar 4.8 GHz line emission near NGC 7538 region 4−80656
HCl, crystalline, lattice dynamics in low temp. phase for complete Brillouin zone 4−79115
HCl, dissociative attachment, cross section as function of electron energy 4−48118
HCl, electron elastic scatt., cross section threshold struct. 4−75040
HCl, gas phase etching of Si, temp. depend. 4−44788
HCl, growth of SiO_2 layers, physical and electrical properties *(Hungarian)* 4−79879
HCl, i.r. and Raman line pressure broadening calcs. 4−78472
HCl, i.r. Raman scatt. parameters 4−56249
HCl, in SF_6 soln., i.r. absorption, quantum rot. motion 4−49349
HCl, in soln., i.r. spectrum, intermolecular forces, rot. motion 4−66442
HCl, liquid, P compounds in, ^{31}P n.m.r. 4−61613
HCl, recovery of Cl_2, theory and cell design 4−54019
HCl, rot. relaxation, distorted wave approx. 4−74966
HCl, selective etching of CaF_2 single cryst. 4−56997
HCl, vibr. excited in O + chloroethylenes reaction, i.r. chemilum. 4−83012
HCl, virial partitioning of charge distributions and properties of diatomic hydrides 4−74952
HCl chemical c.w. laser, theoretical performance 4−47340
HCl in liquid SF_6, rot. relax. and multipoles, linewidth variations 4−44460
$HCl:Ag^+$, temp. decay of luminesc. quantum yield, 77-160K *(Russian)* 4−67659
HCl-Ar, interaction pot. determ. 4−56047
HCl-Ar gaseous mixture, HCl rot. line, temp. depend. of press. induced width and shift 4−52192
HCl-AsH_3-H_2 gas mixtures for GaAs etching 4−53619
HCl-DCl, mixed crysts., lattice dynamics, absorpt. spectra estimate using negative eigenvalue theorem 4−75601
$HCl + SO_2(CO_2)(CO)(N_2)(Ar)$ collisions, temp. influence in intermol. interactions *(Russian)* 4−63495
HCl^+, transition moment variation in $A^2\Sigma^+ \rightarrow X^2\Pi_i$ transition 4−52137
$HCl(DCl) + {}^{3(4)}He(Ne)(Ar)$, $V \rightarrow T$, R energy transfer 4−56314
$HCl(\nu=2) + HCl(\nu=0) = HCl(\nu=1) + HCl(\nu=1)$ interaction probability temp. depend. 4−56312
HD, fundamental absorption band 4−78451
HD, solid radiation damaged, dynamic polarisation of protons and deuterons, elementary particle scatt. target 4−55024
HD interstellar molecule, Copernicus satellite u.v. observations 4−73843
HD-Ar Van der Waals complexes, i.r. spectrum, intramolecular force study 4−43890
HD + Cs, Cs $^2P_{1/2} \rightleftarrows {}^2P_{3/2}$ mixing cross section, temp. depend. 4−51978
HDTe, $2\nu_1$ band anal. near 4064 cm^{-1} 4−72181
HF, anhydrous, electrochemical measurements *(French)* 4−57852
HF, aq. soln., solubility of optical glasses 4−80882
HF, atmos. press. pulsed chem. laser 4−77653
HF, broadening of vibr.-rot. spectral lines by N_2, H_2, D_2 investig. 4−60085
HF, c.w. chem. laser, F atom reaction with C_3H_8 and C_4H_{10} 4−43284
HF, chain reaction laser, high initiation efficiency 4−77649
HF, chem. laser performance, effect of mixing rate 4−47334
HF, chemical laser, kinetic rate eqns., analytic soln. 4−62825
HF, chemical laser linewidth meas., bleachable absorption 4−65926
HF, $\chi^1\Sigma^+$ state, dipole moment and i.r. transition matrix calcs. 4−56130
HF, DF, HF-CO_2, DF-CO_2, vib. relax. temp. depend. 4−52287
HF, electronic struct., correlation energy correction, Hartree-Fock density 4−52074
HF, form. in continuous chem. laser, kinetics investig. *(French)* 4−57839
HF, gas and SF_6 soln. Raman spectra 4−48017
HF, HCl, Einstein A coeffs., i.r. transition probabilities calc. using improved dipole curves 4−52096
HF, INDO and ab initio wave functions, comparison, electronic struct. investig. 4−78407
HF, i.r. chemiluminescence, energy partitioning and $D(H\text{-}GeH_3)$ from $F + GeH_4$ reaction 4−45899
HF, MC SCF theory, two-by-two rot. calcs. 4−78411
HF, mol. characts. determ. using variation methods with auxiliary conditions 4−56091
HF, orbital exponent optimization in HF-SCF-LCAO-MO calc. 4−81748
HF, pulsed laser, 2.6 to 4.2 μ range emission 4−51567
HF, rot. mol., vibr.-rot. energy transfer, semiclassical theory 4−52281
HF, rotational chem. laser operating via elimination reactions 4−77654
HF, Rydberg states, calc. methods using multiple scatt. 4−56084
HF, stimulated emission, $F + H_2 \rightarrow HF + H$ reaction rate 4−70602
HF, TE chemical laser, parametric study 4−59396
HF, TE chemical laser, time resolved spectroscopy 4−43300
HF, vib.-vib. exchange rate for excited vib. levels, meas. 4−52290
HF, vibration rotation band in sunspot spectrum 4−70879
HF, vibrational relaxation measurements by combined shock tube-laser induced fluorescence technique 4−72224
HF and H_2F^+, ab initio calcs. inc. electron correl. 4−56064
HF chemical laser, i.r. radiation triggered *(Russian)* 4−77664
HF laser, c.w., comparison of H_2 and HBr as cavity fuels 4−71527
HF laser, c.w., small single-mode stable, 2.5-3.5μ, operation 4−59391
HF laser, initiated by 300 keV electron beam, performance 4−59392
HF-Ne interaction, hydrogen-bonding investig., Hartree-Fock calc. of pot. energy surface 4−81813
HF + Ar, vibr. de-excitation of HF, importance of rot. transitions, theory 4−52283

hydrogen compounds continued
$HF + CO_2$, temp. depend. of V to R,T energy transfer probabilities 4-48145
$HF + CO_2$, vibr. excitation temp. depend. cross section in 'orbiting' collision 4-66517
HF + DF mixtures, vib. relax. obs. 4-56313
HF + F, vibr. relax. rate coeff. calc. 4-48147
HF + F, vibr. relax. rate coeff. calc., comment 4-48148
HF + H, flow tube meas. of deactivation rates 4-48146
HF + HF, vibr. relaxation at low temps., collision model 4-63484
HF_2^-, in KI, i.r. vibr. absorption, localised modes 4-79771
$(HF)_n$ chains, hydrogen bonding, LCAO-MO studies 4-78426
H_2F radical, excitation and ionisation energies using core analogies 4-63463
$HF(^1\Sigma)$, F-factor approximation 4-69477
$HF(v=1)$, deactivation by F, O, and H laser induced fluoresc. investig. 4-75045
$HF(v=1)$ + polyatomic molecule, vibr. relaxation times, laser induced fluorescence meas. 4-75049
$HGeCl_3$, gas phase i.r. spectra meas., force consts. determ. *(German)* 4-72201
HI, vibration-rotation band in sunspot spectrum 4-70879
HI (DI) in 3-methylpentane(-d_{14}), 20-300K, quantum yields on 254 nm irrad. 4-57865
HI + Cl, laser photolysis, total absolute reaction rate consts. 4-64719
HIO_2, Brillouin spectra, elastic parameters determ., 20°C *(French)* 4-45280
α-HIO_3, anomalous resonance in emission spectrum *(Russian)* 4-57632
HIO_3, cryst. growth from soln., effect of mag. field on cryst. quality *(German)* 4-57678
HN_2^+ molecule ion, ground and excited states, SCF, CI calcs., mol. dissoc. investig. 4-78413
H_2N-BF_2, electronic struct., CNDO and INDO calcs. *(French)* 4-47945
HNCS, rot.-vibr. spectrum, 300-4000 $cm-^1$, P- and Q-branches 4-48027
HNNH, vibrational potential function, force constants 4-52098
HNO, isolation in Ar and N_2 matrices, i.r. spectrum, band assignment 4-52142
HNO $O_2(^1\Delta_g)$ sensitised chemiluminesc. investig. in flow reaction systems 4-76572
HNO_2 photolysis in air, stability 4-45930
HNO_3, atmospheric vapour, u.v. absorption meas. 4-54188
HNO_3, selective etching of CaF_2 single cryst. 4-56997
HNO_3, stratospheric concentration 4-61753
HNO_3, stratospheric spectra, local densities *(French)* 4-61759
HNO_3, vapour, far i.r. rot. spectrum, 8-40 cm^{-1}, Fourier transform spectroscopy 4-48009
HNO_3 in Arctic stratosphere, total amount and vertical profile from airborne meas. 4-70741
HNO_3 solns., thermal cond., cylindrical probe method meas. 4-42748
HNO_3-ethyl alcohol, electrolyte for etching and electropolishing Al, Co and Cu thin films 4-67113
HNO_3 + OH reaction, rate consts. meas. rel. to temp. 4-50140
$H_2N.NH_2$, solid, p.m.r., spin-lattice relaxation time 4-67480
HNo_3 vapour, stratospheric distrib. 4-76701
HO_2, detection by laser mag. resonance 4-56282
HO_2, form., decay, in $Hg/H_2/O_2/CO$ mixtures, spectral investig., decay rate const. 4-54053
HO_2, mass spectra obs. in H_2-O_2-N_2 flames 4-61576
HO_2, near i.r. absorption spectrum, modulation kinetic spectroscopy 4-66433
HO_2, near i.r. emission spectrum, vibr. level scheme 4-66434
HO_2 from H(D) + O_2 reaction, Ar matrix i.r. spectra and vib. analysis 4-53975
HO_2 radical, reactions in H-O-N system using e.s.r. detection *(German)* 4-70603
$HO_2 + NO(NO_2)$ reactions, kinetics investig. 4-76596
HO_x diurnal var. in stratosphere, model 4-46034
H_2O, astrophysical masers, pump mechanisms 4-73832
H_2O_2, force constants, dihedral angle depend. 4-78435
H_2O_2, rot. barriers, localised orbitals and short-range mol. interactions 4-60002
H_2O_2, structure, bond lengths and angles 4-69478
H_2O_2 lattice, Ising model high field expansions 4-67328
H_2O_3 and D_2O_3, i.r. and Raman spectra, vibr. anal. and mol. struct. 4-52150
H_2O_4 and D_2O_4, i.r. and Raman spectra, vibr. anal. and mol. struct. 4-52150
H_3O, excitation and ionisation energies using core analogies 4-63463
H_3O^+, conformation by SCF calcs. 4-72116
H_3O^+, modified Urey-Bradley force field for normal coordinate treatment 4-72142
$H_3O^+ + Cl^-$ reaction, gas phase rate consts. 4-50139
$H_5O_2^+$ ion, hydrogen bonding investig. using semiempirical model and IR data comparisons 4-52078
$H_3O^+CH_3C_6H_4SO_3^-$, spectroscopy and normal coordinate treatment of oxonium ion H_3O^+ 4-45286
HOF, DOF, mol. vibr., isotope effects, normal co-ord. anal. 4-74964
HOF, vertical ionisation pot., perturbation corrections to Koopmans' theorem 4-48104
HOO, g-factor anisotropy, CNDO calc., spin-orbit interaction 4-69457
H_2O_2(30%), etchant for Sn-Bi alloys 4-82322
$H_3PO_4{:}Ag^+$, temp. decay of luminesc. quantum yield, 77-160K *(Russian)* 4-67659
$H_3PO_4.{}^1/_2\,H_2O$, cryst., mol. structure and parameters determ. by neutron diffr. 4-56661
H_2S, adsorpt. on γ-Al_2O_3 investig., heats of adsorpt. determ. 4-52987
H_2S, adsorpt. on NaCaA-zeolite investig. rel. to temp. *(German)* 4-60684
H_2S, adsorpt. on silica gel, investig. heat of adsorpt. meas. 4-52986
H_2S, concentration in seawater measured using oxygen and hydrogen sulphide meter-5 *(Russian)* 4-71286

hydrogen compounds continued
H_2S, determ. in air, by impregnated tape methods, assessment 4-58631
H_2S, electronic excited states 4-52065
H_2S, photoionisation cross sections, plane and orthogonalised wave calcs. and obs. 4-72236
H_2S, rot. relaxation, distorted wave approx. 4-74966
H_2S, thermal transport props. determ. from thermal transpiration meas. 4-66677
H_2S^+, mol. orbital calcs., electronic struct. and geometry 4-47926
H_3S^+, electronic struct. and barrier to pyramidal inversion, MO calcs. 4-81745
H_2SO_4 frozen soln. containing UO_2SO_4, $FeSO_4$ and quinine sulphate, radio- and photothermoluminesc. *(Russian)* 4-45369
H_2SO_4 solns., thermal cond., cylindrical probe method meas. 4-42748
$H_2SO_4{:}Ag^+$, temp. decay of luminesc. quantum yield, 77-160K *(Russian)* 4-67659
$H_2SO_4{:}UO_2^{2+}$, frozen soln., thermoluminescence, UO_2^{2+} lifetime, structural transitions 4-53517
H_2SO_4-H_2O vapour, hydrate formation, free energy surfaces 4-76622
HSSH, electron redistribution about S-S bond under torsion 4-60029
H_3SiCl, d orbitals role, ab initio calcs. 4-78405
$H^{30}SiF_3$, gas phase i.r. spectra, force field calc. *(German)* 4-72202
HTO, atmospheric, sampling system for low level meas. 4-54335
H_2Te, $v_1 + v_2$ and $v_2 + v_3$ bands simultaneous anal. 4-72180
H_2TeO_4, cryst. struct., X-ray data *(French)* 4-60441
$HX + HD = DX + H_2$, X = D, F or Cl, isotope exchange, corrections to Born-Oppenheimer approx., electronic effects 4-74957
$HX + HD = DX + H_2$, X = D or Cl, isotope exchanges, shifts in vibr. consts. calc., Born-Oppenheimer approx. method 4-74958
HX_2^-, X = Cl, Br, I, hydrogen bonding using semiempirical model 4-56132
HXD type molecule, two-dimens. free-bound Franck-Condon factors, appl. to intramolecular isotope effect in predissoc. 4-66451
HeH^+, HeH^{2+}, excited sigma state energies, expansion method of calc. 4-60024
ice:HF, cryst., Hall mobility meas., double freq. method 4-75887
$K + HCl \rightarrow KCl + H$, mol. beam reactions, effect of translation extension of reagents 4-57835
$Li + HBr \rightarrow Li^+$, dynamics of electron transfer collisions, up to 14 eV 4-78372
N_2O_4-HNO_3-H_2O solns., ionis. state and London forces by Raman spectrometry *(French)* 4-53451
OH, afterglow in pulsed Ar discharge, impurity H_2O mol. excitation *(German)* 4-52646
OH + HCl, rate. const. temp. depend. by flow tube reson. fluoresc., 224-460K 4-73410
OH_n group in NaX and NaY zeolites, i.r. spectroscopy investigation *(Russian)* 4-43851
Pd-H system, degree of struct. of proton reson. line *(Russian)* 4-67469
XH_2, XH_3, XH_4, angular force constants 4-52104

hydrogen embrittlement
metal, apparatus for susceptibility to embrittlement determ. *(Russian)* 4-53937
nonductile pipe, strength determ. device 4-67974
pump model for stress corrosion cracking 4-53764
quantitative diffusion model for embrittlement kinetics 4-67819
steel, high-strength, cooperative relation between temper and hydrogen embrittlement 4-82908
steel, high-strength, P and S effect on hydrogen absorpt. and corrosion cracking susceptibility 4-82929
steel, initial crack nucleating condition in delayed fracture *(Japanese)* 4-82890
steel, maraging 18Ni, gaseous hydrogen assisted crack growth 4-67872
steel, mild, sulphide cracking obs. by const. strain rate method 4-67845
steel, milk, sulphide cracking, fractographic obs. 4-67846
steel, stress intensities for slow crack growth 4-49787
steel, tempered martensite, orientation of cleavage facets, single surface trace analysis 4-45553
Fe, Armco, electrolytic hydrogen charging, 0-300°C *(French)* 4-45587
Fe, cast, with small nitrogen additions, grain size influence *(French)* 4-49750
Fe alloys, hydrogen effect on deform. behaviour 4-49811
Fe-Al alloys, hydrogen diffusion parameters *(Russian)* 4-53719
Fe-Cr-Mo alloys 4-64544
Fe-Ni-C alloys, hydrogen charged, premature fracture in martensite *(French)* 4-80023
Nb, susceptibility to embrittlement determ. *(Russian)* 4-53937
Nb-H, single cryst., low-temp. decomp., double-crystal neutron spectroscopy 4-82867
Ni, intergranular embrittlement by hydrogen, grain boundary segregation 4-82905
Ti-Al alloys, role in stress corrosion cracking 4-49753
V, and β-hydride struct. 4-53668
Zr-Nb 2.5 wt.%, delayed hydrogen embrittlement in nuclear fuel cap welds 4-81630

hydrogen ion activity *see pH*

hydrogen ion concentration *see pH*

hydrogen ions
beam extraction from r.f. discharge at resonance 4-82056
chemisorption by phosphors, effect on radical recomb. luminesc. *(Russian)* 4-61204
collisional electron detachment, 22-45 MeV 4-66313
dark clouds, processes governing He^+/H^+ ratio 4-50712
duoPIGatron ion source engineering problems 4-55967
electron photoattachment as source of u.v. absorption 4-47862
excited, in distant collisions with charged particles, transitions between degenerate states *(Russian)* 4-63376
FSGO open-shell calcs. for doublet ground states 4-52044
galactic diffuse Hα intensity distrib. 4-83250
$H^+ + H$ collisions, elastic and inelastic diff. meas., direct excitation, charge exchange 4-66341
impact excitation of N_2^+ in N_2, spectral obs. 4-78447

hydrogen ions continued

- inert gas + H^+, outer s-shell ionisation, 125-1200 keV 4-59962
- pair correlation function for partially ionised dense plasma 4-74923
- plasma, ion-ion hybrid reson. *(German)* 4-52584
- plasma, reactive thermal cond. 4-56471
- plasma, steady state, magnetized, ion specification method 4-63692
- Stieltjes imaging of photoabsorption and dispersion profiles 4-78346
- Ar + H^+, 22-300 keV collisions, $L_{2,3}$ Auger emission 4-81734
- Ar + H^+, Ar + H_2^+, L-shell ionization by 50-600 keV ion impact 4-74913
- Cs + H^+ charge exchange collision, H metastable state formation 4-59968
- F + H^+, collision induced fine struct. transitions in F, semiclassical theory 4-74867
- H + e^- system, intense e.m. field, slow electron, Reiss and Henneberger transforms. 4-56039
- H + H^+, 1s-3d excitation of H 4-56041
- H + H^+ collision, H^+ electron capture, continuum distorted wave approx. 4-74909
- H^-, autoionisation states, stabilization method 4-47865
- H^-, autoionisation states, stabilisation method 4-78350
- H^-, creation in H discharge plasma, crossed fields 4-52631
- H^-, energy spectrum in strong magnetic field, binding energy calc. 4-47824
- H^-, formation in intense current discharge in crossed fields 4-78846
- H^-, generalised ang. momentum S states, eigenvalues, eigenfunctions 4-63317
- H^-, single-photon electron detachment, depend. on light polarisation 4-74858
- H^-, split-shell wavefunctions, perturbation calcs. 4-55995
- H^- destruction, rate coeff. for $H + H^- \rightarrow H + H + e$ reaction 4-81731
- H^- electron detachment by electron impact, field theory approach 4-63364
- H^- electron radial correlation energy, electron affinity 4-59902
- H^- pairs in KCl, i.r. absorpt. of coupled local mode oscills. 4-45338
- H^- photodetachment spectrum rel. to diffuse interstellar lines 4-80651
- H^- + CO collisions, generation of O^- and C^- ions *(Russian)* 4-63494
- H^- + He(Ar)(H_2), collisionally produced autodetaching states, electron energy spectra 4-56042
- H^- + He(Ar)(H_2)(N_2)(O_2), electron detachment cross section 4-81735
- H^- + He(Ar)(N_2)(H_2)(O_2), absolute H^- detachment cross section 4-72096
- $H^- + He \rightarrow H + He + e$, 5-120 eV, electron detachment obs., cf with complex potential theory 4-59970
- H^- + O_2, form. in water, charge transfer react. investig., cross section determ. 4-83022
- H^+, H_2^+ collisions with H_2, N_2, Ar and CO_2, electron capture to n=3,4 states 4-63374
- H^+, H_2^+ impact on CO_2, N_2 at 2-7 10^7 cm/sec, vibrational excitation, energy loss spectra 4-63493
- H^+, H^-, H_2^+, H_3^+, mobility in He and H_2, calc. from ion-neutral pot. 4-78515
- H^+, H^-, purely ionic plasmas, transverse mag. field, low β interactions, near crit. field *(French)* 4-78742
- H^+, variation in composition as source parameters are varied *(French)* 4-78379
- H^+ beam, elemental analysis by ion excited X-ray emission 4-74179
- H^+ + multielectron atom collisions, charge exchange 4-52009
- H^+ + Ar(H), fast highly excited atom production cross sections 4-47909
- H^+ + Bi(Pb) collision, L-subshell ionisation cross sections for Bi and Pb 4-59965
- H^+ + CO collisions, generation of O^- and C^- ions *(Russian)* 4-63494
- H^+ + CO_2, electronic excitation spectra, 200 eV-25 keV, form. of CO_2^+ 4-53978
- $H^+ + D_2 \rightarrow HD^+ + D$, semiclassical ground-first excited state transition anal. 4-67998
- H^+ + H, coupled-state-impact-parameter method, variational formulation 4-74914
- H^+ + H, scattering, variational bounds on 1s-charge-exchange amplitude investig. 4-59963
- H^+ + H_2, vibr. inelastic scatt. calc. 4-47899
- H^+ + H_2 reaction dynamics, mol. beam and trajectory studies 4-53999
- H^+ + H_2O, cross section energy depend., 10 to 25 keV *(French)* 4-78508
- H^+ + he, elastic and inelastic 2^1S and 2^1P differential cross sections 4-72094
- H^+ + He, influence of apparatus geometry on differential cross-sections 4-69434
- H^+ + He, reson. profile of $2s^2\ {}^1S$ state of He 4-52002
- H^+ + inert gas, 3s, 4s electron capture cross section 4-47908
- H^+ + Pb collision, L-X-ray production 4-63373
- H^+ + Se, 300-500 keV, diff. cross sections 4-78375
- H^+ + Sm, L-subshell ionisation cross section for Sm 4-59966
- H^+ + Xe collisions, double charge transfer spectroscopy, separation of multiplet terms of Xe^+ and Xe^{2+} *(French)* 4-63370
- H^+ + Zn collision, K-X-ray production 4-63373
- H_2 + CO, weakly ionised system, bimolecular collision processes 4-80181
- H_2 + CO_2, weakly ionised system, bimolecular collision processes 4-80181
- H_2 + N_2, weakly ionised system, bimolecular collision processes 4-80181
- H_2 + N_2O, weakly ionised system, bimolecular collision processes 4-80181
- H_2^-, autoionisation states, calc. by stabilization method 4-43738
- H_2^+, 0.2-2.6 keV, dissociation, collision-induced 4-75027
- H_2^+, electron dissociative collisions, theory 4-78522
- H_2^+, energy loss in C foil, mol. binding and correlated scatt. effects 4-60529
- H_2^+, energy spectrum calc., two centre Thomas-Fermi model 4-63358
- H_2^+, excited sigma state energies, expansion method of calcs. 4-60024
- H_2^+, ground state, props. of adiabatic energy curves 4-60020
- H_2^+, ground-state energies, Brillouin-Wigner perturbation calc. 4-78402
- H_2^+, HD^+, non-adiabatic calcs. for lowest energy levels 4-81761
- H_2^+, mol. puff, floating one-centre perturbation anal. 4-56078
- H_2^+, second-order transitions, symmetry dilemma 4-78403
- H_2^+, two-photon ionisation, quantum defect model 4-52236
- H_2^+, two-photon ionisation, quantum defect method 4-69528
- H_2^+, variational calc. of internuclear distance polarisability depend. 4-56176
- H_2^+, variational perturbation calc. using Green function method on united atom 4-63398
- H_2^+ dissociation in collisions with helium Ar and Kr, Balmer-line polarization obs. 4-60126
- H_2^+ electronic structure, students computer program for LCAO-MO calculations 4-54789
- H_2^+/He mixtures, ion-molecule reactions and vib. deactivation of H_2^+ ions 4-57824
- H_2^+ + CO_2^+ collisons, vibr. energy distrib. of CO_2^+ investig. 4-69532
- H_2^+ + fast charged particle collisions, total inelastic cross section evaluation, proton prod. investig. 4-63478
- H_2^+ + H_2O, cross section energy depend., 10 to 25 keV *(French)* 4-78508
- H_3^+, de-excited, electron scatt. proton formation obs. of excitation function 4-72242
- h_3^+, dissoc. recomb., inclined beam meas. 4-75042
- H_3^+, pot. energy surfaces in complex plane, rational fraction calcs. 4-81767
- H_3^+ ion, ground state electronic props., geometry depend., SCF-CI calcs. 4-66364
- $H_3^+ + D_2 \rightarrow D_2H^+ + H_2$, reaction kinetics, 0.22-5.21 eV, crossed beam study 4-73409
- H_3^+ + H_2O, cross section energy depend., 10 to 25 keV *(French)* 4-78508
- HD^+, adiabatic Dunham constants, potential energy curve, internuclear separations 4-66412
- HD^+, adiabatic vib. matrix elements of R 4-56156
- HD^+, allowed transitions and dipole moment 4-72159
- HD^+, ground state, props. of adiabatic energy curves 4-60020
- $H^+(D^+)$ + H, mass depend. of charge transfer cross section 4-74911
- H_2O_2, vib. spectra in yttrium oxalate trihydrate 4-79714
- $H_3O^+CH_3C_6H_4SO_3^-$, spectroscopy and normal coordinate treatment of oxonium ion H_3O^+ 4-45286
- KCl:H^--Na^+-H^-, cryst., localised modes of complex impurity, Green's function method 4-72540
- N_2 + H^+, 1-25 keV collisions, $N_2^+B^2\Sigma_u^+$ and $N_2C^3\Pi_u$ form. 4-81811
- Ne + H^+, K X-ray spectrum 4-56011
- Ne + H^+ collision, Ne excitation cross section, first order distortion method 4-66342
- Xe + H^+, ionisation cross section, ejected electron energy distrib. 4-72097

hydrogen neutral atoms

- auroral $H\beta$ signal contamination sources in interference filter scanning photometry 4-58062
- auroral $H\beta$ variations rel. to prebreakup H arc 4-58063
- Balmer α line, Rydberg constant determ. 4-56005
- beam, from cooled discharge source, velocity distrib. obs. 4-59972
- beams, intense fast atom beam prod. with grounded large area ion source 4-63377
- Bethe surface construction using Stieltjes imaging of electron impact excitation profiles 4-69436
- α Bootis (Arcturus), high spectral resolution meas. of H I 1216 A, Mg II 2800 A emission 4-50587
- cascade arc, nonequil. flow calcs. 4-56549
- chemisorption on metal surface, Hartree-Fock calc. method, overcompleteness basis 4-63992
- chromosphere, kinematic flare-shock model, H equilibrium 4-54386
- collision with ion, $2S \rightarrow 2P$ decay in mag. field 4-78376
- collisional electron detachment, 22-45 MeV 4-66313
- cusped-Gaussian wavefunctions, energy lower bound calcs. 4-72021
- Dicke superradiance, investigation, suggested expt. 4-69417
- electron, S-wave elastic scattering, polarized orbital approx. 4-47156
- electron (position) scattering, using integral form of close coupling eqns. 4-66327
- electron beam scattering, low-lying resonance investig. 4-66335
- electron elastic scattering, 2s and 2p excitations, multistate eikonal treatment 4-47882
- electron elastic scattering, consistent phase conventions for scatt. cross section ang. distrib. 4-56038
- electron elastic scattering, low energy differential cross section 4-72088
- electron elastic scattering, partial wave formalism. second order potentials 4-47875
- electron elastic scattering, polarized Glauber approx. 4-59957
- electron impact, coupling effect in distorted wave polarized orbital approximation 4-47878
- electron impact ionisation, Coulomb-projected Born approximation 4-47877
- electron impact ionisation, optical potential approach 4-59953
- electron impact ionisation cross section of excited atom, in Born approx. 4-74893
- electron ionisation, Glauber approx. total cross section calc. 4-51997
- electron S-wave scattering, J-matrix method 4-59249
- electron scatt., algebraic variational method analysis 4-59959
- electron scatt., elastic, differential cross sections, 30-200 eV 4-74902
- electron scatt., singlet elastic, 10-27 eV 4-74901
- electron scattering, channel T operator approach 4-80179

hydrogen neutral atoms continued
electron scattering, in off-shell Coulomb T-matrix, long-range distortion effect 4−74887
electron scattering, inelastic, Gauber approx. calcs. 4−81730
electron scattering, one-state s-wave, channel T matrix 4−43747
electron scattering, rearrangement collision, scatt. cross sections 4−47895
electron scattering, second order diagonalization calcs. 4−51989
electron scattering in presence of e.m. field, excitation cross section 4−74892
electron spin exchange collisions in teflon containment with longitudinal mag. trap polarised-electron source 4−55028
energy levels, group O_4 representations 4−51930
energy levels in quantum mech. with nonneg. distrib. function in phase space, Lamb shift *(French)* 4−72015
excited atom collisions with charged particles, mixing of degenerate states *(Russian)* 4−72090
external galaxies and intergalactic gas, radio obs. 4−76906
galaxies, distrib. in nearby objects 4−73815
Gaussian 1s wavefunctions, optimal parameters in expansion 4−59898
ground state binding energy in intermediate and intense magnetic fields, analytic variational calc. 4−43707
group theory case study, book 4−62663
$H^+ + H$ collisions, elastic and inelastic diff. meas., direct excitation, charge exchange 4−66341
hyperfine structure, magnetic displacement, effect of linear transitions 4−73971
IC 1396, neutral H distrib., 21 cm line obs. 4−46306
interstellar dust clouds, H I content 21 cm line obs. 4−46323
ionisation potential calc. in intense laser beams 4−59937
Lamb shift, metastable H quenched radiation anisotropy determ. 4−55999
Lamb shift nonrelativistic calc. including retardation effects in photon emission and absorption 4−59905
linear Bohr-Sommerfeld electron paths 4−74818
linear response to external e.m. field 4−51928
Mars, atmospheric H distrib. Lα airglow obs. 4−50496
Mars, upper atmosphere HI distrib. from Lα luminosity 4−80518
metastable, formation in $Cs + H^+$ charge exchange collision 4−59968
Moon, exosphere models, H, H_2, He density distrib. 4−50509
multiphoton ionisation, high intensity quantum electrodynamic treatment 4−59936
multiphoton ionisation, microwave and r.f. induced in highly excited H atoms 4−69426
multiphoton transitions, correction to Reiss amplitude 4−59917
muonic, transition rate calcs. for μ^- capture 4−72103
optically thick neutral H gas detection by deviation-defect method 4−46341
Orion Nebula, detection of high-velocity Hα features 4−68459
oscillator and H atom matrix elements determ. by operator algebra 4−81220
photoionisation cross section calc. using L^2-basis set 4−47863
photoionisation cross-section per atom from H_2 photoionisation 4−63353
photon emission induced by passing relativistic charged particle 4−56024
photon scattering, incoherent, forbidden in dipole approx. *(Russian)* 4−74813
plasma, radiative transfer in Lyman α spectra, self-consistent electron velocity distrib. 4−56514
plasma collision and radiative processes in recombination 4−75221
in polarised monochromatic field, quantum mechs. 4−81224
production and escape, upper atmosphere 4−64929
protium-deuterium kinetic isotope effects, Arrhenius pre-exponential factor, quantum mech. tunnelling 4−55315
radial wavefunction, matrix elements, new recurrence relation 4−55991
reaction with methyl radical ion, using crossed beams, prod. investig. rel. to collision energy 4−50128
recombination at walls, kinetic effects investig. 4−73427
solar chromospheric flare spectra, hydrogen equil. for Brown's models for heating by nonthermal electrons 4−62010
solar flares, effective extension, Balmer continuum visibility, effective mass 4−54387
solar He/H line intensity ratios in quiescent prominences 4−62008
solar Lyman α, electron temp. determ. of quiescent prominences 4−62007
solar Lyman α spatial distrib. 4−46154
solar prominences, H excitation and ionization, statistical equilibrium eqns. 4−58233
spectra, radiative level shift in neoclassical theory 4−56000
spectral line excitation in positive column of stratified discharge 4−66294
spectral transitions in ultrastrong laser field 4−74835
spectrum, deuteron polarisation effect on isotope shifts 4−51954
Stark effect, perturbation analysis using dynamic symmetry group *(Russian)* 4−69401
Stark effect, third-order, operator approach 4−56008
Stark effect, weak, strong and ultrastrong fields, wave function construction 4−47843
Stark effect relativistic corrections 4−66281
static effects, total Coulomb Green's function for H-like atoms 4−59511
Stieltjes imaging of photoabsorption and dispersion profiles 4−78346
stripping collisions, 1-10 keV, small-angle ion scatt. 4−81728
symmetry, factorization of group O_4 4−51929
two-Raman-photon emission in intense e.m. field 4−59454
weak neutral currents *(Russian)* 4−72109
Zeeman transitions in hyperfine spectrum $^1H/^3H$ g_j-factor ratio 4−63339
electron elastic scattering, eikonal-Born series method 4−47880
H, excited, charged particle binary encounter theory, form factors 4−47845
H, radiative relax. behind strong shock waves 4−72043
H I, plasma, thermal excitation function calc. *(Russian)* 4−60318
H-H_2 system, diff. coeff. and interaction pot. 4−56348

hydrogen neutral atoms continued
$H + CH_4 \rightarrow H_2 + CH_3$, kinetics meas., low press. flame technique 4−73425
$H + CO$ collisions, generation of O^- and C^- ions *(Russian)* 4−63494
$H + CO_2$, electronic excitation spectra, 200 eV-25 keV, form. of CO_2^+ 4−53978
$H + Cl_2$, isotopic collinear reactive system, quantum mech. treatment 4−53989
$H + e$ collisions, Balmer cross sections determ., high density at. beam source design 4−81737
$H + e$ scatt., 50-500 eV, coupled equations calc. 4−63369
$H + e$ scattering, variational least squares method calcs. 4−74881
$H + e^-$ system, Faddeev equations 4−59950
$H + e^-$ system, intense e.m. field, slow electron, Reiss and Henneberger transforms. 4−56039
$H + e^+$, annihilation rate below positronium threshold 4−47891
$H + e^+$, lower bound calc. adiabatic approx. 4−47892
$H + e^+$, rigorous lower-bound p-wave scatt. calc. 4−47890
$H + e \rightarrow H^- + h\omega/2\pi$, rate coeff. calc. electron temp. range 0 to 10000K 4−74896
$H + F_2 \rightarrow HF + F$, saddle point, geometry, barrier height, SCF-CI calcs. 4−61590
H + H (excited) long-range interactions, first-order mixing 4−72102
H + H collisional excitation, eikonal distorted wave Born approx. 4−59943
H + H interaction, relativistic long-range coeff. 4−74921
$H + H_2$, atomic exchange, semiclassical multichannel expansion 4−53995
$H + H_2$ collision reaction, modified classical S-matrix for tunnelling 4−73426
$H + H_2$ reaction, classical S-matrix theory 4−50145
$H + H_2$ reactive scattering, adiabatic distorted wave calcs. 4−83019
$H + H_2O$ integral cross section, thermal energies 4−63355
$H + H_2(He)(Ar)(Kr)(N_2)$, 5-500 keV metastable atoms, electron loss and deexcitation 4−74871
$H + H_2 \rightarrow H_2 + H$, collinear reactive scatt., integral eq. approach, scatt. matrices calc. 4−83015
$H + H_2 \rightarrow H_2 + H$, react. kinetics, quantum corrections calc. 4−80168
$H + H^+$, coupled-state-impact-parameter method, variational formulation 4−74914
$H + H^+$, fast highly excited atom production cross sections 4−47909
$H + H^+$, scattering, variational bounds on 1s-charge-exchange amplitude investig. 4−59963
$H + H^+$ collision, H^+ electron capture, continuum distorted wave approx. 4−74909
$H + H^+(He^{2+})$, 1s-3d excitation of H 4−56041
H + HBr system, Monte Carlo quasi classical trajectory study, energy transfer, kinetics 4−73423
H + HD, collinear collision, quantum vibr. transition probabilities calc. for Morse oscillator 4−48143
H + HF, flow tube meas. of deactivation rates 4−48146
H + HF ($v = 1$), HF deactivation investig. by laser induced fluoresc. method 4−75045
H + H + H, assoc. and mol. dissoc. phase space theory 4−61593
$H + H + H_2 \rightarrow 2H_2$, termol. recombination react., kinetics investig. using S matrix formalism 4−76599
$H + H + M \rightarrow H_2 + M$, $M = H, H_2, He, Ar$, recombination classical mechanics via resonance complex mechanism 4−61587
H + He, elastic and inelastic scatt., differential cross sections, Born formulation 4−47870
H + He, inelastic collisions, first Born approx. calcs. 4−66321
H + He collision, H excitation, eikonal distorted wave approx. 4−72075
$H + He^+(H^+)$, elastic and inelastic collisions, Born approx. calcs. 4−66340
H + He* Penning ionisation, electron energy spectrum, semi-classical uniform approx. 4−56029
$H + He^{2+}(H^+)(D^+)$, mass depend of charge transfer cross section 4−74911
$H + N_2$ collision, rot. excitation of $N_2^+ B^2\Sigma_u^+$ state 4−66521
H + negative ion reactions, gas phase, rates, mechanism determ. effect of hydration investig. 4−76580
$H + p\text{-}H_2 \rightarrow H + o\text{-}H_2$, scattering react., quantum mechanical investig., H_2 rot. transition probabilities calc. 4−48140
H + positronium bound system, ground state 4−74925
H + Xe collisions, orbiting resonances in integral cross section investig. 4−81725
$H_2 + H^-$, collisionally produced autodetaching states, electron energy spectra 4−56042
$H_2 + Li^+$, vib. and rot. excitation, classical dynamics model 4−57829
$H(D) + He^* \rightarrow HeH(D)^+ + e$, merging beam reacts. investig., effective cross sections determ. 4−61580
H(1s) + H(1s) differential cross section calc. in keV range 4−66324
H(1s) + H(3s, 3p, 3d), potential energy curves, excitation transfer cross sections 4−74869
Hα-Hδ line profiles in spectrophotometric anal. of 1971 Sept. 30 solar prominence *(Russian)* 4−54404
$He^{2+} + H$ collision, mol. treatment, HeH^{2+} wave function expsn. 4−74906
$KI{:}H_i^0$, ENDOR obs., superhyperfine and quadrupole interactions determ. 4−57425
Li + H, dipole-quadrupole Van der Waals constants, pseudo-state method 4−69409
$N + NO_2$ reactive scattering, isotope effect on angular distrib. investig., mechanism 4−80174
$N_2 + H$, 1-25 keV collisions, $N_2^+ B^2\Sigma_u^+$ and $N_2 C^3\Pi_u$ form. 4−81811
OH + H, fluorescence quenching, OH natural lifetime determ. 4−48063
Y-type zeolites, γ-irrad., e.s.r. study of trapped H ats., exchanged cation effects 4−79598

hydrogen neutral molecules
absorption features of H_2 in QSO spectrum 4−71020
atmospheric minor neutral constituents of winter mesosphere and lower thermosphere, latitudinal distribs. 4−68217
autoionisation final states energy distributions 4−69527
Bethe surface, diff. cross sections, Compton profile, binding from electron scatt. at 25 keV 4−52269

hydrogen neutral molecules continued
  $c^3\pi_u$ state, electronic wavefunctions, ab initio Hartree-Fock calcs. 4−43792
  configuration interaction procedure based on perturbation theory natural orbitals calcs. 4−78415
  covalent versus metallic bond for H_2 mol. outside metal surface 4−49050
  desorption from Cu crystals, ang. distribs. 4−75709
  dissociative ionisation by electron impact 4−66512
  electric and magnetic properties, nuclear motion corrections 4−72165
  electron energy spatial deposition, Monte Carlo method 4−75033
  electron scatt., elastic, differential cross sections, 30-200 eV 4−74902
  electron scattering, appl. of modified extended-range theory 4−66514
  electron scattering, ratio of forward to back scatt. 4−63367
  electron scattering at intermediate energies, elastic 4−43883
  electron scattering cross section calc. 4−78520
  electron scattering cross section calcs. for high energies using CNDO wavefunctions 4−52272
  energy calculation using wave functions for electron motion in field of fixed nuclei 4−69461
  energy levels and pot. energy curves from independent particle model 4−56083
  excitation, vibr. and rot., 4.5 eV electron impact cross sections 4−52278
  excited $^1\pi_u{}^-$ Rydberg levels, spectrum calc. using quantum defect theory 4−63414
  excited electronic states, investig. using microwave optical mag. resonance induced by electrons 4−52201
  expectation values, from transcorrelated wave functon 4−47943
  frozen core approximation, total electronic energy calc. 4−74943
  FSGO open-shell calcs. for doublet ground states 4−52044
  gas phase dosimetry, yield from ethylene dosimeter 4−43699
  geometrical conformation and reaction energies, even-tempered at. orbital calcs. 4−52034
  Hartree-Fock polarisability and quadrupole moment estimation, vibr. spectra interpretation 4−63415
  Hartree-Fock-Roothaan wavefunctions 4−74951
  hexadecapolar moment, near i.r. U(J) rot.-vibr. transition 4−63435
  INDO and ab initio wave functions, comparison, electronic struct. investig. 4−78407
  interaction with MgO surface investig., elec. cond., dielec. loss studies 4−76621
  interstellar, Copernicus satellite u.v. observations 4−73843
  interstellar cloud, thermal equil. 4−80653
  interstellar H_2, cause of anomalous absorption in X-ray astronomy 4−46291
  interstellar H_2, highly excited, expected radioline intensities 4−54565
  interstellar H_2 formation and destruction rates 4−80640
  laser, electron beam excitation, spectral line breadth 4−71538
  local energy calcs., importance sampling 4−43791
  long-range interaction consts. determ. using [1, 0] Pade approximant 4−63499
  Lyman band spectra, oscillator strength, rot.-vibr. interaction 4−56235
  MC SCF theory of closed-shell systems, two-by-two rot. method 4−78411
  metallic modification, chemical bond collapse *(German)* 4−52089
  metastable, fine struct. of rot. spectra, spin-orbit effects 4−48010
  metastable $c^2\Pi_u$ state, quenching by electric field 4−48076
  metastable $c^3\pi_u$ (1s,2p) state, spin-other-orbit and spin-spin interactions 4−74939
  MOMRIE spectra of o-H_2, fine and hyperfine struct. 4−56283
  Moon, exosphere models, H, H_2, He density distrib. 4−50509
  multiphoton excitation in intense laser beam, transition probability 4−60092
  nuclear spin longitudinal relax. time meas. 4−81787
  orbitals, distinguishable electron calcs. 4−52031
  oscillator strength, Lyman, Werner, B′-X and D-X bands 4−43833
  oscillator strength, Lyman and Werner bands 4−43832
  para, anticrossing and microwave transitions between electronic states 4−74995
  photoelectric cross section, meas. at 5.4 and 8.4 keV 4−56297
  photoionisation at relativistic energies of knocked out electron 4−52240
  photoionisation cross section rel. to per atom photoionisation cross section 4−63353
  photoionisation cross sections, plane and orthogonal wave calcs. and obs. 4−72236
  polarisability, finite field perturbation theory, config. interactions 4−52119
  polarisability, variational calc. of internuclear distance polarisability depend. 4−56176
  polarisability of first excited vibr. state, permittivity meas. *(Russian)* 4−72166
  positron scattering, cross section meas. 4−56302
  positron scattering, fixed-nuclei approx. 4−75041
  potential, quantum calc. from eigenvalues and rot. consts. 4−72145
  potential energy curve, correlation energy correction, Hartree-Fock density 4−52075
  protium-deuterium kinetic isotope effects, Arrhenius pre-exponential factor, quantum mech. tunnelling 4−55315
  quasar absorption spectra, redshifted H_2 lines 4−80604
  Raman process, multiphoton excitation in intense laser beam 4−60067
  relaxation times calc. rel. to temp., semiclassical model 4−78428
  rotating vibrating molecule, Rydberg-Klein-Dunham potentials, second order curves 4−56162
  rotational excitation by thermal electrons 4−48134
  rotational excitation rel. to interstellar clouds 4−80649
  rotational relaxation rates meas. using time of flight anal. of mol. beams 4−60129
  scattering from clean and CO coated Pt surfaces 4−67684
  singlet-triplet differences, $^{1,3}\Pi$ states 1/Z expansion analysis 4−72139
  singlet-triplet separation using level-anticrossing technique 4−63421
  spectra, fine and hyperfine struct. of $^3\pi_u$ states 4−63400

hydrogen neutral molecules continued
  spectra, random phase approximation, second order optical props. and van der Waals coeffs. 4−66302
  spectral line broadening, by H_2 in HF vibr.-rot. lines in 1st overtone band, investig. 4−60085
  spin-rotation interaction, magnetic shielding 4−60027
  terrestrial, production and escape 4−64929
  valence bond calculation using second-order perturbation coeff. calc. procedure 4−72136
  valence energies and geometries, HF-Roothaan LCAO-SCF-MO calc. 4−56080
  vibrational force constants determ. from generalised X-ray scattering factors 4−47955
  vibrational levels, expectation values kinetic and pot. energies 4−72147
  vibrational resonance, electron excitation near threshold for $B^1\Sigma^+{}_u$ and $c^3\Pi_u$ states 4−74980
  vibrational structure anal. of electronic transitions involving $E,F^1\Sigma_g{}^+$ state with double minimum 4−74956
  wave-function, three parameter formalism 4−56086
  $Ar^+ + H_2(D_2)(CO_2)$, charged transfer, collision energetics 4−53984
  $D_2 + HD(D_2)(H_2)$, vibr. relax. of Raman excited D_2 at 300K 4−52284
  $F + H_2(D_2) + C_3F_6$, kinetic, isotope effects, 303-475K, nuclear recoil techniques 4−73443
  $F^+ + H_2(D_2)$ reaction cross section, isotope effect 4−76589
  $F^+ + H_2 \rightarrow F + H_2{}^+$, 14-100 keV, charge exchange cross-section meas. 4−60127
  $F(^2P_{1/2}) + H_2$, collision kinetics 4−57830
  H-H_2 system, diff. coeff. and interaction pot. 4−56348
  $H + H_2$, atomic exchange, semiclassical multichannel expansion 4−53995
  $H + H_2$ reaction, classical S-matrix theory 4−50145
  H^+, $H_2{}^+ + H_2$ collisions, 0.3-3.0 keV electron capture cross-section to n=3,4 states 4−63374
  $H^+ + H_2$, vibr. inelastic scatt. calc. 4−47899
  p-H_2, catalytic conversion by organic radicals 4−69521
  H_2, ground state wavefunctions, natural spin orbital analysis in terms of generalized diatomic orbitals 4−60010
  H_2, HD, dissociative ionisation, field ionisation effects 4−72229
  o-,p-H_2 interconversion in paramagnetic solns. 4−60095
  H_2/He mixtures, ion-molecule reactions and vib. deactivation of $H_2{}^+$ ions 4−57824
  $H_2/O_2/N_2$ flames, catalysis of H and OH radical recombination by iron investig. 4−61581
  H_2-active N_2 mixture, form. of $N_2(a^1\pi_g, v \leqslant 6)$ mols. investig. by chemiluminesc. emission, mechanism 4−48137
  H_2-clusters, interaction with plasma particles, evaporation model 4−63635
  H_2-H_2, intermolec. energy in different geometrical configs., ab initio SCF-CI calc. 4−56301
  H_2-H_2 short range potential review 4−60133
  H_2-He mixture, radiative relaxation behind strong shock waves 4−72043
  H_2-K^+, elastic scatt., repulsive potential *(Japanese)* 4−43885
  H_2-O_3 gas mixture, electric pulse discharges producing i.r. OH laser 4−59399
  $H_2 + D_2$, vibr. energy transfer, collinear, pot. surface effects 4−66516
  $H_2 + {}^3He^{2+}$, mol. ionisation and dissoc., secondary ion form. 4−75054
  $H_2 + Ar^+$, nonadiabatic collisions, charge exchange and chem. react., dynamics investig. 4−53981
  $H_2 + CO$, weakly ionised system, bimolecular collision processes 4−80181
  $H_2 + CO_2$, weakly ionised system, bimolecular collision processes 4−80181
  $H_2 + Cl$, reactive collision, exact quantum mech. anal. 4−45908
  $H_2 + Cl^+ = HCl^+ + H$, rate constant determ. 4−76587
  $H_2 + ClH^+ = ClH_2{}^+ + H$, rate constant determ. 4−76587
  $H_2 + Cs$, Cs $^2P_{1/2} \rightleftarrows {}^2P_{3/2}$ mixing cross section, temp. depend. 4−51978
  $H_2 + D_2$, vibr. energy transfer, semiclassical S-matrix calcs. 4−56311
  $H_2 + D_2$ collisions, vibr. relax. rel. to temp. investig. 4−69533
  $H_2 + e^+$, elastic scatt., rot. excitation, adiabatic nuclei approx. 4−48126
  $H_2 + F$, chemical laser, rate consts. from stimulated emission 4−70602
  $H_2 + F(Br)$ collisions, electronic to vibr. energy transfer, quantum reson. effects 4−81807
  $H_2 + F = H + HF$, transition state and quantum mechanical reaction probabilities, comparison 4−54001
  $H_2 + F \rightarrow HF + H$, continuous chem. laser, kinetics investig. *(French)* 4−57839
  $H_2 + F \rightarrow HF + H$, mol. rot. excitation effect on react. rate investig. 4−83021
  $H_2 + H$, collisional dissoc. and teratomic assoc. phase space theory 4−61593
  $H_2 + H$, stripping collisions, 1-10 keV, small-angle ion scatt. 4−81728
  $H_2 + H$ collision reaction, modified classical S-matrix for tunelling 4−73426
  $H_2 + H$ reactive scattering, adiabatic distorted wave calcs. 4−83019
  $H_2 + H_2$, effective formulation 4−48125
  $H_2 + H_2$ interaction, comparison of various perturbations procedures 4−63473
  $H_2 + H_2$ potential, absolute integral cross section meas. 4−78540
  $H_2 + H^-$, absolute H^- detachment cross section 4−72096
  $H_2 + H+$ reaction, mol. beam and trajectory studies 4−53999
  $H_2 + H + H \rightarrow 2H_2$, recombination classical mechanics via resonance complex mechanism 4−61587
  $H_2 + H(D)(F) \rightarrow H + HH(D)(F)$, collinear reactive scatt., integral eq. approach, scatt. matrices calc. 4−83015
  $H_2 + H \rightarrow H + H_2$, react. kinetics, quantum corrections calc. 4−80168
  p-H_2 + H → o-H_2 + H, scattering react., quantum mechanical investig., H_2 rot. transition probabilities calc. 4−48140
  $H_2 + He$, classical trajectory study of rot. excitation 4−78526
  $H_2 + He$, collisional dissoc. probability and cross section, calcs. for 30-50 eV 4−75051

hydrogen neutral molecules continued
- H_2 + He, total integral cross section, equivalence and conservation rules 4−63471
- H_2 + He collisions, anal., use of harmonic and Morse oscillator wavefunctions, comparison 4−72070
- $H_2 + He^*$, Penning ion ang. distribs., pot. barrier effects 4−63489
- $H_2 + He^* \rightarrow HeH_2^+ + e$ collision reacts., associative and rearrangement ionisation investig., cross sections determ. 4−72248
- $H_2 + I_2 \rightarrow HI + HI$, classical trajectory study on kinetics, react. probabilities determ. 4−61592
- $H_2 + Kr^+(^2P_{3/2}) = KrH^+ + H$, activation energy 4−76584
- $H_2 + Li^+$, elastic and rot. inelastic collisions, quantum mechanical close-coupling formalism 4−63486
- $H_2 + Li^+$, H_2 collisionally induced dissociation, differential cross section 4−48139
- $H_2 + Li^+$ reaction, rot. transitions of H_2 at $E_{c.m.} = 0.6$ eV, calcs. 4−54000
- H_2 + methane-d_1, spectral linewidth broadening 4−75000
- $H_2 + N_2$, weakly ionised system, bimolecular collision processes 4−80181
- $H_2 + N_2O$, weakly ionised system, bimolecular collision processes 4−80181
- $H_2 + NH_3$, $H_2 + N_2F_4$ mixtures, thermal decomp., reacts., shock wave and spectrochem. anal. investig. 4−45903
- $H_2 + NH_3$, proton transfer reaction rate consts. 4−64703
- $H_2 + O_2$ + diluent, shock wave reacts., OH conc. profile investig., kinetics, mechanism 4−76582
- $H_2^+ \rightarrow H^+ + H$, collision induced, 0.4-2.6 keV 4−56319
- $(H_2)_2$, Van der Waals complex, i.r. spectrum, rot. transitions 4−60061
- H_4, linear complex, energy minimum, interatomic dist. depend. 4−47915
- H_n, SCF and CI ab initio calcs. on n-atom mol. rings, appl. to metallic H 4−43783
- HD, dipole and quadrupole rot.-vibr. spectra 4−63423
- HD, electric and magnetic properties, nuclear motion corrections 4−72165
- HD, thermomagnetic torque, effect of nuclear spin coupling 4−56342
- HD + H, collinear collision, quantum vibr. transition probabilities calc. for Morse oscillator 4−48143
- $H_2(D_2) + Cl = HCl(D) + H(D)$, collinear reaction, kinetic isotope effects, exact quantum mech. calc. 4−53977
- HT, atmospheric, sampling system for low level meas. 4−54335
- HT + He, quantum mech. scatt. of asymm. mols. 4−75058
- He + H_2, binary encounter stopping cross sections 4−56030
- He + H_2, electron-loss cross sections for excited He at 8-160 keV 4−74874
- He + H_2 He electron loss cross section 4−72095
- He + H_2 vibr. inelastic collision, potential surface dependence 4−60123
- $K^+ + H_2$, energy transfer collision, isotope effects, impulsive model of vibr. excitation 4−48149
- $Li^+ + H_2$, vibr.-rot. excitation, Morse and harmonic oscills. anal. 4−52292
- $O_2^+ + H_2 \rightarrow HO_2^+ + H$, photoionisation efficiency curves for HO_2^+ production 4−53991
- $O^n + H_2$ ($n = -1$ to $+2$), electron capture and loss, 100-500 keV 4−66339
- OH + H_2, fluorescence quenching, OH natural lifetime determ. 4−48063
- OH + H_2, shock tube rate consts., 1350 to 1600K 4−54002
- Ti:H absorbed, prod. of washers for plasma source, H conc. control 4−65539

hydromagnetic waves *see magnetohydrodynamic waves*

hydromagnetics *see magnetohydrodynamics*

hydrometers
- *see also density measurement*
- No entries

hydrophones
- *see also sonar*
- detect. low freq. c.w. propag., deep ocean Antigua to Newfoundland 4−80795
- phase fluctuations, long-range depth depend. drifting hydrophones 4−80801
- sonobuoy, determ. of hypocentre of Pt. Mugu earthquake 4−61883

hydrophotometers *see photometers*

hydrostatics
- electrostatic dispersion of drops in liquids 4−59328
- pressure effects on creep of thick-walled tube 4−51360
- spatially varying electromechanical flow structures, hydrostatics and steady dynamics 4−60232
- stability conditions of isotropic body, influence of hydrostatic pressure *(Russian)* 4−81150
- weighing experiment, used in obtaining density scale based on solid objects 4−73980

hygiene
- *see also medicine*
- e.m. field meas. for hygienic purposes 4−68536

hygrometers
- *see also humidity measurement*
- absolute humidity measurement and control, heated LiCl applic. *(Dutch)* 4−80400
- alumina sensors, practical considerations *(French)* 4−51181
- Hickes absolute, heated LiCl, precautions against pollutants *(Dutch)* 4−83142
- hygrometers, Hickes absolute, heated LiCl, precautions against pollutants *(Dutch)* 4−83142
- i.r., high precision atm. hygrometry using solar i.r. spectrum 4−64996
- neutron, $^3He(Br_2)$ filled Geiger counter applic. 4−81018
- temperature-compensated conductometric hygrometer *(Russian)* 4−80848

hyperfine field interactions in crystals *see crystal hyperfine field interactions*

hyperfine structure *see atomic spectra; molecular spectra; spectra*

hyperfragments *see hypernuclei*

hypernuclei
- excited states, Λ-N and Λ-Λ interaction, decay properties, review 4−59700
- hyperfragments produced by K^- capture in nuclear emulsion, characteristics by experiment and computer simulation 4−55884
- neutron oscillator model of decay scheme 4−66139
- K^- interactions with emulsion nuclei at 6 GeV/c, hyperfragment study *(Spanish)* 4−47727
- Ξ^- capture in emulsion nuclei, hyperfragment and double Λ hyperfragment production, Monte Carlo simulation 4−81509
- $^7Be_\Lambda \rightarrow \pi^- + {}^1H + {}^1H + {}^1H + {}^4He$ decay mode, mechanism and evidence for final-state interaction 4−47649
- $^{10}Be_{\Lambda\Lambda}$ double hypernucleus, nonlocal separable potential ΛΛ interaction strength 4−43486
- $^{12}C_\Lambda$ spectrum, shell model study of strangeness analogue states 4−51779
- $^{14}C_{\Lambda\Lambda}$ double hypernucleus, nonlocal separable potential, ΛΛ interaction strength 4−43486
- $^3H_\Lambda$, binding energy calc. for Hulthen potential using Faddeev eqns. 4−63100
- $^3H_\Lambda$, binding energy calc. using one-boson exchange model 4−77985
- $^4H_\Lambda$, nonmesonic decay probability 4−59539
- $^5H_{\Lambda\Lambda}$ double hypernucleus, nonlocal separable potential, ΛΛ interaction strength 4−43486
- $^4He_\Lambda$, nonmesonic decay probability 4−59539
- $^6He_{\Lambda\Lambda}$ double hypernucleus, nonlocal separable potential ΛΛ interaction strength 4−43486
- ${}_\Lambda{}^8Li \rightarrow \pi^- + {}^8Be^*$ near 17 MeV, branching ratio using intermediate coupling wave functions 4−55763
- ${}_\Lambda{}^8Li \rightarrow \pi^- + {}^8Be^* \rightarrow \pi^- + {}^4He + {}^4He$ decay sequence study 4−55762
- $^{18}O_{\Lambda\Lambda}$ double hypernucleus, nonlocal separable potential, ΛΛ interaction strength 4−43486
- Sb isotopes, magnetic dipole moment determ. from atomic-beam magnetic resonance meas. 4−63063

hyperon absorption
- *see also nuclear reactions and scattering due to hyperons*
- No entries

hyperon capture
- *see also nuclear reactions and scattering due to hyperons*
- Ξ^- capture in emulsion nuclei, hyperfragment and double Λ hyperfragment production, Monte Carlo simulation 4−81509

hyperon decay
- exotic bound states, negative strangeness 4−59700
- hadronic and radiative weak non-leptonic decays, vector-meson dominance 4−77797
- leptonic, role of second-class contribs., theoretical considerations 4−71653
- neutron oscillator model of decay scheme 4−66139
- nonleptonic, departures from $\Delta I = 1/2$ rule, e.m. and CP violating effects 4−77796
- semileptonic, presence of second class currents 4−62919
- semileptonic, test of Cabibbo's model 4−47481
- β-decay, Cabibbo angle and intermediate boson mass calcs. 4−71644
- $\Lambda(1520)\pi \rightarrow K^- p\pi^0$ in K^-p interactions, 1915 to 2170 MeV, partial wave analysis 4−55668
- $\Lambda(1815)\pi^0 \rightarrow K^- p\pi^0$ in K^-p interactions, threshold to 2170 MeV, partial wave analysis 4−55667
- $\Lambda \rightarrow N\pi$, in hypernuclei, decay probability, struct. of weak interaction 4−59539
- $\Lambda \rightarrow pe^-\nu_e$, tensor constants of weak axial vector current *(Russian)* 4−77795
- $\Lambda \rightarrow pe\nu$, spin asymm., test of Cabibbo's model 4−69150
- $\Omega^- \rightarrow K^-\Lambda$ produced in K^-p interaction of 10 GeV/c, α-decay parameter determ. 4−69152
- $\Sigma^- \rightarrow ne^-\nu$, meas. of ratio $|g_a/g_V|$ 4−62916
- $\Sigma^- \rightarrow ne^-\nu_e$, tensor constants of weak axial vector current *(Russian)* 4−77795
- $\Sigma^- \rightarrow ne\nu$ spin asymm., test of Cabibbo's model 4−69150
- $\Sigma^+ \rightarrow p\gamma(\pi^0)$, asymmetry parameter, transition amplitudes *(Russian)* 4−62922
- $\Xi^- \rightarrow \Lambda\pi^-$, decay parameters, lifetimes, spin, T invariance, P violation 4−47484
- $\Xi^0 \rightarrow \Lambda\pi^0$, decay parameters, lifetimes, spin, T invariance, P violation 4−47484

hyperon detection and measurement
- No entries

hyperon-deuteron interactions
- No entries

hyperon-deuteron scattering
- No entries

hyperon effects
- *see also nuclear reactions and scattering due to hyperons*
- on neutron star matter energy 4−71011

hyperon interactions
- *see also hypernuclei; hyperon capture; hyperon-deuteron interactions; hyperon-nucleon interactions; kaon-hyperon interactions; nuclear reactions and scattering due to hyperons; pion-hyperon interactions*
- ΛΛ interaction strength, from study of double hypernuclei 4−43486
- NΛK coupling const. determ. from dispersion reln. anal. of $K^\pm p$ forward scatt. amp. 4−59618

hyperon magnetic moment
- baryons within 27-plet, SL(3,C) description 4−43408
- Σ^-, precise determ. of magnitude and sign 4−51710

hyperon mass
- general relativity role, f-meson strong gravity field mediation, mass spectrum 4−43403
- SU(3) breaking mass formulae, linear or quadratic validity 4−77868

hyperon-nucleon interactions
- low energy, information from exotic bound atomic and nuclear states 4−59700
- ΛN and ΣN coupled channels, investigation of cross sections and threshold effects 4−59602
- ΛN → NN, nonmesonic decay of light nuclei, struct. of weak interaction 4−59539
- Λnp system, Hulthen potential, Faddeev eqn. 4−63100

hyperon-nucleon scattering
- No entries

hyperon production
coherent production, Primakoff and polarization effects *(Russian)* 4−71669
$\gamma p\to K^+\Lambda(\Sigma^0)$, exchange degeneracy 4−74605
$K^-p\to 1^-$ meson + $1/2^+$ hyperon hypercharge exchange reactions, 4.25 GeV/c 4−55688
$K^-p\to K^+\Xi^-$, 1.9 to 5 GeV/c, energy dependence of differential cross section 4−63018
$K^-p\to\pi^+\Sigma^-$, 1.9 to 5 GeV/c, energy dependence of differential cross sections 4−63018
$K^-p\to\Sigma^0\eta$, 862-1001 MeV/c, cross section for η decay via neutrals and into $\pi^+\pi^-\pi^0$ 4−47575
$K^0p\to\Lambda\pi^+$, 1 to 12 GeV/c, total and differential cross-sections meas. 4−74679
$K^0p\to\Sigma^0\pi^+$, 1 to 12 GeV/c, total and differential cross-sections meas. 4−74679
Λ, in π^-p, π^-n and π^-C interactions, 40 GeV/c, inclusive and topological cross sections 4−77932
Λ, Λ, single particle inclusive distribs. in pp interactions at 12 and 24 GeV/c 4−51739
Λ, weak photoproduction near threshold, cross section estimates in Born approx. *(Russian)* 4−43415
Λ inclusive production in K^-p interactions at 3.93 and 14.3 GeV/c 4−69197
Λ^0 inclusive prod. in pp scatt. at 14.75 GeV/c 4−77944
Λ^0 inclusive production in 18.5 GeV/c $\pi^\pm p$ interactions cross section behaviour 4−55717
$pp\to\Lambda(\Sigma)+X$, anal. using one-particle (Regge) exchange mechanisms 4−71747
$\pi^\pm\Delta$ electroproduction, modified Born term model 4−74613
$\pi^-p\to K^+\Sigma^-$, 1.9 to 5 GeV/c, energy dependence of differential cross sections 4−63018
$\pi^-p\to K^{*0}\Lambda$, 3.93 GeV/c, spin density matrix elements, Λ polarisation, amplitude analysis 4−59623
$\pi^-p\to K^{*0}\Sigma^0$, 3.93 GeV/c, spin density matrix elements, Σ^0 polarisation, amplitude analysis 4−59623
$\pi^-p\to K^{*0}Y_1^{*0}$, 3.93 GeV/c, differential cross sections, spin density matrix elements 4−59623
Σ, weak photoproduction near threshold, cross section estimates in Born approx. *(Russian)* 4−43415
Σ^0/Λ ratio in electroproduction off protons, quark parton model 4−55620
$\Sigma^\pm$, single particle inclusive distribs. in pp interactions at 12 and 24 GeV/c 4−51739

hyperon resonances
Λ, in $\pi^-p\to K^{*0}\Lambda$, 3.93 GeV/c, spin density matrix elements, Λ polarisation, amplitude analysis 4−59623
Λ, studied in $K^-p\to\omega\Lambda$, $\varphi\Lambda$, $\rho^0\Lambda$ at 4.25 GeV/c, polarisation 4−55688
$\Lambda(1520)\pi\to K^-p\pi^0$ in K^-p interactions, 1915 to 2170 MeV, partial wave analysis 4−55668
$\Lambda(1815)\pi^0\to K^-p\pi^0$ in K^-p interactions, threshold to 2170 MeV, partial wave analysis 4−55667
$pp\to\Lambda(\Sigma)+X$, anal. using one-particle (Regge) exchange mechanisms 4−71747
Σ, studied in $K^-p\to\varphi\Sigma^0$, $\rho^0\Sigma^0$, $\rho^-\Sigma^+$ at 4.25 GeV/c, polarisation 4−55688
$\Sigma(1580)$ resonance, prod. in $K^-p\to\Lambda\pi$ 4−77901
$\Sigma(2030)$ $7/2^+$ dominance of reaction $K^-p\to\Lambda(1815)\pi^0\to K^-p\pi^0$, threshold to 2170 MeV, partial wave analysis 4−55667
Σ (2030) and (1940) in $K^-p\to\Lambda(1520)\pi\to K^-p\pi^0$, 1915 to 2170 MeV, partial wave analysis 4−55668
Σ (2030) and (1940) observed in $K^-p\to K^-\Delta^+(1230)\to K^-\pi^0$, 1915 to 2170 MeV, partial wave analysis 4−55669
Σ^- (1385) resonance prod. in np reactions at 4-8 GeV/c 4−74689
Σ^0 in $\pi^-p\to K^{*0}\Sigma^0$, 3.93 GeV/c, polarisation, spin density matrix elements, amplitude analysis 4−59623
Y_1^{*0} in $\pi^-p\to K^{*0}Y_1^{*0}$, 3.93 GeV/c, differential cross sections, spin density matrix elements 4−59623

hyperon scattering
see also hyperon-deuteron scattering; hyperon-nucleon scattering; kaon-hyperon scattering; nuclear reactions and scattering due to hyperons; pion-hyperon scattering
No entries

hyperon spin and parity
SU_3 grouping, oscillator theory of baryon structure 4−74641
$\Lambda\to pe\nu$, spin asymm., test of Cabibbo's model 4−69150
$\Sigma(1580)$ resonance, prod. in $K^-p\to\Lambda\pi$ 4−77901
$\Sigma^-\to ne\nu$ spin asymm., test of Cabibbo's model 4−69150
$\Xi^-\to\Lambda\pi^-$, decay parameters, lifetimes, spin, T invariance, P violation 4−47484
$\Xi^0\to\Lambda\pi^0$, decay parameters, lifetimes, spin, T invariance, P violation 4−47484

hyperons
see also hyperon resonances
No entries

hypersonic flow
axisymmetric bodies moving under conditions of law of locality 4−81910
blunted slender wedges, press. and shock waveshape, calcs. 4−72292
boundary flow around blunt body, non-equilib. air stream *(Russian)* 4−60197
boundary layer, laminar axisymmetric, periodic crossflow effect on heat transfer 4−48199
boundary layer, Reynolds stress meas. by X-array hot wire probe technique 4−48262
expansion tube behaviour of He, Ar, air and CO_2 4−81911
flight results showing Reynolds no. influence on turbulent base press. 4−52422
gaps and slots, including ablation effects 4−75127
hot-wire coil probe for high-speed flows 4−46973
internal flow, with and without viscous interactions 4−75197
ionised, turbulence diagnostics, hot shot wind tunnel 4−48315
jet, supersonic underexpanded in hypersonic stream, mixing layers 4−72327
laminar boundary layer, near sharp compression and expsn. corners, momentum integral method 4−44021
low density, static pressure meas. 4−46990

hypersonic flow continued
merged stagnation shock layers, adiabatic wall case 4−78663
merged stagnation shock layers, cold wall case 4−78664
minimum ballistic factor missile shapes for variable skin friction coeff. 4−75125
nonequilibrium, over blunt bodies, time dependent calc. 4−78620
nonequilibrium ionised radiative gas, around blunt body *(Russian)* 4−52426
plasma, wake of small cylinder 4−66627
rarefied viscous interaction over semi-infinite plate 4−44090
re-entry into Earth's atmosphere, modification of boundary layer eqns. for chemical non-equilibrium *(German)* 4−63560
shock layer, droplet dynamics 4−48351
slender and blunt bodies, pressure tap geometry effects on pressure meas. *(German)* 4−77328
three-dimensional separation for shock wave interaction with turbulent boundary layers 4−48287
turbulent wake, numerical analysis *(Russian)* 4−52444
unsteady near wedge and cone 4−66609
Van Driest generalization applic. to wall meas. in Mach 7.4 wind tunnel 4−48264
viscous gas in narrow extended space, Navier-Stokes eqns. 4−48278
wake of a circular cylinder, cooling effect at M=6 4−78623
Ar, ionized radiating non-equilibrium flow over blunt body 4−60260
H_2-O_2, hot mixture, past blunt body, detonation wave form 4−48297
N_2, dissociating, hypersonic flow over wedge 4−66678

hypersorption *see sorption*

hypertritons *see hypernuclei; tritons*

hypervirial theorem *see quantum theory*

hypochromism *see light absorption*

hypothetical particles
see also intermediate bosons; magnetic monopoles; quarks; tachyons
gluon, influence on e.m. proton form factor *(Russian)* 4−71670
heavy leptons, weak inelastic production and leptonic decay 4−74588
heavy muon, lower limit on mass from CERN neutrino expt. data 4−51708
massive, long-lived, search in Al targets bombarded by 300-400 GeV protons 4−74665
$E^0\to\nu\gamma$, decay rate of heavy electron in Georgi-Glashow model 4−59532
$E^0\to\nu\gamma$, radiative decay of excited neutrino on gauge models 4−55591
$L^0\to\nu_l\gamma$, heavy lepton in gauge theories of weak and e.m. interactions 4−55592

hysteresis
see also coercive force; dielectric hysteresis; elastic hysteresis; magnetic hysteresis; remanence
elastic-plastic $\lambda/2$ oscillator, hysteresis loop 4−53949
liquid crystal, cholesteric, bistability behaviour of texture in elec. field 4−69706
nonlinear, stability of periodic solns. of forced system 4−74263
polymer passivating layers on Si, elec. characts. 4−57171
quartz, thermal expansion and high-low transform., dilatometric obs. 4−75628
quartz, thermal expansion and high-low transform., high temp. X-ray obs. 4−79154
Cu-Mn-Al alloys, magnetisation and coercive force *(Japanese)* 4−45150
EuS, doped, ferromag. semicond. nonuniform state and hysteresis in resistivity 4−82466
Fe-Ti-O system, thermodynamic study 4−75617
N_2, hysteresis in sorption isotherms 4−44765
Nb_3O_2-Nb_2O_5, thermodynamic study at high temperatures 4−63894
SnO_2 film, polycryst., V-I hysteresis *(Japanese)* 4−75984
Ti-O system, thermodynamic study 4−75617
$ZnSnA_s$, elec. cond. temp. depend., phase transitions 4−60616

IC *see integrated circuits*

IC engines *see internal combustion engines*

ice
see also glaciers; snow
amorphous hexagonal frosts, reflectance at 77K in 1400-3000Å range 4−49319
anelastic relaxation, theory for disordered cubic and hexagonal crystals 4−44601
Antarctic, winter 1973, ice conditions 4−68148
Antarctic ice energetics *(German)* 4−61715
western Arctic basin, sea ice ridging 4−64846
Arctic river snow-ice cover, albedo 4−68120
atmosphere, optimal freezing size of supercooled water drops 4−54200
cloud composition, backscattered polarisation technique 4−65000
cloud seeding with artificial ice nuclei, temp. window 4−68188
clouds, drop freezing processes 4−76706
clouds, ice phase initiation, role of contact nucleation 4−70715
clouds, secondary ice particle production during riming 4−46039
columnar ice crystals precipitating from layer clouds, properties 4−54239
comet outbursts, ice phase transition as energy source 4−65131
Coulthard Cave, Alberta, ice blocks 4−64836
crystal, dimensions and aggregation in natural clouds 4−58039
crystal formation from vapour phase, nucleation mechanism *(French)* 4−46017
crystal growth mechanism, habit formation 4−61783
crystal imperfection studies using divergent X-ray technique *(Japanese)* 4−66922
crystallisation from aqueous electrolyte solns., cryst. growth rate rel. to hydration const. 4−70619
dielectric constant, series expsn. in Bernal-Fowler-Pauling model 4−76208
drift ice as cause of polished and striated mud surfaces in St. Lawrence tidal flats, Quebec 4−76671
droplet accretion, electrification 4−70716
etch pit growth and etch channel movement on basal plane *(Japanese)* 4−67116
fishing vessel, small-capacity, icing rate *(Russian)* 4−58048
Galilean satellite i.r spectra rel. to H_2O frost surface 4−50494

ice continued
- growth from droplet accretion, solidification process, struct. investig. 4−63777
- hail, Doppler radar spectra rel. to exponential size distribution 4−70736
- hail pellet growth at cold front 4−80351
- hailstone size distribution function *(Russian)* 4−58031
- hailstones, crystallographic orientation distribs. 4−70726
- hailstorm, Aug. 1971 in Clermont-Ferrand region of France, isotopic content *(French)* 4−68195
- horizontal halo, in divergent light 4−61817
- ice II crysts., CNDO/2 hydrogen bonding calcs. of struct. parameters 4−72446
- ice-water sublimation into vacuum, temp. jumps and heat and mass transfer over permeable surface 4−52883
- III-IX transformation, thermal obs. 4−56877
- intermolecular potential energy function, of water derivation from ice lattice, struct. parameters 4−78536
- intermolecular proton tunnelling effect, model, soln., mechanism for ionic migration 4−48786
- internal field pulse diffraction by ice sphere 4−55435
- interstellar dirty ice mantle destruction by sputtering of He atoms 4−46336
- Laptev Sea, Arctic, atmospheric pressure fields and ice drift relation 4−68149
- light-water ice, incomplete neutron thermalisation at 77 to 4K 4−81525
- Martian craters, central peaks, pingo formation by subsurface permafrost 4−50491
- Martian surface hydrate and solid water from 1969 Mariner IRS obs. 4−54420
- New England coastal storm, crystal structure of natural freezing rain accretion 4−61821
- nucleation, AgI plume characteristics, over Bridger Mountain Range, Montana 4−61792
- nucleation, collision breeding from melt 4−56630
- pack ice off Newfoundland, severity index 4−68147
- particle counter, automatic, response characteristics 4−61930
- particles, formed by release of H_2O in vacuum, light scattering 4−77622
- plate, collision efficiency with supercooled water drop 4−60251
- polar ice and snow, spectrophotometer for meas. 4−68259
- positronium momentum distribution, narrow component temperature dependence 4−82194
- rivers, breakup model 4−68122
- saturation, snow crystal habit, at small excesses of vapour density 4−61782
- sea ice, boundary layer wind profiles 4−83078
- sea ice movement determ. by satellite imagery 4−73587
- seawater conditional instability at freezing point, thermohaline convection 4−57978
- shear strength of polycryst. and single cryst. *(Japanese)* 4−66978
- soil freezing depth calc. function of air temp. and soil moisture *(Russian)* 4−83058
- sticking coefficient and flash desorption of CO_2, critical cluster size determ. 4−48843
- sublimation, aqueous soln. content and ion conc. influence 4−60608
- surface, with mobile water phase, n.m.r obs. 4−63903
- thermokarst processes, E. Banks Island, W. Canadian Arctic 4−76625
- thin oblate spheroid, effect of forced convection on mass transport 4−76697
- under-ice melt pond evolution, double diffusion at freezing pt. 4−64852
- USA, annual frequency of freeze-thaw cycles 4−70733
- vitreous, random tetrahedral model, distrib. function and ang. deforms. 4−78882
- ice:HF, cryst., Hall mobility meas., double freq. method 4−75887
- O-H distance 4−72459

iconoscopes *see television camera tubes*

identification
- *see also control theory; correlation methods; frequency response; modelling; simulation*
- neuromuscular parameter identification, of the muscle spindle in situ 4−83311
- nonlinear oscillating systems, identification on basis of motion due to harmonic excitation *(Russian)* 4−74355

i.g.f.e.t. *see field effect transistors*

ignition
- *see also electric ignition*
- adiabatic homogeneous systems, ignition analysis including reactant consumption 4−57814
- alkali metal, ignition temperature determ. 4−61610
- flame, laminar burning velocity and ignition delay relationship 4−57817
- $C_2N_2-O_2-Ar$ mixtures, ignition of C_2N_2 following shock-wave, investig. rel. to press., temp. 4−61588

II-VI semiconductors
- amorphous and cryst. films, densities of valence states, photoelectron obs. 4−60742
- bilinear optical susceptibility, nondispersive part, Jha-Bloembergen approach 4−57502
- n-CdS, coherent spin flip Raman scatt. 4−57535
- chemical bonding, dielec. theory 4−48538
- e.p.r. of Cr^{2+}, Jahn-Teller coupling coeffs., ligand-field model 4−49226
- exciton theory, dynamical screening, semicond. with zincblende struct. 4−75830
- film, heteroepitaxy on insulating substrate, review 4−49613
- photoconductivity, depend. on free electron concs., calc. for three types of recomb. centres 4−53125
- photoemission spectra, X-ray meas. of valence band struct. 4−53044
- transverse effective charges, tight binding calc. 4−48908
- zinc blende type, local mode freq. for isoelectronic impurities 4−60578
- (Cd, Zn)S film, elec. domain form. in dark, photo-excitation interruption 4−75981

II-VI semiconductors continued
- (Cd,Zn)S, evaporated film, l.f. photocurrent oscill., phase memory effects 4−64116
- $Cd_{0.15}Hg_{0.85}Se$, form of absorpt. edge, conformity to Urbach's rule *(Russian)* 4−82704
- $Cd_{0.25}Hg_{0.75}Te$, magnetophonon oscillations of transverse magnetoresistance 4−57114
- $Cd_xHg_{1-x}Te$, diffusion of Cu and Au, p-n junction displacement obs. 4−48806
- $Cd_xHg_{1-x}Te$, film, reflectivity spectra, 1.7-5.5 eV 4−45328
- $Cd_xHg_{1-x}Te$, galvanomagnetic properties under pressure *(Russian)* 4−82436
- $Cd_xHg_{1-x}Te$, longit. magnetoresistance and Hall coeff. meas. in strong mag. fields, 1.8 to 300K 4−75891
- $Cd_xHg_{1-x}Te$, negative longit. magnetoresistance obs., field depend. 4−75899
- $Cd_xHg_{1-x}Te$ p-n junction, photoelec. props. 4−82478
- CdO microcryst., i.r. absorpt. by surface modes *(Japanese)* 4−79710
- CdS, 28μ-visible conversion using bound excitons 4−65933
- CdS, acoustoelectric domain form., gain meas. 4−44972
- CdS, acoustoelectric interaction, adsorbed gas influence 4−79397
- n-CdS, anomalous mobility behaviour, elec. evidence for impurity pairs 4−72798
- CdS, biexciton energy levels 4−75833
- CdS, changes in local centres, ionising action of γ-rays 4−72724
- CdS, chemomechanical polishing procedure, for substrates 4−76395
- CdS, class I crysts., thermally stimulated desorpt. and its effect on elec. props. 4−67249
- CdS, crystals exciton spectra, absorpt. and luminesc., exciton-exciton interaction effects 4−75829
- CdS, crysts. with nonparabolic cond. bands, one, two-photon absorpt., freq. depend. 4−76279
- CdS, Cu compensated, s.c.l. conduction in thin structures 4−44933
- CdS, current oscillations due to moving temp.-elec. domains 4−57100
- CdS, current oscills., nonuniform illumination at 4600Å 4−60829
- CdS, current saturation 4−82424
- CdS, depend. of photocond. on free electron conc., calc. for three types of recomb. centres 4−53125
- CdS, diffusion constants of Cd vacancies and In-Cd vacancy pairs 4−79186
- CdS, dispersion abnormalities in exciton absorpt. region *(Russian)* 4−76282
- CdS, effect of pressure on spectral distrib. of photosensitivity *(Bulgarian)* 4−57131
- CdS, effects of two photon transition optical props., obs. of stimulates light emission 4−51645
- CdS, elastic surface wave amplification, 30-240 MHz 4−48827
- n-CdS, electron irrad., radiation damage, annealing kinetics, isothermal Hall effect obs. 4−44564
- CdS, energy level spectra of biexcitons and related optical transitions 4−82381
- CdS, epitaxial growth on $CuGaS_2$ for l.e.d. prep. 4−45452
- CdS, epitaxial layers, close spaced technique 4−82813
- CdS, evaporated film, adsorption of O_2, electrical conductance change 4−48837
- CdS, evaporated film, l.f. photocurrent oscill., phase memory effects 4−64116
- CdS, exciton line profiles, wavelength modulated refl. spectra obs. 4−57573
- CdS, exciton orientation by circularly polarized light 4−48948
- CdS, far i.r. cyclotron reson., intense mag. fields 4−75790
- CdS, film, growth model explaining preferred orientation depend. on thickness 4−72662
- CdS, film, negative resist., hysteresis effect 4−82500
- CdS, film, r.f. bias evaporation, ion plating 4−79882
- CdS, fusion, protective props. of B_2O_3 flux 4−45448
- CdS, highly excited, thermal relax., I_1 line shape as temp. probe 4−79789
- CdS, hole capture cross section of class II centres, photocurrent determ. 4−72722
- CdS, I_1 luminesc. line as phonon spectrometer 4−79788
- CdS, inhomogeneous elec. cond., effect on Hall mobility meas. 4−44935
- CdS, Joule heating influence on continuous amplification of ultrasound 4−67262
- CdS, light diffr. by electron wave accompanying acoustic wave *(Russian)* 4−67553
- CdS, long wavelength bound exciton emission 4−49421
- CdS, luminesc. spectrum, free to bound recomb., screening effects, 4.2-80K 4−49420
- CdS, luminesc. transmission, exciton reson., spatial dispersion 4−57629
- CdS, luminescence at 1.3 K not due to biexcitons, but to radiative decay of exciton-impurity complexes 4−48941
- CdS, moving temp.-elec. domains 4−49035
- n-CdS, negative photoplastic effect, illum. with Xe lamp 4−75563
- CdS, obs. of elec. oscills. under uniform illum., existence of trapping centres 4−53126
- CdS, off-axis acoustoelectric domains, Brillouin scatt. 4−44971
- CdS, ohmic contacts of In, heat treatment effects 4−72856
- CdS, photocond., high elec. field domain nucleation due to acoustoelec. flux 4−44968
- CdS, photocond., surface wave acoustoelectric domain excitation 4−75926
- CdS, piezoelec. crystals, u.s. propag. meas., 300 to 900K 4−57147
- CdS, polaron effects in resonant Raman scatt. 4−76257
- CdS, powder layers, corona charging props., heat effect 4−60842
- CdS, prep. by gas transport reactions, thermodynamics 4−49587
- CdS, radiation detector, photocurrent oscill., impurity induced breakdown 4−72826
- CdS, red band luminescent field effect kinetics *(Russian)* 4−61224
- CdS, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
- CdS, single cryst., electron conc., mobility, component v.p. effect 4−72768
- CdS, single cryst., halogen impurities, thermal neutron activation 4−73264

II-VI semiconductors continued
- CdS, single crystal, effects of bound excitons in photocurrent spectrum 4–44963
- CdS, strong magnetic field, formation of stationary domain 4–64120
- CdS, sulphur Kβ emission spectra and electronic struct. 4–79809
- CdS, temp. depend. of exciton luminesc. intensity 4–57626
- CdS, thin film, Hall coeff. meas. 4–58863
- CdS, thin film, surface scatt. effects 4–45029
- CdS, three-photon luminesc. obs. 4–67644
- CdS, trap parameter determ. from temp. depend. of acoustic gain 4–48934
- CdS, u.s. amplification with electron injection from contacts 4–57148
- CdS, with acoustoelectrically amplified phonon flux, time evolution of freq. spectrum 4–79719
- CdS, work function, {0001} faces, air exposure effect, surface resist. depend. 4–60841
- CdS, wurtzite polarised vac. u.v. photoemission, band struct. 4–73239
- CdS barrier, light induced Josephson current obs. 4–76022
- CdS film, acoustic surface wave amplification by transverse electric current 4–57142
- CdS film, heteroepitaxial, optical transmittance and photolum., 77-400K 4–76335
- CdS film, photocond. changes resulting from SO$_2$ chemisorpt. 4–75985
- CdS film, stimulated emission, N$_2$ laser excited 4–53470
- CdS film, thermoelec. and photothermoelec. effects 4–53161
- CdS film, up to 100 microns thick, orientation effects 4–53021
- CdS films, elec. domain form. in dark photo-excitation interruption 4–75981
- CdS single crysts., cond. inhomogeneity effects on elec. and optical props. 4–70015
- CdS surface photopotential, spectral distrib., effects of oxygen and water vapours adsorption 4–60838
- CdS switching, dark stimulation of conductivity *(Russian)* 4–75884
- CdS thin films, hexagonal growth forms 4–82332
- CdS:Bi, film, photocond. response speed 4–44967
- CdS:Cl, high temp. green luminesc. 4–76307
- CdS:Cu, single crystals, impurity structures, electrical properties 4–64079
- CdS:Dy, photocond. and charge phototransfer, 297 and 77K *(Russian)* 4–82459
- CdS:Eu^{3+}, luminesc. and photocond. *(Russian)* 4–79797
- CdS:In, photoluminesc. emission, elec. cond. 4–53509
- CdS:Li, photochem. effects, photocond. meas. 4–72820
- CdS/indifferent electrolyte system, electron transfer involving tunnelling from surface states 4–68009
- CdS-Au diode, Cu diffused, photodetection by light induced barrier modulation 4–60857
- CdS-Au(Cu), Schottky diodes, thin film, obs. of effects of heat treatment 4–49069
- CdS-Ge p-n heterojunction, elec. and optoelectronic props. 4–82482
- CdS-ZnTe heterojunction, light-emitting emission mechanism, expt. 4–61232
- CdS(Se), luminesc. of high density excitons, 4.2-90 K 4–67641
- CdS$_x$Se$_{1-x}$, crysts. with nonparabolic cond. bands, two-photon absorpt., freq. depend. 4–76279
- CdS$_x$Se$_{1-x}$, elec. field excited, light generation at intensity of 10^9 W/cm^2 *(Russian)* 4–73199
- CdSe, Bose condensation of excitonic mols. 4–60765
- CdSe, compressed powder, V-I characts. 4–44917
- CdSe, dispersion, electrokinetics of semiconducting material 4–76607
- CdSe, dynamical processes of high density single excitons and excitonic molecules, luminesc. and absorpt. obs. 4–44877
- CdSe, electrical characts. of free surface determ. by method of electroabsorption 4–67266
- CdSe, electroabsorpt. and electrodispersion, obs. in exciton region at 90K 4–49384
- CdSe, emission, absorption and refl., high density excitons 4–76312
- CdSe, epitaxial growth rate from thermodynamic model 4–44798
- CdSe, exciton condensation, optical spectra evidence *(Russian)* 4–82379
- CdSe, film, incompletely ionized donors as bulk traps 4–45030
- CdSe, film, s.c.l. and thermally stimulated currents 4–60885
- CdSe, film, sensitizing centre form., Li effect 4–60890
- CdSe, granular metal Schottky barrier, Au or Ni cosputtered with SiO$_2$ or Al$_2$O$_3$ 4–44993
- CdSe, luminesc. from acoustoelec. domains 4–53534
- CdSe, nature of fast recombination centres 4–67257
- CdSe, obs. of laser induced phase grating by free carrier generation 4–53547
- CdSe, photoexcited hot electrons and excitons, obs. of recomb. radiation at 2K 4–53519
- CdSe, photolum., effects of deep centres and impurities 4–73170
- CdSe, shallow donor ionisation energies determ. from Hall data anal. 4–75811
- CdSe, single cryst., exciton-exciton and exciton-electron interaction *(Russian)* 4–76298
- CdSe, singly resonant parametric oscill., HF laser pumped, tuneable output 4–55513
- CdSe, VPE growth on sapphire, CdS, elec. resist. meas. 4–70422
- CdSe, with cond. memory, conc. and Hall mobility of electrons *(Russian)* 4–72838
- CdSe film, free surface potential determ. *(Czech)* 4–70085
- CdSe film/LiNbO$_3$ monolithic layered struct., acoustoelec. e.m.f. and electronic gain 4–57146
- CdSe single crystals, refl., absorpt. and luminesc. fine struct. obs., surface effects 4–73136
- CdSe thin films, donor ionis. energy determ. 4–60881
- CdSe:Te, single crystals, obs. of radioluminesc. at Te traps 4–53488
- CdSe-CdS heterojunction, elec. and photoelec. characts. *(Russian)* 4–72860
- CdSe$_x$Te$_{1-x}$ mixed crystals long wavelength optical phonons, random element isodisplacement model 4–76254
- (CdSe)$_x$(ZnTe)$_{1-x}$ photoreflection spectra obs., excitons 4–67613

II-VI semiconductors continued
- p-CdTe, absorption spectrum, optical props. of donor-Cd vacancy complex 4–57587
- n-CdTe, anomalous mobility behaviour, elec. evidence for impurity pairs 4–72798
- CdTe, compressed, dislocation effects on dark cond. and photocond. 4–60826
- CdTe, Creep phenomena *(Russian)* 4–44593
- CdTe, Debye-Waller factors and melting criteria 4–75605
- CdTe, degenerate excitons magneto-optical obs. 4–75835
- CdTe, diffusion constants of Cd vacancies and In-Cd vacancy pairs 4–79186
- CdTe, dislocation struct., transmission microscopy 4–60507
- n-CdTe, domain elec. instability 4–60809
- p-CdTe, electron irrad., defect annealing behaviour 4–60755
- CdTe, epitaxial growth in quasiclosed volume, effect of vapour comp. 4–67727
- CdTe, epitaxial growth in hydrogen current 4–70418
- n-CdTe, exciton-exciton interactions, obs. of laser emission 4–49392
- CdTe, exciton-neutral donor complex luminesc. in mag. field 4–73181
- CdTe, growth from Te rich soln., purification and impurity segregation coeffs. 4–57677
- CdTe, heat treatment effects, surf. cond., lattice ordering ion implantation studies 4–45479
- CdTe, high purity single crystal, elec. props., photoluminescent props. 4–64424
- CdTe, ion implantation, lattice disorder and elec. activity 4–79886
- CdTe, ion implanted layer, electrical activity and radiation damage 4–72498
- CdTe, magneto-optic studies of donor excitation spectra 4–64362
- CdTe, obliquely deposited film, photovoltaic polarity 4–75980
- CdTe, opt. and elec. props. of centres with deep levels *(Russian)* 4–67636
- CdTe, optical props., for i.r. 4–53408
- CdTe, photosensitivity, Hall mobility and photoresponse meas. 4–53124
- n-CdTe, plasmon phonon interaction and free carriers obs. i.r. reflectivity meas. 4–53443
- CdTe, shallow-donor ionisation energies determ. from Hall data anal. 4–75811
- CdTe, thermoreflectance spectra, obs. of struct., 4-9 eV 4–53466
- CdTe, Zeeman splitting and chemical shifts for the shallow donor states 4–64038
- CdTe detectors grown from In-doped Te-rich solns. 4–46814
- CdTe film, electret effect 4–70084
- CdTe film, oblique deposition on glass, obs. of struct. and morphology 4–57010
- CdTe films, multiple p-n junction structures, photomag. effect spectrum 4–75958
- CdTe halogen-doped γ detector developments 4–46824
- CdTe m.s.m. struct., electret and electretphotovoltaic effects 4–67519
- CdTe:Al, In, Cl, I electron conc. and self-compensation obs. 4–53056
- CdTe:Be, impurity-induced far i.r. absorpt. spectra, perturbation model calcs. 4–64414
- CdTe:Br transport characterisation for γ detectors 4–46816
- CdTe:Cl transport characterisation for γ detectors 4–46816
- CdTe:Cl(Br) self-compensation, time of flight technique 4–72761
- p-CdTe:Ge, capture centre parameters, recomb. process *(Russian)* 4–67239
- CdTe:O, luminesc. and elec. props., form. of complex centres 4–76309
- CdTe-In system, phase diagram 4–60590
- CdTe$_x$Se$_{1-x}$ films, photocond. meas. 4–60883
- CdTe$_x$Se$_{(1-x)}$, semicond., interdiffusion coeffs. of chalcogens meas. rel. to conc., temp. *(German)* 4–56921
- Cd$_{1-x}$Zn$_x$S, photoconductive film, prep. by r.f. sputtering 4–79883
- Cds, transmission spectra, spatial dispersion effect, exciton absorption lines 4–70319
- Cu/CdS/Cu multilayer, anomalous behaviour of junctions 4–72867
- GdTe, phonon dispersion relation, 300K, neutron diffr. obs. 4–79121
- Hg$_{0.8}$Cd$_{0.2}$Te, Auger limited carrier lifetimes, photocond. meas. 4–60828
- n-Hg$_{0.8}$Cd$_{0.2}$Te, carrier lifetime obs. at 77 K 4–44965
- n-Hg$_{0.8}$Cd$_{0.2}$Te, galvanomagnetic props., high and low mobility samples 4–67234
- Hg$_{1-x}$Cd$_x$Te, calcs. of carrier conc. in conduction bands 4–53040
- Hg$_{1-x}$Cd$_x$Te, electron mobility calcs. 4–60792
- Hg$_{1-x}$Cd$_x$Te, press. induced gapless state obs. *(Russian)* 4–67168
- Hg$_{1-x}$Cd$_x$Te, single-cryst., Cd distrib. meas. by neutron radiography 4–62573
- Hg$_{1-x}$Cd$_x$Te formation, by Cd implantation on HgTe 4–57706
- α-HgS, film prep. by r.f. sputtering 4–76399
- HgSe, annealing effect on nature of donor defects 4–56735
- HgSe, electron scatt. mechanism, thermal cond., Lorenz number 4–70023
- HgSe, Hall coeff. and mobility meas., temp. depend. 4.2 to 300 K 4–44942
- HgSe, intrinsic carrier conc., temp. depend., overlap energy 4–75895
- HgSe, Shubnikov de Haas oscills., effect of uniaxial stress 4–53045
- HgTe, Cd$_x$Hg$_{1-x}$Te, creep phenomena *(Russian)* 4–44593
- HgTe, dielec. function, reflectivity meas. between 8-300K 4–53442
- HgTe, electron-optical phonon reson. scatt., cond. depend. 4–72765
- HgTe, high mag. fields, mag. sub-bands, k$_z$ depend. 4–75789
- HgTe, ultrasonic attenuation and velocity 4–60557
- HgTe, zero-gap semiconductor, mag. sub-band struct. calc., anisotropic effects 4–67163
- HgTe-ZnTe solid solutions, Maggi-Righi-Leduc effect and thermal cond. meas. 4–57113
- (InAs)$_x$-(CdTe)$_{1-x}$, solid soln., extremal conditions for interband interaction 4–67166
- InP-Zn(Cd)Te, phase equilibrium in quasibinary system 4–69890
- (InSB)$_x$(CdTe)$_{1-x}$, solid solution, bound parameters 4–72702

II-VI semiconductors continued
- $(InSb)_x$-$(CdTe)_{1-x}$, solid soln., extremal conditions for interband interaction 4−67166
- MgO, ab initio investigation of electronic props., density of states of valence and cond. bands 4−67160
- PbSe, band struct. and spin-orbit splitting, electroreflectance meas. 4−73129
- $Zn_xCd_{1-x}Te$, $0 \leqslant x \leqslant 1$, refl., 2.9-9,5 eV, energy gap determ. 4−82715
- ZnO, adsorpt., chemisorpt. of CO, i.r. investig. *(German)* 4−56984
- ZnO, e.s.r. of lattice defects 4−70215
- ZnO, exciton contrib. to nonlinear optical susceptibility 4−69083
- ZnO, exciton interaction in photoluminesc., obs. at 1.9K 4−57617
- ZnO, field effect modulated photoluminesc. 4−45351
- ZnO, film form. by ZnSe oxidation, for u.s. transducer 4−61317
- n-ZnO, γ-irradiated, surface activity investig. by e.s.r., reflectance, adsorpt., cond. meas. 4−57887
- ZnO, heteogeneous powder system, IV characteristics, uncompensated carrier conc. depend. 4−48994
- ZnO, low-energy cathodoluminescence rel. to ZnO-plasma display fabrication 4−61236
- ZnO, sensitisation of photocond. by chemical modification of surface states 4−67247
- ZnO, surface pot. change on oxygen photosorption 4−57158
- ZnO, temperature dependence of the band gap from reflection data 4−67609
- ZnO diode, m.i.s., u.v. electrolum. obs., 100 and 300K 4−76317
- ZnO film, epitaxial elec. cond. during N and O chemisorption *(Russian)* 4−82497
- ZnO film, prep. by r.f. sputtering 4−79881
- ZnO surface, slow relax. of charge, field effect *(Russian)* 4−70087
- ZnO:Li, hydrothermal growth and cryst. perfection 4−49612
- ZnS, acceptor impurity doping during growth, u.v. spectra *(Russian)* 4−67603
- ZnS, blue l.e.d. application 4−49466
- ZnS, cubic, Cu^{2+} centre i.r. absorpt. and emission meas., Zeeman effect 4−67621
- ZnS, deform. stimulated luminesc., dislocations role *(Russian)* 4−79775
- ZnS, donor-acceptor pair luminesc., i.r. stimulation kinetics 4−45359
- ZnS, effective mass approx. for excitons and impurities 4−75806
- ZnS, epitaxial growth, influence of growth conditions in $HCl:H_2$ gas flow 4−53630
- ZnS, exciton line profiles, wavelength modulated refl. spectra obs. 4−57573
- ZnS, faulted, Franz-Keldysh effect and internal fields 4−79703
- ZnS, film, laser beam damage time resolution 4−55500
- ZnS, growth, conditions effect on optical props., hydrothermal method 4−82126
- ZnS, heat treatment influence on phase transitions, α and β phases *(Russian)* 4−67032
- ZnS, monocrystal, polarisation luminesc., centre orientation *(Russian)* 4−82736
- ZnS, optical transition from valence band to local level, plastic deform. effects 4−79769
- ZnS, polytypes, phonon dispersion 4−82236
- ZnS, single cryst., autoepitaxial thick films, substrate effects 4−70427
- ZnS, single cryst. from Ga melt trapping states, thermoluminesc. 4−70369
- ZnS, sulphur Kβ emission spectra and electronic struct. 4−79809
- ZnS, tight-binding model, electronic structure of (110) surfaces *(French)* 4−75940
- ZnS, two-beam two-photon photocond., theory 4−79380
- ZnS, ZnTe, zincblende crysts., phonon dispersion and density of states, Debye temp. determ. 4−60561
- ZnS electroluminescent film sources, ageing mechanism and lifetime improvement *(Russian)* 4−79822
- ZnS film, in Al-ZnS-Au struct., d.c. elec. cond. 4−49088
- ZnS single crysts., stoichiometry deviations from precision density meas. 4−69795
- ZnS single crysts. with stoichiometry deviations, thermodynamic analysis of intrinsic defects 4−69796
- ZnS:Al, single crystal, impurity photoplastic effect *(Russian)* 4−82721
- ZnS:Cu, Br electroluminophors, electron traps rel. to ageing *(Bulgarian)* 4−53533
- ZnS:Cu, Cl, Nd, thin film, excitation mechanism of electrolum., photolum. 4−64440
- ZnS:Cu, electroluminescent comets, field distribution effect, partial dislocations explanation 4−67661
- ZnS:Cu,In, effect of trap filling on shift of thermoluminesc. peak 4−53541
- ZnS:Cu,Mn, electroluminesc., trap spectrum 4−82750
- ZnS:Cu,Mn,Cl films, electrolum. and photoelectrolum. *(Japanese)* 4−76318
- ZnS:Cu:Co, photoconductor, thermally stimulated current curves investig. 4−79343
- $ZnS:Cu^{2+}$, Jahn-Teller effect in $^2T_2$ state, near i.r. absorpt. and emission spectra 4−57584
- ZnS:Mn, polarisation of visible luminesc. under excitation with light obs. 4−57618
- ZnS:Mn laser, appl. of theory of plane optical resonator and waveguide with semitransparent wall *(Russian)* 4−71564
- $ZnS(Se)$-$CuAlS_2(Se)_2$, solid soln., cell dimens., elec. cond. 4−44915
- ZnS_xSe_{1-x}, mixed crystals, optical refl. and electronic struct. 4−76276
- ZnS(Se)(Te), single cryst., synthesis, chem. transport *(German)* 4−76401
- ZnSe, cryst. orientation by chem. etching technique 4−73262
- ZnSe, edge emission and deep centre luminesc. 4−76314
- ZnSe, elec. and optical props. 4−61235
- ZnSe, elec. field excited, light generation at intensity of 10^9 W/cm² *(Russian)* 4−73199
- ZnSe, electron irradiated, e.p.r., close Frenkel pairs 4−66906
- ZnSe, laser induced damage, 1.06 to 10.6 μm 4−62851
- ZnSe, luminesc., donor-acceptor pair lines, energies listed 4−70357
- ZnSe, luminesc. of high density excitons, 4.2-90K 4−67641

II-VI semiconductors continued
- ZnSe, nucleation and growth from vap. on Ge 4−45483
- ZnSe, nucleation and growth on Ge surfaces 4−76406
- ZnSe, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
- ZnSe, single cryst., halogen impurities, thermal neutron activation 4−73264
- ZnSe, sphalerite and wurtzite, epitaxial growth on (111) Ge surface, reproducibility of struct. 4−53615
- ZnSe, sphalerite and wurtzite, epitaxial growth on (111) Ge surface, reproducibility of struct. 4−57700
- ZnSe, velocity and attenuation of injected GHz sound waves, Brillouin scatt. obs. 4−75578
- ZnSe film, r.f. bias evaporation, ion plating 4−79882
- ZnSe Schottky barrier diode, impact ionisation 4−57166
- ZnSe:Al ion implanted, elec. characts. 4−57085
- ZnSe:Be, i.r. lattice absorpt. spectra, localised mode sidebands 4−49403
- ZnSe:Cr, discrete photoionization bands, photocond. and e.p.r. obs. *(German)* 4−48928
- ZnSe:P, ion-implanted, p-n junction, injection electroluminescence 4−61231
- ZnSe-Ge(100) heteroepitaxial system, struct. perfection, annealing, electron microscopy 4−67126
- ZnSe(Te), sp. ht., 15-150K, comparison with values calc. from Raman spectra 4−52899
- $ZnSe_xTe_{1-x}$, mixed crystals at 80K, vac. u.v., meas. 4−76275
- $ZnSe_xTe_{1-x}$, spin-orbit splitting at Γ point, electroreflectance curves 4−57565
- ZnTe, creep phenomena *(Russian)* 4−44593
- ZnTe, dislocation struct., transmission microscopy 4−60507
- ZnTe, exciton line profiles, wavelength modulated refl. spectra obs. 4−57573
- ZnTe, film, energy loss and projected range of 0.3-2 MeV alpha particles 4−69840
- ZnTe, film, s.c.l. and thermally stimulated currents 4−60885
- ZnTe, refr. indices, 0.557→0.707 μm *(French)* 4−73093
- ZnTe amorphous films, frequency depend. of a.c. conductivity, hopping type conduction model 4−44927
- ZnTe thermoreflectance spectra, obs. of struct., 4-9 eV 4−53466
- ZnTe-CdS heterojunction, light-emitting mechanism, expt. 4−61232
- $ZnTe_xSe_{(1-x)}$, semicond., interdiffusion coeffs. of chalcogens meas. rel to conc., temp. *(German)* 4−56921
- ZnTe(Se)(S), Debye-Waller factors and melting criteria 4−75605

III-V semiconductors
- amorphous, electronic density of states, short-range disorder model 4−67148
- amorphous and cryst. films, densities of valence states, photoelectron obs. 4−60742
- bilinear optical susceptibility, nondispersive part, Jha-Bloembergen approach 4−57502
- binary III-V liquidus lines, thermodynamics and computer fits 4−52864
- binary solution, phase equilib. eqns., vibr. energy terms 4−52863
- c GaP:O, cryst. growth, encapsulated Czochralski method, total O content by ion beam analysis 4−45451
- chemical bonding, dielec. theory 4−48538
- chemisorption of O_2, narrow energy gap, self consistent calc. 4−72639
- compound alloy thermodynamics, solid-phase electrolyte utilisation 4−52906
- donors, distrib. coeff. calc. 4−48641
- epitaxial layers, specimen prep. for TEM 4−82092
- exciton theory, dynamical screening, semicond. with zincblende struct. 4−75830
- film, heteroepitaxy on insulating substrate, review 4−49613
- p-GaAs-Mo, point contact junction, zero bias anomaly 4−67278
- p-GaSb, phonon cond. and scattering by bound holes, thermal cond. calc. 4−82239
- heterojunction minority carrier confinement rel. to photocathodes 4−60849
- n-InSb, effect of uniaxial stress on longit. magnetophonon oscills. 4−49009
- n-InSb, helicon wave amplification, by transverse phonon-helicon interaction 4−44969
- n-InSb, low temp. hot electron susceptibility 4−60733
- for laser and l.e.d. applic., review 4−43329
- liquidus and solidus lines, quantitative fits with quasiregular model 4−69894
- magnetoresistance, longitudinal, contrib. of nonparabolic energy bands 4−44944
- n-type, diffusion thermoelec. power calc., func. of temp. 4−49019
- negative electron affinity surface application to vacuum tubes 4−73238
- phonon line broadening with polishing, surface refl. Raman scatt. obs. 4−44625
- photoemission spectra, X-ray meas. of valence band struct. 4−53044
- polar, transport props. in mag. field 4−75904
- pseudobinary liquidus and solidus lines, quantitative fits, quasiregular model 4−52862
- quaternary III-V phase diagram calc. 4−52861
- solubility in metals, 500-1200°C *(German)* 4−69895
- spectrochemical analysis methods, sensitivity increase 4−62614
- superradiative state and echo from coherent quasi-particles in interband transition 4−49391
- surface polariton dispersion relations, attenuated-total-reflection spectra 4−44876
- tetrahedral amorphous, transport props. 4−79360
- transverse effective charges, tight binding calc. 4−48908
- tunnel transitions, polariz. of luminesc. and absorpt., deform. effects 4−49453
- vacancy microscopic characteristics calcs. 4−72462
- X-ray emission, $K\beta_2$ bands 4−82765
- zinc blende type, local mode freq. for isoelectronic impurities 4−60578
- AlAs, energy gaps from photoluminesc. spectra 4−48909
- AlAs, free exciton impurity interaction, optical absorpt. obs., wavelength modulation technique 4−79764
- AlAs-GaAs heterojunctions and devices *(Russian)* 4−75955

III-V semiconductors continued
$Al_xGa_{1-x}As$, electroreflectance, impurity inclusions influence, comp. depend. *(Russian)* 4−67604
$Al_xGa_{1-x}As$, liq. phase epitaxy on GaP *(Russian)* 4−45439
$Al_xGa_{1-x}As$, optical orientation of spins of free and bound electrons 4−79793
$Al_xGa_{1-x}As$, p-n junctions from mol. beam epitaxial layers 4−57163
$Al_xGa_{1-x}As$:Ge, electron diffusion length, comp. depend. 4−60810
$Al_xGa_{1-x}As$:Ge, Sn epitaxial layer, elec. and optical props. rel. to semicond. lasers 4−57095
$Al_xGa_{1-x}As$:Si l.e.d., electrolum. spectra in transition range between direct and indirect band struct. 4−67662
$Al_xGa_{1-x}As$/GaAs double heterostructure laser material, dark-line degradation sites, etching and microscopy obs. 4−51606
$Al_xGa_{1-x}As$-$Al_yGa_{1-y}As$, p-n heterojunction, on GaAs substrate, ($y>x$), electrolum. characts. 4−49468
$Al_xGa_{1-x}As$-GaAs, DH laser material, fluorescence deterioration after microscopic damage 4−57591
$Al_xGa_{1-x}As$-GaAs-$Al_xGa_{1-x}As$, thin heterostruct., quantum states of trapped carriers 4−79407
$Al_xGa_{(1-x)}As$, substrate, SiO_2 thin film deposition, and Auger anal. 4−57720
$Al_xGa_{1-x}P$, epitaxially grown, donor-acceptor pair and bound exciton recomb. 4−73179
$Al_xGa_{1-x}P$ solid solns., epitaxial film, forbidden band width determ. from photoluminesc. spectra 4−67657
$Al_xGa_{1-x}Sb$, growth of film by liquid phase epitaxy with temp. gradient 4−45481
$Al_xIn_{1-x}Sb$ alloys, preparation, electroreflectance spectra 4−76272
AlN, electroluminescence, technology and applications *(Czech)* 4−64439
AlN, obs. of electronic cond., 700-1000 degrees C 4−48973
AlN:O, luminesc. of O impurity centres 4−79776
AlP, energy gaps from photoluminesc. spectra 4−48909
AlSb, impurity radiative recomb., 4.2K 4−82747
p-AlSb, lattice thermal cond. investigation at low temp. 4−67010
AlSb, second harmonic generation using CO_2 laser beam 4−77712
BAs, film deposition, energy gap meas., cryst. struct. 4−45456
BP, synthesis at h.p. 4−61318
Ga-Al-As, semiconducting, ternary melting diag., thermodynamic calc. 4−48738
Ga-As system simple soln. treatment, thermodynamic evaluation 4−52865
Ga-P system simple soln. treatment, thermodynamic evaluation 4−52865
(GaAl)As-GaAs, double heterostructure laser with stripe geometry spectral characts. and inhomogeneities 4−69065
GaAlAs-GaAs-GaAl-As, resonant tunnelling obs., quality depend. 4−67271
$Ga_{1-x}Al_xAs$, liq. phase epitaxy on GaAs with mech. surface corrugations, SEM obs. 4−61290
n-$Ga_{1-x}Al_xAs$, photocond., 140-420K 4−60830
$Ga_{1-x}Al_xAs$, refractive index calc. by semi-empirical method 4−61128
$Ga_{1-x}Al_xAs$ epitaxial layers, comp. determ. by electron probe microanalysis *(German)* 4−50161
$Ga_{1-x}Al_xAs$ superlattice, profiling by Auger electron spectroscopy 4−57692
GaAlAsP, heteroepitaxial layers, dislocation elimination 4−45436
GaAlAsP heteroepitaxial layer on GaAs substrate, dislocation elimination by controlled interfacial misfits 4−49602
$Ga_{1-x}Al_xSb$, optical absorption coeff. and photovoltage meas. near absorption edge *(French)* 4−82713
GaAs, (100) surface, clean and Cs-coated, LEED obs. *(Russian)* 4−48822
GaAs, absorption edge, hot electron effects 4−45322
GaAs, acoustoelectric instability, 77K, domain behaviour 4−72834
GaAs, adsorption of GaI_3, H_2 and mixtures during epitaxial growth 4−67724
n-GaAs, Ag-Ge-In and Au-Ge-Ni ohmic contacts *(Slovak)* 4−64134
GaAs, annealing of radiation defects, elec. props. meas. *(Russian)* 4−67721
GaAs, as-grown, effect of precipitate-like zone on opt. absorptivity 4−60491
GaAs, band struct., influence of impurity ions under moderate doping conditions, expt. 4−48914
n-GaAs, band structure from piezoresistance and Hall coefficient, three band model 4−72704
GaAs, bound exciton line origin, absorpt. and emission spectra obs. 4−44878
GaAs, bulk, chemical etching of structural defects 4−82324
n-GaAs, carrier conc. nonuniformity meas. by Faraday effect, apparatus design 4−68730
GaAs, compensated, hot electron mobility, 4.2K and 1.8K 4−60806
GaAs, compensated, metal-insulator transition in mag. field 4−49048
GaAs, compensated, photocond., induced Mott transition 4−72827
p-GaAs, compensated by defect prod. by fast electron irradiation, anomalous Hall mobility 4−75898
n-GaAs, conc. profile determ. by Faraday effect *(Russian)* 4−53631
GaAs, conduction in disordered layers produced by ion implantation 4−57092
GaAs, crystal degradation by abrasion and subsequent heat treatment 4−49605
GaAs, crystal orientation and imperfections obs. *(Czech)* 4−66801
GaAs, Cu diffusion, epitaxial and bulk samples, carrier conc. 4−60645
GaAs, current-voltage characts. of abrupt n-n^+ junctions *(Italian)* 4−44987
GaAs, cyclotron effective mass 4−72696
GaAs, cyclotron reson., i.r., mag. fields up to 140 T 4−79292
n-GaAs, deep impurity levels and profiles determ. 4−64036
GaAs, degenerate excitons, magneto-optical obs. 4−75835
n-GaAs, depletion region, Raman spectra of LO and TO phonons 4−67591
GaAs, diffusion of Zn, conc. depend., numerical calc. 4−60646
GaAs, directional photoelectron emission from negative electron affinity 4−49530
GaAs, dislocations in (111) As plane, new etching agent 4−67114

III-V semiconductors continued
GaAs, effect of extended defects on thermal cond. 4−48808
GaAs, effects of heat cycling on surface, Rutherford scattering channelling obs. 4−53632
GaAs, electrochemical technique for continuous automatic plotting of donor concentrations over large depths 4−49578
GaAs, electron diffusion, generalisation of Fick's law 4−75846
GaAs, electron energy loss spectra of surface states 4−72840
GaAs, electron impact ionisation, threshold energy calcs. involving band struct. 4−79825
n-GaAs, electron microscope obs. of impurity structural effects *(Russian)* 4−72480
GaAs, electron mobility and electrolytic etching, for f.e.t.'s 4−82414
n-GaAs, electron scatt. pot. for ionized impurity, carrier mobility *(German)* 4−57082
GaAs, electron-hole liq., self-consistent calcs. 4−79319
GaAs, electron-hole recomb. enhanced defect reactions, junction meas. 4−70036
GaAs, electroreflectance-thermoreflectance analogy, data comparison 4−45326
GaAs, energy relax. effect of hot electrons, 77-300K, theory and expt. 4−64094
GaAs, epitaxial, 1.0 eV impurity band in photolum. spectrum 4−61221
GaAs, epitaxial, decay time of optically injected free carriers, reflectivity obs. 4−67252
GaAs, epitaxial deposition from $Ga(CH_3)_3$-AsH_3-H_2 system, thermodynamics, kinetics 4−75724
GaAs, epitaxial film, residual cond. meas. after photoexcitation, elec. field appl. 4−75986
GaAs, epitaxial growth on corrugated GaAs substrate, for periodic p-n junction struct. production 4−73255
GaAs, epitaxial layer, Cu contamination effect on electron mobility 4−75888
GaAs, epitaxial layers, impurity level obs. from photolum. spectra 4−70342
GaAs, epitaxial layers selective growth from solution in Ga melt 4−67726
n-GaAs, epitaxial nondoped, electrophysical props. in temp. range 10-1100K 4−79242
GaAs, epitaxial vapour phase growth in N_2 atm., technique 4−70417
p-GaAs, excitation above band edge, optical pumping and transverse mag. field effect 4−49446
GaAs, excited donor states anal., low temp. photocond. meas. 4−72733
GaAs, far i.r. opt. props. of free carriers 4−82695
GaAs, Faraday effect, intense mag. fields, electron effective mass obs. *(French)* 4−45275
n^+ GaAs, faulted defects and prismatic loops 4−79043
GaAs, film, Stark broadening of photothermal ionisation spectra of donors 4−67626
n-GaAs, free carrier light absorpt., 90-500K, 5-14 μm *(Russian)* 4−82702
GaAs, granular metal Schottky barrier, Au or Ni cosputtered with SiO_2 or Al_2O_3 4−44993
n-GaAs, Hall factor and impurity band conduction 4−72796
GaAs, heat treatment, effect on electrical properties *(Korean)* 4−72797
n-GaAs, heavily doped, luminesc. centre diffusion 4−72590
GaAs, heteroepitaxial on BeO, electrical props. 4−60889
GaAs, high field transport, electron-phonon interactions 4−48992
GaAs, high non-thermal equilib. population of optical phonons 4−56840
p-GaAs, hole relax. time, 300-673K, i.r. spectra obs. 4−48984
GaAs, homogeneous single crystal 1/f noise measurement 4−82438
GaAs, hopping cond., amorphous state, calc. and meas. 4−79359
-n-GaAs, i.r. Faraday effect const. component investigation *(Russian)* 4−53401
n-GaAs, impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
GaAs, impact ionised, recomb. radiation from Landau states 4−82751
GaAs, implanted layer elec. props. 4−75864
GaAs, in system $Ga(CH_3)_3$-AsH_2-H_2, epitaxial layer quality rel. to growth conditions *(German)* 4−48874
GaAs, intense laser flux effects 4−74514
GaAs, ion implanted, comparison of SiO_2, Si_3N_4 and AlN encapsulation dielectrics 4−53616
GaAs, ion implanted, lattice expansion, annealing, X-ray obs. 4−76400
GaAs, ionisation energies of substitutional donor impurities 4−67181
GaAs, ionization energy of shallow donors, mag. field effect, Hall coeff. and elec. cond. obs. 4−60760
GaAs, laser damage thresholds, mechanism 4−55496
GaAs, lattice defects, annealing effects, etch pit obs. *(Japanese)* 4−75531
GaAs, layerwise inhomogeneity in crucible-free zone refined three-dimensional single crystals 4−45434
GaAs, line shapes in donor spectra at high magnetic fields 4−76289
GaAs, liq. phase epitaxial growth mechanism determ., by growth meas. 4−75725
GaAs, liq. phase epitaxy, for microwave devices 4−45460
GaAs, liquid phase epitaxial growth of $Ga_{1-x}Al_xAs$ on corrugated surface 4−61290
p-GaAs, liquid phase epitaxy *(Czech)* 4−61293
p-GaAs, low-temperature thermometry application *(Slovak)* 4−65404
n-GaAs, mag. field depend. of thermoelectric power in extreme quantum limit 4−44949
GaAs, mechanical stress influence on exciton and magnetooptic absorption spectra 4−67611
GaAs, metal vacancy form. energy, atomistic calc. 4−69803
p-GaAs, minority carrier distrib. and lifetime effects on threshold current of EBP laser 4−55483
GaAs, minority carrier lifetime measurement 4−57105
GaAs, minority carrier lifetime, temp. depend., photoelectric meas. 4−67228

III-V semiconductors continued
GaAs, n-n$^+$ epitaxial layer, for Gunn diode, mobility and carrier conc. 4−64087
GaAs, native oxide growth, struct., comp., elec. and encapsulating props. 4−67123
GaAs, nonlinear optical susceptibility dispersion, 1.19-1.78 eV 4−62865
GaAs, nonlocal pseudopotential calc. 4−44849
GaAs, nonsaturating velocity-field characts., domain meas. 4−75870
GaAs, obs. of anisotropic scatter characts. of β-particles 4−48663
GaAs, ohmic contact, Schottky model *(Czech)* 4−60853
GaAs, ohmic contact technique 4−45441
GaAs, ohmic contacts, elec. props. *(Czech)* 4−60854
GaAs, optical orientation of spins of free and bound electrons 4−79793
GaAs, optically pumped, emission under drifting field 4−73138
GaAs, phase equilibrium, solid-vapour phase 4−44652
GaAs, photocathodes and secondary emitters, with negative electron affinity *(Czech)* 4−64471
GaAs, photoconductivity and absorption in 2 to 0.25 mm range using backward wave tube generators 4−53127
n-GaAs, photocurrent oscill., phase memory effect 4−44959
GaAs, photoexcited hot electrons, energy relaxation 4−44930
p-GaAs, photofield emission, sensitivity, time characts. *(Russian)* 4−67704
n-GaAs, piezoresist. and Hall coeff., 78-400K 4−49025
GaAs, pseudopotential calc. of piezoelectric constant 4−79676
GaAs, recombination uniformity control *(Russian)* 4−72794
GaAs, recrystn. from melt, effective distrib. consts. of excess basic components, calc. 4−49625
GaAs, refr. index, n- and p-type, carrier conc. depend., 1.2-1.8 eV 4−67543
GaAs, refractive index, doping and current depend. rel. to laser props. 4−49322
GaAs, resonant piezoelectrooptical laser modulation 4−58846
GaAs, saturation of interband absorption with allowance for spatial field inhomogeneities 4−67558
GaAs, Schottky barrier avalanche photodiodes, obs. of unequal electron and hole impact ionisation coeffs. 4−60800
GaAs, Schottky barriers and p-n junctions from mol. beam epitaxial layers 4−57163
GaAs, selectively etched diffr. grating form. 4−79875
GaAs, single cryst., dislocations produced by device fabrication 4−61320
GaAs, small signal characteristics at high fields 4−60802
GaAs, solubility in Pb, 500-1200°C *(German)* 4−69895
GaAs, sputtered epitaxial film, constrained and metastable structures 4−75723
GaAs, structure investigation, comparison with amorphous Ge 4−82115
n-GaAs, surface electric field influence on absorption coeff. 4−67612
GaAs, surface stoichiometry and struct. during growth 4−56947
GaAs, surface vibrational amplitudes, LEED obs. 4−56955
GaAs, TO phonon hole interaction, direct tunnelling obs. 4−53145
GaAs, Tamm states, k.p calc. 4−57156
GaAs, technology for microwave and optoelectronic devices 4−49580
GaAs, temp. depend. of electron mobility, lattice mobility curve 4−82398
n-GaAs, thin epitaxial film, drift mobility, time of flight technique 4−60798
GaAs, ultrasonic attenuation and velocity 4−60557
GaAs, undoped layer growth in quartz boat, carrier concs. 10^{14} cm^{-3} range 4−67736
GaAs, vacuum deposition technique using AsH$_3$ 4−53629
GaAs, vapour grown, transmission mode negative electron affinity, photoemission characs. 4−79844
GaAs, vapour phase deposits, growth at different substrate temps. 4−49585
GaAs, vapour phase epitaxial growth in AsCl$_3$-Ga-N$_2$ system 4−53611
GaAs, vapour phase epitaxial growth, difference in (001) facet and vicinal planes 4−57680
GaAs, vapour phase epitaxy, selective, for optically pumped mesa surface laser 4−55479
n-GaAs, very low resistance Ni-AuGe-Ni contacts 4−60860
GaAs, wave-vector dependence of electron-optical phonon coupling 4−56841
GaAs, waveguide, phase matched second harmonic generation 4−77703
GaAs and solid solns., g-factor, transverse optical orientation effect *(Russian)* 4−70381
GaAs anodic oxidation, props. of oxide film 4−49606
GaAs electron-hole pair creation average energy, bandgap dependence 4−79316
n-GaAs electrons velocity meas. in range 20 to 50 kV/cm 4−70024
GaAs epitaxial and polycrystalline growth in GaAs-I$_2$-He 4−44795
GaAs epitaxial growth from liquid phase *(Slovak)* 4−82823
GaAs epitaxial layer, liquid phase grown on semi-insulating substrate, elec. props. 4−64088
GaAs epitaxial layer preparation, from gaseous phase *(Czech)* 4−64506
GaAs epitaxial layers, electron density and mobility, photoluminescence and deep traps obs. *(Japanese)* 4−45025
GaAs etching by HCl-AsH$_3$-H$_2$ gas mixtures, thermodynamics 4−53619
GaAs film, electroabsorption, influence of built-in electric field 4−67610
n-GaAs film, epitaxial, peculiarities of field effect *(Russian)* 4−72878
GaAs film, epitaxial growth on MgAl$_2$O$_4$ and props. 4−45472
GaAs film, in GaAs-Al$_x$Ga$_{1-x}$As double heterostruct., absorpt. and photolum. obs. 4−53549
GaAs film, laser deposition, structure w.r.t. vapour composition *(Russian)* 4−79884
GaAs film, morphology depend. on liq. phase epitaxy conditions 4−60701
GaAs film, selective depositing on sapphire substrates 4−45442

III-V semiconductors continued
GaAs films, growth from soln. by pulling between two parallel substrates 4−45446
n-GaAs films, microwave heating effect on I/V characteristics 4−70034
GaAs junction, anisotropic etching behaviour 4−60694
GaAs junction laser, photon lifetime, laser length depend. 4−59430
GaAs junction laser, reflectivity depend. of photon lifetime 4−47355
GaAs laser, electron-hole recomb., non conservation of k-selection rules at 2K 4−59429
GaAs laser diode, pulse generator, 110 nsec for waveguide studies 4−42822
GaAs lasers double heterostructure optical communication application 4−77721
GaAs layers, liq. phase epitaxy technology 4−53606
GaAs liquid phase epitaxial growth from supercooled solns. 4−49604
GaAs luminescence, using laser excitation *(Russian)* 4−76290
GaAs m.o.s. electroluminescence *(Russian)* 4−73195
GaAs monocrystals, high temperature metallography *(Czech)* 4−64508
GaAs monocrystals, synthesis and growth *(Czech)* 4−67719
GaAs native oxide, mask for Zn diffusion 4−61315
GaAs negative affinity X-ray photocathode for imaging detectors 4−50728
GaAs nonuniform semiconductor, SEM microanalyser in cathodoluminescent mode *(Russian)* 4−71250
n-GaAs obs. of temp. quenching in 1.28-1.30 eV emission band 4−53521
GaAs photodetectors, low temp. charge transfer electrophotographic systems 4−71215
GaAs Pockels cell, single nanosecond pulse selection of CO$_2$ laser, reliable half wave operation 4−51083
GaAs Schottky barrier, reaction rate for Pt electrode 4−53604
GaAs Schottky barriers, photocapacitance effect 4−44964
GaAs semiconductor laser, time characts. at near threshold currents 4−65921
GaAs single cryst., impurities and elec. inhomogeneity, layerwise distrib. 4−49022
GaAs substrate, for device applic., crystal growth and synthesis 4−57715
GaAs surface roughness, influence of thermal oxidation obs. *(Czech)* 4−64509
GaAs u.s. meas., electrical conductivity and charge carrier mobility obs. *(Slovak)* 4−64074
GaAs vacuum evaporated films, reflection splitting in RHEED investigations 4−56760
GaAs:$^{n,m,n+m}$Si, (n=28,30), i.r. absorpt. 4−57514
GaAs:(Se,Si), epitaxial layer, transfer of dopant from AsCl$_3$, carrier conc. 4−44555
GaAs:B, defect. activated first order Raman scatt. from phonons obs. 4−67586
GaAs:C, epitaxial layer, photoluminescence obs. 4−64423
GaAs:Cd, impurity ion capture by vacancies in implanted layers 4−75648
GaAs:Cr, excited levels of Cr centre in reson. with cond. band., optical absorpt. and photocond. obs. 4−48932
GaAs:Cr, high resistivity, optically induced modulation of absorption 4−76287
n-GaAs:Cr, optical absorpt. meas., extrinsic transitions localised levels investig. 4−64413
GaAs:Cr, semi-insulating, with mixed cond., Hall and magnetoresist. meas. of carrier mobility 4−53108
GaAs:Cr-In, symmetric structure, negative resist. effects 4−75952
n-GaAs:Cu, field-induced deform. of impurity luminesc. spectrum 4−49457
GaAs:Cu, negative photocond. obs., quenching of injection current 4−67259
p-GaAs:Cu, temp. quenching of Cu-induced 1.35 eV emission band 4−79790
GaAs:Fe, compensation mechanism, Hall effect, e.s.r. and a.p.r. obs. 4−48933
GaAs:Fe, mag. susceptibility, temp. depend. 4−49156
GaAs:Ge, electron lifetime and diffusion const. 4−75853
GaAs:Ge, LPE, electrolum., photolum. and minority carrier diffusion length, dislocation effects 4−53008
GaAs:Ge, Si-Te epitaxial layer, elec. and optical props. rel. to semicond. lasers 4−57095
GaAs:Mn, photoionisation cross section, 0.11-0.45 eV 4−49357
GaAs:N, i.r. refl., dispersion parameters, implantation effect 4−76243
GaAs:Na, electroluminesc. theory 4−67663
GaAs:Ni, obs. of acceptor level ionisation energy by opt. absorpt. spectra 4−49408
GaAs:O energy spectrum of impurity levels, photocond. and photoluminesc. meas. 4−67656
GaAs:O films, effect of growth temp. on phys. props. 4−45026
GaAs:P, laser device, optical scatt. loss due to impurity addition to ternary layer 4−55480
GaAs:Se, electron conc., influence of subsidiary extrema in conductivity zone 4−44817
GaAs:Se, epitaxial layer, strain, precipitation, dislocations 4−82329
GaAs:Se dendrites, cryst. conditions effect on elec. props. 4−44912
GaAs:Se proton-enhanced diffusion, theory and expt. 4−49590
GaAs:Se solid solutions, lattice constant meas. and elec. props. investigation 4−45450
GaAs:Si, Fermi level effect on Si site distrib. 4−60753
GaAs:Si, fusion-epitaxial layer production for l.e.d's *(German)* 4−49629
GaAs:Sn, highly doped single crysts., X-ray topographic obs. *(German)* 4−82184
GaAs:Sn layers, epitaxial growth and impurity conc. 4−49579
GaAs:Sn(Si)(Ge), compensation mechanisms investigation 4−67180
GaAs:Te, irrad. parameters depend. of elec. props. 4−60790
GaAs:Te, nature of small etch-pits 4−82325
n-GaAs:Te, photoluminesc. spectra in strong mag. field to 300 kOe 4−49455
GaAs:Te, solid soln., lattice const., elec. props., Te interstitial and vacancy conc. 4−44531

III-V semiconductors continued
GaAs:Te 70 keV ion implantation, annealing effects, photoluminescence and He ion channelling obs. 4−49610
GaAs:Te dendrites, cryst. conditions effect on elec. props. 4−44912
GaAs:W(Ti)(Co)(Mo)(Cr), deep level impurities, photolum. identification 4−76308
GaAs:Zn, Hall effect meas., annealing effect 4−44939
GaAs:Zn, structural perfection of Zn diffusion layers in single crystals 4−67274
GaAs:Zn,Sn, lateral diffusion when using phosphosilicate glass masks 4−57697
GaAs/Ge heterojunction, gas transport and vacuum condensation, struct. effects *(Russian)* 4−73258
GaAs-Al$_x$Ga$_{1-x}$As double heterostruct. laser, degradation 4−51607
GaAs-AlAs, superlattice, high field transport, domain form., tunnelling 4−70027
GaAs-AlAs heterojunction-based l.e.d.s 4−82753
GaAs-Au contact, barrier height, semicond. surface layer thickness depend., interpretation 4−53144
GaAs-Ga$_{1-x}$Al$_x$As, laser, current depend. on carrier lifetimes 4−59428
GaAs-Ga$_{1-x}$Al$_x$As double heterostructure laser diode, with output power >80 mW, continuous operation over 2500 hr 4−74507
GaAs-GaAlAs double heterostruct. cryst., dark line growth from cryst. defects 4−72467
GaAs-GaP p-p heterojunctions, surface and interface recomb. vel. meas. 4−67276
GaAs-Te, effect of heat treatment on struct. perfection 4−48759
GaAsP, ohmic contact technique 4−45441
GaAsP, p-n junctions, growth from gaseous phase *(Czech)* 4−64506
GaAs(P), thermoreflectance, obs. of struct., 4-9 eV 4−53466
GaAs$_{0.6}$P$_{0.4}$, p-n junction, multiple level defects in n-type material, photocapacitance meas. 4−75953
GaAs$_{0.62}$P$_{0.38}$, elec. and electroluminesc. props., effect of reactant gas vapour pressure during growth 4−57709
GaAs$_{0.62}$P$_{0.38}$, refr. index, 1.2-2.0 eV 4−67544
GaAs$_{0.62}$P$_{0.38}$, Zn ion implantation, light emitting diode appl. 4−49577
GaAs$_{1-x}$P$_x$, electroluminesc. obs. at 77 and 295K with x corresponding to indirect band struct. 4−67665
GaAs$_{1-x}$P$_x$, epitaxial, chemical etching of structural defects 4−82324
GaAs$_{1-x}$P$_x$, liq. epitaxy at const. temp. 4−82830
GaAs$_{1-x}$P$_x$, uniaxial stress effects on red emission characts. of l.e.d. 4−53535
GaAs$_{1-x}$P$_x$ ($x>0.06$) vapour phase epitaxy, gas-solid relationships and optimum growth conditions 4−53618
GaAs$_{1-x}$P$_x$:N, ion implanted, photolum. 4−53497
GaAs$_{1-x}$P$_x$:N, ion-implanted, ($x=0.52$), photolum., 2K 4−76296
GaAs$_{1-x}$P$_x$:N, quasidirect recomb. and l.e.d. performance, cryst. comp. effects 4−70365
n-GaAs$_{1-x}$P$_x$:N, Zn, photoluminesc., radiative recombination investig. 4−64434
GaAs$_{1-x}$P$_x$:N,Zn, recomb. transitions in direct and indirect comp. regions 4−53494
GaAs$_{1-x}$P$_x$:N$^+$, radiative recomb., behaviour of above-gap NN pair states, 77K 4−59432
GaAs$_{1-x}$P$_x$:Se,Te, epitaxial growth using sandwich method *(Czech)* 4−67720
n-GaAs$_{1-x}$P$_x$-Au, barrier height depend. on energy gap 4−82481
GaAs$_x$P$_{1-x}$, prep. of thin films using controlled PH_3 and AsH_3 deposition 4−53629
GaAs$_x$P$_{1-x}$ lattice-mismatched depoists on GaAs, asymmetric cracking obs. 4−49607
GaAs$_{1-x}$P$_x$(:N), spontaneous and stimulated carrier lifetimes 4−49416
GaAs(Sb), Debye-Waller factors and melting criteria 4−75605
GaAsSb-GaAlAsSb, liq. phase epitaxy, lattice matched heterojunction 4−45457
GaAs$_x$Sb$_{1-x}$, intrinsic photocond. in presence of mag. field to 65 kG *(French)* 4−49034
GaAs(c), vapour press. of As investig., enthalpies of form., decomp. determ. 4−52886
Ga$_y$In$_{1-y}$As$_x$P$_{1-x}$, band gap and lattice constant as function of alloy comp. 4−72697
Ga$_{0.5}$In$_{0.5}$P, p-p junction, electrolum. 1.70 to 1.90 eV 4−76320
Ga$_x$In$_{1-x}$P, epitaxial, $0.45<x<0.5$, photolum., 4.2-300K 4−82746
Ga$_x$In$_{1-x}$Sb, scattering processes, transport phenomena under pressure 4−57096
Ga$_x$In$_{1-x}$Sb solid solns., liq. phase epitaxy, conditions for homogeneous growth *(French)* 4−53605
Ga$_x$In$_{1-x}$Sb velocity field characteristic 4−75869
GaN, band struct., props. and possible applications, review 4−75783
GaN, cathodoluminescence, and method of growth from Ga_2O_3 4−76323
GaN, electroluminescence, technology and applications *(Czech)* 4−64439
GaN, epitaxial, built-in strain effect on luminescence and absorption spectra 4−82740
GaN, epitaxial growth from Ga, HCl and NH_3, growth parameters, kinetics 4−45477
n-GaN, epitaxial layer, i.r. Faraday rotation obs. at room temp. 4−70284
n-GaN, epitaxial vapour deposition, carrier conc., mobility and photoluminescence *(Japanese)* 4−45438
GaN, fundamental energy gap, determ. from photolum. excitation spectra 4−79291
GaN, grown by vapour phase epitaxy, i.r. absorption 4−53425
GaN, growth from vapour morphology and lattice struct. 4−45478
GaN, growth of sphalerite struct. by vapour phase reaction 4−53633
GaN, i.r. absorption spectra, phonon-plasmon modes 4−67573
GaN, semi-insulating and degenerate n-type, heat-cleaned or caesiated, photoemission 4−73235
GaN film, s.c.l. current flow 4−79421
GaN:Cd, epitaxial layer, luminesc., 1.6-300K, energy depend. 4−61207
GaN:Mg point contact diodes, violet electrolum. 4−76316
GaN:Zn, photoluminesc., implanted ion conc. depend. 4−45348
GaN:Zn, photoluminescence 4−61206
GaN:Zn-In, metal-insulator-n-type diode, electrolum. model 4−70367

III-V semiconductors continued
GaP, annealing effect obs. by photoluminesc., Hall effect and X-ray diffraction 4−49012
p-GaP, anomalous defects, etching obs., doping depend. 4−75528
GaP, binary phase system, vapour press. investig., liquidus composition, thermodynamic props., determ. 4−52867
GaP, classical particle description of photons and phonons, synthesis of classical mechanics and geometrical optics 4−74200
GaP, conduction band X_3 effective mass and spontaneous emission time of X_1 and X_2 conduction band transitions 4−60739
GaP, cryst. growth rate using synthesis, solute diffusion method, rel. to P diffusion in liquid Ga 4−45469
GaP, crystal orientation and imperfections obs. *(Czech)* 4−66801
n-GaP, deep donor states, thermally stimulated current obs. 4−57046
GaP, electrolum. spectra, 77-293K *(Russian)* 4−53537
GaP, epitaxial growth from fluid phase *(Czech)* 4−61297
GaP, epitaxial layers, dislocation density 4−60702
GaP, GaP:Al and GaP:In free excitons in luminescence spectra 4−73183
GaP, green emitting diodes, electrolum. decay time, quantum efficiency 4−64441
GaP, green-emitting p-n junction lamps, nonradiative recomb. centres 4−64132
GaP, growth from non-stoichiometric and stoichiometric melts *(Czech)* 4−64505
GaP, high pressure growth for l.e.d.'s 4−57689
p-GaP, hole mass, sub mm cyclotron reson. in pulsed mag. field 4−72698
GaP, homogeneous single crystal 1/f noise measurement 4−82438
GaP, ion-implanted, optical props. and channelling 4−61307
GaP, l.e.d. fabrication by heteroepitaxy on spinel substrate, props. 4−49624
GaP, large area vapour phase epitaxy *(Czech)* 4−61294
p-GaP, lattice thermal cond. investigation at low temp. 4−67010
GaP, N conc. determ., light absorpt., proton induced nucl. reactions 4−61313
GaP, N doping using NH_3 dopant source 4−70421
GaP, n-ν, p-ν-n structs., elec. and photoelec. characts. 4−70068
GaP, ohmic contact, Schottky model *(Czech)* 4−60853
GaP, one and two phonon Raman spectra up to 128 kbar 4−57533
GaP, p-n junction, thermally stimulated current meas., trap levels 4−49060
GaP, p-n junction, ZnO and O centre characts., apparatus 4−74092
GaP, photocathodes and secondary emitters, with negative electron affinity *(Czech)* 4−64471
GaP, radiative exciton recomb. on isoelectronic impurities *(Russian)* 4−79803
GaP, reaction with NH_3, form. of GaN or GaP:N 4−45444
GaP, selective resonant enhancement in two-phonon Raman spectrum 4−57551
GaP, semiconductor-to-metal transition under high press. 4−44975
GaP, solubility in Pb, 500-1200°C *(German)* 4−69895
GaP, sp. ht., 15-150K, comparison with values calc. from Raman spectra 4−52899
GaP, temp. depend. anal. of charge carrier conc. 4−82397
GaP, vacuum deposition technique using PH_3 4−53629
GaP, vapour phase epitaxy, dislocations, and effects on l.e.d. performance 4−57710
GaP, zone melting without crucibles, power regulation *(Bulgarian)* 4−57694
GaP crystals, luminesc. quality, optical techniques for characterisation, review 4−73194
GaP epitaxial layer, growth using chloride transport method, influence of temperature distribution obs. *(Czech)* 4−64507
n-GaP epitaxial layer obs., using electrical and mass-spectral methods *(Czech)* 4−64511
GaP film, laser deposition, structure w.r.t. vapour composition *(Russian)* 4−79884
GaP films, vapour deposition on NaCl and mica, structure obs. 4−49584
GaP high-brightness yellow and green LED display prod. by vapour phase epitaxy 4−49630
GaP layers on Ge substrate, prep. and struct. props. 4−48873
GaP liquid phase epitaxy, N incorporation rel. to growth temp. and NH_3 partial pressure 4−53617
GaP monocrystals obs., epitaxially grown, secondary ion mass spectrometry application *(Czech)* 4−64510
GaP p-n junctions, growth from gaseous phase *(Czech)* 4−64506
GaP polycrystals, direct synthesis and vertical Bridgman method *(Czech)* 4−67719
GaP solid composition, Ga and P vacancy conc. isobars 4−52753
GaP solidus curve, Ga and P vacancy conc. determ. 4−52752
GaP substrate, for device applic., crystal growth and synthesis 4−57715
n-GaP surface barrier structure, forward current flow mechanism 4−82483
GaP:Cr, excited levels of Cr centre in reson. with cond. band, optical absorpt. and photocond. obs. 4−48932
GaP:Fe^{3+}, first ENDOR meas. on defect centre *(German)* 4−76193
GaP:Ge, photluminesc., pair emission bands, temp. depend. 4−53507
GaP:Ge, photocond. quenching by impurity levels 4−75923
GaP:Ge, photoluminesc., pair emission band shapes 4−53506
GaP:N, 1.6K photoluminesc. at high N concs. 4−49451
GaP:N, electron ground state, screened ionic pseudopotential 4−60754
GaP:N, hydrostatic press. effect on photocond. and electroluminesc. 4−45365
GaP:N epitaxial layers, doping, use of GaN *(Czech)* 4−61296
GaP:O, pseudo impurity theory for binding energy of first-row deep donors 4−57049
GaP:S, Mn^{2+}, Zn^{2+} ion implantation 4−79876
GaP:S,C, luminesc. obs. at 8K, use of pulsed dye laser system 4−65425
in-GaP:Te, free-carrier piezobirefringence obs., shear-deformation potential const. determ. 4−67552
p-GaP:Zn, diffuse layers prep. with low surface conc. *(Czech)* 4−61295

III-V semiconductors continued
p-GaP:Zn,O, dope-dependent luminescence efficiency degradation, obs. 4−49465
GaP:Zn,O(Te) p-n junctions, Zn and Te dopant parameters from C-T meas. 4−60850
GaP:Zn(S), minority carrier diffusion length, lifetime, conc. depend. 4−72763
n-GaP-Au, surface barrier structure, photoelectric properties in u.v. spectrum 4−72866
GaP$_{0.3}$As$_{0.7}$:Zn, excess circular polarization of luminesc. as result of optical orientation of spins 4−57625
n-GaP$_{0.35}$As$_{0.65}$, magnetis. by light and n.m.r. during optical pumping in transverse field *(Russian)* 4−79615
GaP$_x$As$_{1-x}$, optical orientation of spins of free and bound electrons 4−79793
GaSb, amorphous, band struct., Kohn variational method 4−69976
GaSb, electron beam pumped laser, KGS-3, stimulated emission obs. at 1.6 μ 4−77687
p-GaSb, excitation above band edge, optical pumping and transverse mag. field effect 4−49446
GaSb, $\Gamma(000)$ conduction band parameters, Faraday effect meas. 4−44852
p-GaSb, high field Hall coeff., uniaxial stress effect 4−49008
p-GaSb, lattice thermal cond. investigation at low temp. 4−67010
GaSb, luminesc. quasiexciton nature, phase transition possibility in eectron-hole plasma 4−76310
GaSb, nonlinear optical susceptibility dispersion, 1.19-1.78 eV 4−62865
GaSb, ohmic contacts, prep. and props. 4−64136
p-GaSb, phonon cond. and photon scattering by bound holes 4−82239
GaSb, TO phonon hole interaction, direct tunnelling obs. 4−53145
GaSb monocrystals, high temperature metallography *(Czech)* 4−64508
GaSb vapour phase deposits, growth at different substrate temps. 4−49585
GaSb:Li, compensated, obs. of free hole and hopping transport props., Hall effect meas. 4−53110
n-GaSb:Te, Nernst-Ettingshausen effect, Seebeck coeff. and electron scatt. 4−44938
Gap:Ge, cond. and photoluminesc., conc. depend. of Ge behaviour 4−79348
(In,Ga)As, photoemission, Cs-O activation temp. effect on surface escape probability 4−64472
(In,Ga)As, vapour grown, transmission mode negative electron affinity, photoemission characs. 4−79844
In-GaAs:Cr-In, recom., radiation, high-freq. instability in strong elec. fields *(Russian)* 4−73198
In-P system simple soln. treatment, thermodynamic evaluation 4−52865
InAs, acoustic deformation pots. calc. 4−64024
InAs, amorphous, band struct., Kohn variational method 4−69976
n-InAs, compensated, galvanomagnetic properties meas. 4−75897
InAs, donor-acceptor interaction investigation from Hall effect and microhardness meas. 4−67237
InAs, epilayer, anomalous transport coeffs. 4−79417
InAs, epitaxial, minority carrier lifetime, photoconductive signal decay meas. 4−45024
InAs, Ge$^+$, Si$^+$ ion implantation, donor and acceptor levels, annealing effects 4−75816
n-InAs, helicon propag. in quantised mag. field *(Russian)* 4−72815
n-InAs, Raman scatt. by wave-vector-dependent LO-phonon-plasmon modes 4−79726
InAs, solubility in Pb, In, Sn and Bi, 500-1200°C *(German)* 4−69895
InAs crysts. from gaseous phase, morphology and struct. perfection *(German)* 4−49618
n-InAs:Se, modulated reflectance meas. at fundamental gap at 85K 4−45337
InAs:Zn,Te, carrier conc., impurity conc. depend. rel. to solubility limit, Hall meas. 4−75818
InAs-GaAs solid soln., iodide transfer, effect of source comp. 4−53610
(InAs)$_x$-(CdTe)$_{1-x}$, solid soln., extremal conditions for interband interaction 4−67166
InAs(Sb), thermoreflectance, obs. of struct., 4-9 eV 4−53466
InAs(c), vapour press. of As investig., enthalpies of form., decomp. determ. 4−52886
In$_{1-x}$Ga$_x$As, thermal diffusivity and thermal cond., depend., 300-750K 4−56850
In$_x$Ga$_{1-x}$As, epitaxial layer, electron Hall mobility meas., phonon and disorder scatt. 4−45028
In$_x$Ga$_{1-x}$As epitaxial film, optical absorpt. coeff. as function of x and Zn acceptors 4−45316
InGaP:N, electron ground state, screened ionic pseudopotential 4−60754
In$_{0.48}$Ga$_{0.52}$P, on GaAs, luminesc., laser and carrier lifetime behaviour 4−49417
In$_{0.5}$Ga$_{0.5}$P-Ga$_{0.4}$Al$_{0.6}$As, growth and laser operation 4−77682
In$_{1-x}$Ga$_x$P, laser quality cryst., direct-indirect transition 4−76303
In$_{1-x}$Ga$_x$P:Te, carrier conc., cond,, Hall mobility, temp. depend. 4−82408
In$_{1-x}$Ga$_x$P:Te, Hall mobility, comp. depend., 300K 4−75890
In$_{(1-x)}$Ga$_x$P, liquidus isotherms determ. rel. to temp., by cryst. dissolution method 4−52866
In$_x$Ga$_{1-x}$P lattice-mismatched deposits on GaAs, asymmetric cracking obs. 4−49607
n-InP, Ag-Ge-In and Au-Ge-Ni ohmic contacts *(Slovak)* 4−64134
InP, bound exciton line origin, absorpt. and emission spectra obs. 4−44878
n-InP, bulk and epitaxial, vel.-field characts. 4−82402
InP, degenerate excitons, magneto-optical obs. 4−75835
InP, epitaxial growth, molar fraction effect in PCl$_3$-In-H$_2$ system 4−73263
InP, exciton reflectance, surface characts. and field depend. 4−45325
InP, film growth from In and P$_2$ beams in u.h.v. 4−64515
InP, high field domains, transient behaviour 4−57102
InP, high field transport, electron-phonon interactions 4−48992

III-V semiconductors continued
p-InP, hole mass, sub mm cyclotron reson. in pulsed mag. field 4−72698
InP, ionization energy of shallow donors, mag. field effect, Hall coeff. and elec. cond. obs. 4−60760
n-InP, magnetophonon effect, warm electron relax. 4−57107
InP, melt-growth rel. to phase equilibria and v.p. of P and In-P systems 4−60593
InP, oscillatory magnetoabsorption spectrum 4−73134
InP, second harmonic generation using CO$_2$ laser beam 4−77712
InP, small signal characteristics at high fields 4−60802
InP, solubility in Pb, In, Sn and Bi, 500-1200°C *(German)* 4−69895
InP polycrystals, direct synthesis and vertical Bridgman method *(Czech)* 4−67719
InP:Te, Se, S, epitaxial, effective distrib., coeffs. 4−45482
InP:Zn, p-n junction formation by diffusion at 700°C 4−49623
InP-Zn(Cd)Te, phase equilibrium in the quasibinary system 4−69890
InP$_x$As$_{1-x}$ highly doped n-type solid solution, reflection spectra, carrier effective mass 4−53463
InP(Sb), Debye-Waller factors and melting criteria 4−75605
(InSB)$_x$(CdTe)$_{1-x}$, solid solution, bound parameters 4−72702
InSb, acoustic deform. pot. calc. 4−64024
n-InSb, activated conduction and Hall effect, 4 to 30K 4−72778
n-InSb, combined resonance saturation and nuclear polarisation by alternating field 4−57402
p-InSb, compensated, microwave emission, 77K 4−61251
p-InSb, compensated, nonlinear oscills. obs. 4−48999
InSb, crysts. from gaseous phase, morphology and struct. perfection *(German)* 4−49618
InSb, cyclotron phonon reson., three phonon absorption 4−79734
InSb, cyclotron reson. i.r., mag. fields up to 140 T 4−79292
InSb, decay of polar optical phonons, mechanism investig. 4−63871
n-InSb, degenerate, hot-electron mag. susceptibility at low temp., effect of non-parabolicity 4−57247
InSb, degenerate band excitons, high mag. field effects 4−67188
n-InSb, doping characts., systematic control by nucl. reactions 4−70428
n-InSb, drag of cond. electrons by photons due to direct transitions between spin branches 4−57506
n-InSb, effect of mag. field on electron heating 4−49017
p-InSb, effective mass of holes determ. from galvanomag. meas. 4−79372
InSb, electron drift and Hall mobility at 30, 77 K, impurity effects, calcs. 4−53095
InSb, electron effective mass, temp. depend., i.r. cyclotron reson. meas. 4−48910
InSb, electron effective mass determ. 4−75786
n-InSb, existence of donor states occupying two non equivalent lattice sites 4−49007
n-InSb, extrinsic, compression of electron-hole plasma caused by θ-pinch 4−67243
InSb, Faraday effect, intense mag. fields, electron effective mass obs. *(French)* 4−45275
InSb, film, galvanomag. props. diffusion current effects 4−82499
iNSb, free carrier absorption, two-phonon process contrib. 4−45302
pInSb, h.f. breakdown, 77K *(Russian)* 4−70046
n-InSb, Hall effect, temp. depend., existence of two nonequivalent lattice positions of donors 4−67233
p-InSb, Hall effect and elec. resist. temp. and intensity depend. *(Russian)* 4−49001
n-InSb, Hall mobility, 20-77K 4−49014
InSb, helicon drift instability, strong intrinsic mag. field 4−72810
n-InSb, helicon propag. in quantised mag. field *(Russian)* 4−72815
InSb, helicon waves, electron transverse drift velocity effect 4−57125
InSb, homogeneous single crystal 1/f noise measurement 4−82438
n-InSb, hot electron cyclotron resonance and nonlinear transport phenomena 4−48993
InSb, hot electrons, drift vel. and average energy 4−72789
n-InSb, hydrogenic impurity bands, expt. results compared with calcs. 4−53057
n-InSb, impurity hopping cond., mag. field effects 4−75861
InSb, in crossed elec. and mag. field, microwave propagation 4−64111
p-InSb, injected plasma, helical instability 4−82444
n-InSb, Knight shift, obs. of chem. and hyperfine contribs., 0.4-4.2 K 4−53323
InSb, Landau levels obs. by electroreflectance at E$_1$ and E$_1$ + delta$_1$ edges 4−76270
p-InSb, lattice thermal cond. investigation at low temp. 4−67010
n-InSb, longit. magnetoresist. in quantizing mag. field scatt. inelasticity and band nonparabolicity effects 4−49015
p-InSb, m.o.s. capacitor, C-V characts. 4−70075
InSb, mag. resolved fine struct. at E$_1$ edge 4−79748
n-InSb, magnetoplasma type surface polaritons dispersion curves obs. 4−57155
InSb, magnetoresist., effect of sample geometry on meas., conformal mapping technique 4−53112
n-InSb, mechanism of resistivity decrease by mm microwave irradiation 4−64092
InSb, metal vacancy form. energy, atomistic calc. 4−69803
n-InSb, millimetre band, non-linearities, mixer props. 4−49501
InSb, multiphonon absorption, far i.r. obs. using Fourier transform spectrometer 4−53445
InSb, n$^+$-p junction, spectral oscillations of barrier photo e.m.f. in quantising mag. fields 4−67255
n-InSb, negative longitudinal magnetoresistance at 77K 4−49002
n-InSb, non linear induction effect in alternating inhomogeneous magnetic field 4−75876
n-InSb, nonlinear effects during high power helicon microwave propag. 4−72787
n-InSb, observations of negative conductions under high mag. fields 4−82433
InSb, phonons, transverse, interaction with free electrons 4−75590
n-InSb, piezoelectric semiconductor, optimum acoustic wave second-harmonic generation 4−67261
p-InSb, piezoresistance, 4.2K, impurity conc. depend. 4−70041
p-InSb, piezoresistance meas. under mixed scatt. conditions 4−73079
n-InSb, plasma-electric effect in strong electric field 4−57127

III-V semiconductors continued
- InSb, plastically deformed, neutron-irrad. defects, annealing 4−56781
- InSb, props. at cryogenic temp., microwave Faraday effect obs. 4−64110
- n-InSb, resonant Raman scattering of 2LO phonon mode near E_1 transition 4−67587
- InSb, second harmonic generation using CO_2 laser beam 4−77712
- InSb, solid state plasma, instabilities 4−75915
- n-InSb, spin-flip Raman laser operation at mag. fields up to 14 T 4−81328
- InSb, stress induced splitting in reson. Raman scatt. from TO phonons 4−53444
- n-InSb, strongly doped, quantum oscillation of Hall constant, temperature influence *(Slovak)* 4−67231
- InSb, surface conductivity meas. during O_2 adsorption 4−44978
- n-InSb, surface defects and mag. freezing, Hall and cond. meas. *(German)* 4−70037
- InSb, surface polaritons, magneto-optical studies 4−75949
- InSb, surface polaritons in high mag. fields 4−75948
- p-InSb, thermoelectric power, temp. depend., 4 to 200K 4−67242
- InSb, thickness dependence of galvanomagnetic props. 4−79369
- n-InSb, transversely magnetised semicond. plasma, microwave propag. 4−75911
- InSb, tuneable far i.r. difference freq. mixing, calc. of elec. dipole contribs. 4−47379
- n-InSb, two-photon absorpt. and recomb. processes 4−82452
- n-InSb, warm electron mobility, and comparison with theory 4−82425
- InSb detector, for γ-rays at 77K, design, fabrication and operation 4−58931
- InSb film, on $LiNbO_3$, acoustoelectric amplification using pseudo-surface waves 4−57143
- InSb films, amorphous and liquid, X-ray and electron diffr. exam. of short-range struct. 4−44468
- InSb Hall plate for mag. field meas., nonlinearity reduced 4−42840
- InSb monocrystals, high temperature metallography *(Czech)* 4−64508
- InSb p-n junction, tunnelling, uniaxial stress effects, deformation pot. consts. detn. 4−53140
- InSb Raman lasers, spin flip, review 4−74509
- InSb semiconductor plasma surface grooves, grating reflection and surface plasmon dispersion theory 4−71472
- InSb zone melt growth, press. induced segregation effects 4−45462
- InSb:Cd proton-enhanced diffusion, theory and expt. 4−49590
- InSb:Te, impurity distrib. ratio investigation 4−45447
- InSb/YIG, hybrid sample, effect of magnetostatic wave drag on electrons 4−53109
- InSb-Zn-Te system, mutual effect of Zn and Te on distrib. ratios 4−61303
- $(InSb)_x$-$(CdTe)_{1-x}$, solid soln., extremal conditions for interband interaction 4−67166
- InTe thin films, elec. registration of electron diff. struct. and comp. determ. *(Russian)* 4−63998

illumination *see lighting*

image amplifiers *see image intensifiers*

image convertors
- *see also fluorescent screens; image intensifiers*
- electron-optical, high time resolution, electron beam scanning system *(Russian)* 4−62876
- fluoride-based multiple-photon, phosphors for i.r. to green light conversion *(German)* 4−49463
- i.r. image conversion, speckle influence on resolution 4−69088
- i.r. interferometer attachment for using Rozhdestvenskii hook method 4−51062
- i.r. up-conversion by rare-earth-doped vitro-ceramic materials 4−57612
- multiple-photon phosphors for i.r.-visible conversion, physics and technology *(German)* 4−49462
- phosphors, i.r. to visible light conversion mechanism and efficiency 4−49444
- photopyrometry applic., hypervelocity ablation test range 4−47396
- Pockels readout optical modulator, Itek, imaging characts., possible appl. 4−77097
- streak camera, for picosecond framing photography of mode-locked laser pulses 4−42831
- in streak camera, used for recording transient spectra 4−54937
- X-ray patient diagnosis, TV systems, comparison of image contrast 4−83323
- Gd exposure neutron imaging, isotopic conversion 4−62570

image iconoscopes *see television camera tubes*

image intensifiers
- astronomical applications, educational paper explaining principles 4−54793
- astronomical photoelectronic picture tubes used in image intensifiers, electronic cameras and video signals *(Danish)* 4−58453
- camera, for streamer chamber photography 4−65526
- metal-phosphor screens for $E=1$ to 25 MeV 4−54685
- night vision applic., with security to observer *(Spanish)* 4−62872
- nuclear medicine, review of diagnostic counting and imaging techniques 4−58561
- nuclear radiation conversion enhancement with inhomogeneous convertors and intensifiers, model 4−68758
- photographic records, digital techniques 4−68717
- plastic scintillator geometry and sensitivity improvement 4−51152
- rotating drum scanner display system for digital image processing 4−55121
- self luminous image generation, X-ray image intensifer tube, decoding image method 4−81045
- video electronic image analyzer applic. to nucl. fuel dimens. meas. from neutron radiographs 4−50069
- X-ray, absorption and S/N ratio meas. techniques 4−81043
- X-ray, spatial m.t.f. 4−46421
- X-ray intensifying screen resolution and speed relationship 4−46913
- LaOBr:Tb X-ray phosphor emission obs. 4−57609

image orthicons *see television camera tubes*

image storage tubes
- charge storage, low energy electron bombard. of SiO_2 4−79424

image storage tubes continued
- subpicosecond time meas., image tube streak camera improvements 4−65371

images, optical *see optical images*

imaging, acoustic *see acoustic imaging*

imaging, infrared *see infrared imaging*

immittance *see electrical impedance*

impact
- *see also ballistics*
- astroblemes in Brazil, Araguainha Dome and Serra da Cangalha 4−61680
- bar with random properties, anal. 4−81163
- blast load decaying linearly with time, rubber tube, exact soln. 4−74333
- Borsic/Al composite, dynamic fracture behaviour 4−49961
- brittle bar fracture under impact bending 4−52812
- brittle fracture relation to stress pulses, review of recent work 4−49858
- brittle solid, Hertzian ring cracks initiation and propag., fracture toughness eval. 4−64698
- cavitational damage of metals, thermal action *(Russian)* 4−70481
- Chetajev-Przeborski systems, principle of minimum constraints, displacements *(Polish)* 4−68883
- circular disc striking shallow liquid, pulse pressure, apparent mass and apparent moment of inertia determ. *(Russian)* 4−75163
- composite, filamentary, dynamic fracture at high strain rates 4−49960
- composite, stress wave propag., debonding effect 4−45789
- concrete piles, rebounding meas. with He-Cd laser beams *(Japanese)* 4−59460
- conical shell, elastic response to oblique impact 4−43115
- contact duration, Hertzian impact of spherical indenter on Maxwell solid 4−43028
- Crater 10 structure at Campo del Cielo, Argentina 4−61678
- crater classification by multivariate analysis 4−54108
- craters, dimensional analysis of impact structures 4−61679
- craters, multivariate classification and mode of origin 4−57909
- craters on Earth, discrepancy in numbers, black hole hypothesis for Tunguska meteorite *(French)* 4−50536
- cyclic impact testing device for 20-600°C range 4−61565
- dampers with free additional mass, analogue computer modelling 4−77511
- elastic plate buckling under longitudinal impact 4−81187
- fatigue testing machine, axial load 4−50053
- graphite/epoxy shells, unidirectional, axial wave vel. meas. 4−76535
- head-helmet system, finite element analysis and expt. study 4−82998
- helical springs, dynamic radial expansion due to longit. impact 4−77389
- heterogeneous anisotropic plates, elastic wave surfaces 4−47118
- Homalite-100 plates, impacted edge-cracked, crack propag. and arrest 4−50121
- hypervelocity impact origin of Lake Wanapitei Crater, Ontario, coesite evidence 4−50227
- impulsive load on coaxial circular cylinders, eqns. of motion, double integral transforms 4−74332
- inertia characteristic *(French)* 4−81136
- ionisation, Fe micrometeorite on impact with W target 4−58281
- lunar crustal impacts from isotope abundance in highland samples 4−46187
- lunar secondary crater chains, simulation of herringbone pattern 4−54439
- lunar surface impact produced neutral gas cloud, interaction with solar wind 4−68378
- membrane, rigid axisymmetric under initial impact, kinetics 4−51363
- metal, fatigue fracture under harmonic and complex loads at low temps., apparatus construction 4−53953
- meteorite, Boxhole crater, microprobe analysis of particles 4−62066
- microcraters in glass rel. to lunar sample bombardment 4−73664
- oblique impact of two plates, shock pressure 4−74345
- panel, cylindrical, buckling under longitudinal impact 4−81187
- particle erosion, rel. to material variables and parameters 4−50113
- plastic, fibre reinforced, unidirectional, longitudinal extensional modulus obs. 4−80162
- plates, numerical soln. model elastoplastic medium, plastic deform. dislocation dynamics *(Russian)* 4−82217
- PMMA sheet, notch length effects on mech. props. 4−45824
- polycarbonate, strain-rate and temp. depend. of yield 4−82972
- polymer, impact strength estimation method 4−53884
- polymer, lens formation, uniform impact loading, shape and Poisson's ratio relationship 4−80095
- projectile perforation in metallic targets, experimental investigation 4−45614
- projectile tilt meas. in shock wave expts., circuit design 4−46983
- shell, cylindrical, axial impact, pulse duration effect on transient response 4−81207
- small-scale test in fracture propag. problems 4−50118
- steel, failure in impact bending, cooling effect 4−61459
- steel, furnace type, rare earth additions for sulphide shape control, notch toughness 4−61426
- steel, heat treatment effect on mech. props. 4−82923
- steel, impact fatigue strength, effect of retained austenite 4−80032
- steel, irreversible temper brittleness 4−45697
- steel, medium-C, fracture surfaces and brittle fracture resist., B influence *(Russian)* 4−53714
- steel, mild, impact fatigue testing 4−50053
- steel, Ni-Mo type, PM formed, deform. effect on tensile and impact props. 4−67860
- steel plate, impacted by blunt cylinders, spallation 4−82884
- stepped shaft with attached rigid body, torsional impact, wave eqn. soln. 4−43114
- strength, plastics, structural appl., rel. to selection and design 4−67954
- Tenoumer crater, Mauritania, genesis of melt rocks 4−57923
- testing machine, oscillography use for shock bending 4−61557
- three-dimensional solid body, tensor wave theory 4−59212
- Venus, volatile element influx from cometary impacts 4−58240

impact continued
vibrations, steady, in mechanical systems with broken-line collision characteristics, series soln. 4−74357
viscoelastic plate, linear, subjected to transverse surface impact, wave propag. 4−45800
viscoelastic rods, nonhomogeneous four parameter, impact problems 4−47074
Al, pure, low cycle impact fatigue *(Japanese)* 4−70508
Al, spall fracture of monocrysts., void growth 4−49851
Al alloy, age hardened plates, projectile geom. influence on adiabatic shear and target failure 4−45643
Al alloy 6061-Tb, dynamic yield strength at elevated temps. after pulse heating 4−70590
Al alloy rod, with large length/diameter ratio, buckling failure modes on rigid plate impact 4−49861
Al porous target, Al, Fe projectiles, hypervelocity heating theory 4−68377
Al-Al_3Ni composite, impact strength, crystn. rate depend. 4−61523
Al_2O_3, alumina, sintered bodies, microcrack form., stress intensity factor and healing processes *(German)* 4−45731
Al_2O_3, corundum, fibrous mullite single crystal incorporation, thermal shock resist. 4−49906
Be, textured and spall damaged, residual mech. props. 4−50114
Be on Pb and Pb on Be films electron bombarded, angular and energy distributions of inelastically reflected electrons 4−70388
Fe, intergranular fracture obs. by Auger spectroscopy 4−45672
LiF monocrysts., dislocation mobility meas. during impact loading 4−66924

impact avalanche transit-time devices *see IMPATT devices*

impact ionisation *see high field effects*

IMPATT devices
see also IMPATT diodes
No entries

IMPATT diodes
ion-implanted, double-drift K_a-band diodes 4−57712
GaAs Schottky barrier, reaction rate for Pt electrode 4−53604

impedance, acoustic *see acoustic impedance*

impedance, electrical *see electrical impedance*

impedance matching
double-layer matching system, rel. to transparency of plane surfaces *(Russian)* 4−77599
magnetic resonance cct., single coil pulsed, impedance matching conditions 4−55000

impedance measurement, electrical *see electrical impedance measurement*

imperfections, crystal *see crystal defects*

imperfections, semiconductor *see semiconductor defects*

impermeability *see permeability*

impulse amplifiers *see pulse amplifiers*

impulse generators *see pulse generators*

impulse testing
h.v., 500 kV, air gap residual ionisation levels, effects 4−48181
insulators in vacuum, flashover, effect of d.c. prestress, expt. 4−68729
metal helmet-head system, impact loading, numerical and expt. study 4−82998

impulse voltages *see transients*

impurities, crystal *see crystal impurities*

impurity electron states and effects
see also electron traps
Al_2O_3:Cr,$^{3+}$, optical properties, effect of Cr atoms *(Russian)* 4−70316
alkali halides, F_a- and F_h-centre lifetimes investig. 4−69807
alkali halides, pseudopotential formalism, 1s states 4−64051
alkali metal iodides:IO_3^-, i.r. spectra, local symm. *(Russian)* 4−67627
alkali silicate glass:Er^{3+} multiple sites evidence 4−45332
alkali silicate glass:Er^{3+} sixfold coordinated site evidence 4−45320
alkaline earth oxide:Dy^{3+}(Yb^{3+}), ion ground state determ., e.p.r. 4−57362
alloy model in dilute limit, electronic props., hopping-disorder impurity potential 4−60758
alloy with transitional impurities in noble metal or transition metal 4−64200
alloys, t-matrix pole, application to Anderson model 4−60757
amorphous film, impurities effect on charge transport 4−75989
amorphous semiconductor, electron tunnelling phenomena 4−60887
andalusite:Fe^{3+}, symmetry conditions of energy levels *(Russian)* 4−48924
Anderson excitation localisation, donor-donor energy transfer 4−76301
anthracene:1-(2-)aminoanthracene, spectra, effects of guest orientation, traps, 4K 4−45334
anthracene, deep and shallow trapping of holes, anal. of s.c.l. and thermo-currents 4−44861
anthracene, trap depth anal. by thermal and optical release of carriers 4−72781
anthracene-tetracyanobenzene charge transfer complex, e.s.r. triplet states in single crysts. 4−70212
anti-Stokes luminescence excitation spectra, doublet optical transitions through deep impurity levels *(Russian)* 4−53523
aperiodic solid, impurity scatt. of electrons due to short range forces 4−53024
p-benzoquinone, in isotopic mixed cryst., e.p.r. ODMR studies of lowest $n\pi^*$ triplet state 4−53502
binary alloy, two particle electron Green function *(Russian)* 4−75760
biphenyl-tetracyanobenzene charge transfer complex, e.s.r. triplet states in single crysts. 4−70212
CuNi(Co)(Fe) alloys, dilute disordered, virtual bound states theory 4−79267
diamond, reln. to band structure, effective mass theory 4−75806
diamond vacancy, SCF $X\alpha$ scatt.-wave anal. of many electron effects 4−53060
electron excitation transfer during oscillatory relax., Weber effect *(Russian)* 4−70336
electron scattering, thermal electron mass 4−72747

impurity electron states and effects continued
ethanol, protiated and deuterated glasses, γ-irrad., photobleaching of trapped electrons, kinetics 4−70612
ferromagnet, correlation functions of weakly bonded impurity spin at high temp. 4−57236
fluorescent emission probability, vibroelectronic models *(French)* 4−61218
p-Ge, distribution, by measuring d.c. hopping conductivity 4−75858
glass, nonoxide chalcogenide, prep. and optical transmission, 0.6-20 μm range 4−57510
group IV semiconductor, piezospectroscopy of single and double acceptors 4−64359
Heisenberg antiferromagnet, deformed, variational calc. 4−76033
Hubbard model, finite, one dimens., local impurity states 4−75810
hydrogenic impurity bands, mag. field induced Anderson transition, calcs. 4−53057
II-VI compounds, depend. of photocond. on type of recomb. centre, calc. 4−53125
III-V semiconductor, donor distrib. coeff. calc. 4−48641
impact ionisation theory for electron traps in semiconductors 4−64100
insulator, excitation transfer between localised mag. impurities 4−64041
isoelectronic centre, lattice deformation *(Russian)* 4−57053
metal, configurational energies of high-valence impurities 4−48931
metal, electron-phonon interaction purity effects, u.s. absorpt. 4−52840
metal, improved Anderson model 4−64040
metal, light absorption, electron-phonon system 4−57579
metal, mech. props. variation of T_c, nonmag. impurity effects *(Russian)* 4−67306
metal with electron transition, rel. to press. effects on spin-lattice relax. *(Russian)* 4−67486
metals, with dislocations or impurities, de Haas-van Alphen effect dephasing calcs. 4−79274
methanol, protiated and deuterated glasses, γ-irrad., photobleaching of trapped electrons, kinetics 4−70612
m.i.m. system, paramagnetic impurities excitation by tunnelling electron *(Russian)* 4−67289
m.i.m. system, thermal elec. characts., electron trap parameters determ. 4−82496
molecular cluster approach to small-radius impurity centres in solids 4−75808
molecular crystal, deformed, electron spectra theory 4−79310
molecular crystal with impurity spectral-selective excitation, luminesc. polarisation characts. 4−64437
napthalene: azulene, cryst., thermal broadening and shifts of impurity zero-phonon bands investig. 4−76283
noble metal:transition metal alloy, magnetic properties, review *(French)* 4−53213
one dimensional crystal, impurity states between two bands 4−48930
one-electron level systems, formation in imperfect crystal 4−72707
pair-site effective medium theory of impurity band 4−44862
pentacene, photoelec. props., energy level spectra, photogeneration mech. and electron affinity meas. 4−82453
phonon-free lines in impurity centre radiation spectra, optical charact. *(Russian)* 4−53522
phonon-impurity centre bound states theory *(Russian)* 4−69875
phosphors, photoluminesc. mechanism 4−70350
PMMA:naphthalene (phenanthrene), aromatic triplet state e.s.r., guest-host interactions, zero field splitting 4−67424
α-quartz:Fe^{3+}, elec. field effect on e.s.r. spectrum 4−82616
relaxation, donor system interacting with acceptors *(Russian)* 4−79782
resonance phonon scattering, two-level impurities appl. of thermodynamic Green's functions 4−82375
ruby:Cr^{3+}, fluorescence, energy transport via microwave-optical double resonance spectroscopy 4−49450
ruby:Mg^{2+} laser active parameter depend. on quality and colour centre formation *(German)* 4−43315
semiconductor, charge reversal method using e.m. field 4−72863
semiconductor, compensated, energy depend. of capture cross section and instability producing spatial charge-exchange waves 4−48997
semiconductor, compensated, metal-activation type cond., mag. freeze-out of electrons 4−67265
semiconductor, deep centres, theory, review 4−75815
semiconductor, deep impurity levels, profiles, determ. 4−64036
semiconductor, degenerate, diffusivity-mobility ratio, magnetic field oscillatory dependence rel. to magnetic quantisation 4−79370
semiconductor, degenerate, influence on Debye screening length 4−57048
semiconductor, donor conc., empirical relationship with carrier mobility 4−57086
semiconductor, electron scattering potential for ionized impurity, carrier mobility *(German)* 4−57082
semiconductor, heavily doped, impurity radiative recomb., theory 4−49454
semiconductor, heavily-doped impurity band electronic structure, cumulant approach 4−53058
semiconductor, impurity distribution, d.c. hopping cond. meas. 4−75858
semiconductor, impurity ionisation pot., carrier conc. and Fermi level, formulae 4−82359
semiconductor, impurity levels in mag. field 4−72721
semiconductor, ion implantation, microscopic props. 4−64502
semiconductor, ionized impurity scatt., freq. depend. cond. 4−75847
semiconductor, Kohn-Luttinger effective mass theory reevaluation 4−79307
semiconductor, many-valley, cyclotron-impurity reson. 4−75817
semiconductor, many-valley, phase transition in impurity electron system, theory 4−79309
semiconductor, pseudo impurity theory 4−79308
semiconductor, rate of production vacancy-donor complexes resulting from electron irradiation, calc. 4−66939
semiconductor, shallow acceptor states, cubic contrib. to spherical model 4−44868
semiconductor, temp. induced changes, effect on elec. cond. 4−44919

impurity electron states and effects continued
semiconductor, with discrete impurity level, low-temp. screening limit determ. 4−69990
semiconductor, zero-gap, symmetry-induced, elastic electron scattering relaxation times calc. 4−82364
semiconductor containing deep levels, current oscills., case of carrier exclusion 4−60808
semiconductor with spatially periodical conc. of impurities, conductivity 4−70014
semiconductor with two or more trapping levels, photocond. and lifetime of excess carriers 4−53118
semiconductors, bulk-excited, effect of increasing degeneracy on spontaneous emission line width at relatively higher temps. 4−49424
semiconductors, III-V, II-VI, transitions between excited states 4−75882
semiconductors, photoionization of deep repulsive impurity centres 4−64039
shallow and deep donors, pseudo impurity theory appl. 4−79308
Slater parameter shifts, effects of Madelung pot. and dielectric shielding 4−57045
solid with impurity centres, electronic excitation transfer, rate eqns. 4−79792
superconductor under pressure, effect of scatt. processes on thermodynamic characts. *(Russian)* 4−79447
p-terphenyl:2-phenyl-1-monoazaazulene, cryst., thermal broadening and shifts of impurity zero-phonon bands investig. 4−76283
tetracyanobenzene + aromatic, charge-transfer complex, doped, localised excited triplet states, e.s.r. 4−64027
three-dimensional solids localised defects, appl. of generalised Wannier function concept, perturbation theory 4−64030
transition metal:rare earth ion, conduction electron contrib. to cryst. electric field 4−60744
transition metals, group IV, polymorphic transform., atomic mechanism *(German)* 4−73285
transparent dielectric, laser irrad., nonradiative electron transitions and thermal effects 4−74520
tungstates:Fe group impurities, low symm. effects in e.p.r. *(Russian)* 4−67446
two dimensional electron system, under strong mag. field, single site approx. 4−57083
two-frequency description for Jahn-Teller coupling of impurities in crystals 4−53053
two-multiplex tunnelling model 4−82649
Ag-Au, dilute, backscattering calcs. 4−60756
Ag-Sn, dilute, backscattering calcs. 4−60756
AgCl(Br):Cr^{3+}, e.p.r. spectrum, crystal field calc. 4−67438
Al, muffin-tin impurity model, application to 3d transition metal impurities 4−64037
Al:^{57}Fe, computer simulation of electric field gradients and Mossbauer spectra 4−53048
Al-based 3d transition metal alloys, influence of impurities on the de Haas-van Alphen effect, calculation of Dingle temperature 4−67179
AlAs, free exciton impurity interaction, optical absorpt. obs., wavelength modulation technique 4−79764
$Al_xGa_{1-x}P$, epitaxially grown, donor-acceptor pair and bound exciton recomb. 4−73179
AlMg, dilute alloy, impurity screening, one electron model *(French)* 4−44864
AlN:O, luminesc. of O impurity centres 4−79776
Al_2O_3:Cr^{3+}, ruby, first nearest neighbour Cr^{3+} pairs, absorpt. and emission spectra obs. 4−57585
AlSb, impurity radiative recomb., 4.2K 4−82747
As_2S_3-Ag, i.r. absorption spectra, O impurity bands 4−61151
CaF_2: rare earth, relax. of type-I dipolar complexes investigation using ionic thermocurrent techniques 4−75813
CaF_2:Er^{3+}, phosphorescence decay obs., probability of recomb. of V_k-hole centres with impurity electrons 4−57628
CaF_2:Er^{3+}, thermoluminesc., fluoresc., symmetry 4−82763
CaF_2:Ho^{3+}, 4f to 5d transitions, absorpt. spectra obs., 1280 to 1600Å 4−64412
$CaSO_4$, exoemission, storage effect, role of activation 4−73234
$CaSO_4$:Eu, Mn, sensitised photoluminesc. obs. *(Russian)* 4−61205
$CaWO_4$:Tb^{3+}, cryst. field due to ion from optical spectra anal. 4−75792
$CdCl_2$:I^-, optical absorption, luminesc., localized exciton effect 4−57581
$CdCl_2(Br_2)$:Cu^{2+}, vibronically allowed d-d transitions, i.r. spectra 4−64406
n-CdS, anomalous mobility behaviour, elec. evidence for impurity pairs 4−72798
CdS, hole capture cross section of class II centres, photocurrent determ. 4−72722
CdS, luminescence at 1.3 K not due to biexcitons, but to radiative decay of exciton-impurity complexes 4−48941
CdS, photocond., depend. on type of recomb. centre and free electronc conc. 4−53125
CdS, photocurrent oscill., impurity induced breakdown 4−72826
CdS, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
CdS, single cryst., halogen impurities, thermal neutron activation 4−73264
CdSe, nature of fast recombination centres 4−67257
CdSe, photolum., effects of deep centres and impurities 4−73170
CdSe, shallow donor ionisation energies determ. from Hall data anal. 4−75811
$CdSiP_2$:Na(Bi), photocond. and optical quenching, recomb. and trapping centres 4−79381
p-CdTe, absorption spectrum, optical props. of donor-Cd vacancy complex 4−57587
n-CdTe, anomalous mobility behaviour, elec. evidence for impurity pairs 4−72798
CdTe, magneto-optic studies of donor excitation spectra 4−64362
CdTe, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
CdTe:Al, In, Cl, I electron conc. and self-compensation obs. 4−53056
CdTe:Be, impurity-induced far i.r. absorpt. spectra, perturbation model calcs. 4−64414
CdTe:Cl(Br), self-compensation, time of fight technique 4−72761

impurity electron states and effects continued
CdTe:O, luminesc. and elec. props., form. of complex centres 4−76309
CsI, HS^- impurity ion vibr. absorpt. bands, phonon wings obs. 4−79765
Cs_3MnCl_5:$MnCl_4^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72541
Cs_2ZrCl_6:$IrCl_6^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72542
Cs_2ZrCl_6:Mo^{4+}, mag. circular dichroism, u.v. absorpt. spectra, temp. depend. and assignments 4−49402
Cu-Based dilute alloys, charge density oscill. around impurities, asymptotic and pre-asymptotic regions 4−48925
CuCl, exposure to Cl_2, elec. props. and acceptor levels investig. 4−54085
Fe base alloys, with nontransition elements, impurity-charge-screening, Mossbauer obs. 4−64314
GaAs, band struct., influence of impurity ions under moderate doping conditions, expt. 4−48914
GaAs, compensated, metal-insulator transition in mag. field 4−49048
n-GaAs, deep impurity levels and profiles determ. 4−64036
n-GaAs, electron scatt. pot. for ionized impurity, carrier mobility *(German)* 4−57082
GaAs, epitaxial, 1.0 eV impurity band in photolum. spectrum 4−61221
GaAs, epitaxial layers, impurity level obs. from photolum. spectra 4−70342
n-GaAs, epitaxial nondoped, electrophysical props. in temp. range 10-1100K 4−79242
GaAs, excited donor states anal., low temp. photocond. meas. 4−72733
GaAs, film, Stark broadening of photothermal ionisation spectra of donors 4−67626
n-GaAs, hopping cond. shallow levels, 4.2K 4−72774
n-GaAs, impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
GaAs, ionisation energies of substitutional donor impurities 4−67181
GaAs, ionization energy of shallow donors, mag. field effect, Hall coeff. and elec. cond. obs. 4−60760
GaAs:Cr, excited levels of Cr centre in reson. with cond. band., optical absorpt. and photocond. obs. 4−48932
GaAs:Cr, high resistivity, optically induced modulation of absorption 4−76287
n-GaAs:Cr, optical absorpt. meas., extrinsic transitions localised levels investig. 4−64413
n-GaAs:Cu, conc. profile determ. by Faraday effect *(Russian)* 4−53631
p-GaAs:Cu, temp. quenching of Cu-induced 1.35 eV emission band 4−79790
GaAs:Fe, compensation mechanism, Hall effect, e.s.r. and a.p.r. obs. 4−48933
GaAs:Mn, photoionisation cross section, 0.11-0.45 eV 4−49357
GaAs:Ni, acceptor level ionisation energy, absorpt. spectra meas. 4−49408
GaAs:O energy spectrum of impurity levels, photocond. and photoluminesc. meas. 4−67656
GaAs:Se, electron conc., influence of subsidiary extrema in conductivity zone 4−44817
GaAs:Sn(Si)(Ge), compensation mechanisms investigation 4−67180
GaAs:W(Ti)(Co)(Mo)(Cr), deep level impurities, photolum. identification 4−76308
$GaAs_{0.62}P_{0.38}$, donor and acceptor density, effect of reactant gas vapour pressure during growth 4−57709
$GaAs_{1-x}P_x$, rel. to uniaxial stress effects on red emission characts. of l.e.d. 4−53535
$GaAs_{1-x}P_x$:N, Kloster-Slater investigation, rel. to l.e.d. performance 4−70365
n-$GaAs_{1-x}P_x$:N,Zn, photoluminesc., radiative recombination investig. 4−64434
$GaAs_{1-x}P_x$:N,Zn, recomb. transitions in direct and indirect comp. regions 4−53494
GaN film, rel. to s.c.l. current flow 4−79421
GaN:Zn, photoluminescence 4−61206
n-GaP, deep donor states, thermally stimulated current obs. 4−57046
GaP, p-n junction, ZnO and O centre characts., apparatus 4−74092
GaP, radiative exciton recomb. on isoelectronic impurities *(Russian)* 4−79803
GaP:Cr, excited levels of G centre in reson. with cond. band, optical absorpt. and photocond. obs. 4−48932
GaP:Ge, photluminesc., pair emission bands, temp. depend. 4−53507
GaP:Ge, photocond. quenching by impurity levels 4−75923
GaP:Ge, photoluminesc., pair emission band shapes 4−53506
GaP:N, electron ground state, screened ionic pseudopotential 4−60754
GaP:O, pseudo impurity theory for binding energy of first-row deep donors 4−57049
Gap:Ge, cond. and photoluminesc., conc. depend. of Ge behaviour 4−79348
Ge, compensated, cond. and photocond., influence of gas discharge treatment 4−72775
Ge, determ. of impurities producing shallow energy levels 4−53609
Ge, donor e.s.r. spectral narrowing, phonon-induced tunnelling 4−79588
Ge, electrical properties, Fermi level 4−44918
Ge, electron-neutral donor complex form. in presence of indirect optical transitions *(Russian)* 4−72832
Ge, far i.r. photoconductivity from majority and minority impurities 4−82454
Ge, film, elec. and optical props., impurity and defect effects 4−79419
n-Ge, impurity-ion field effect on electron-phonon interaction 4−75814
Ge, Raman spectra, obs. of line broadening and phonon transmission spectra 4−53448
n-Ge, rate of production of vacancy-donor complexes resulting from electron irradiation, calc. 4−66939

impurity electron states and effects continued
Ge, shallow acceptors, high resolution Fourier spectroscopy 4−73118
Ge, small impurities and $D^-(A^+)$ centres, spectra in 2 to 0.25 mm range 4−53127
Ge:(Al_1P), donor-acceptor binding energy 4−44860
Ge:As(P)(Sb), impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
n-Ge:Au, photoionization cross sections of acceptor levels, photocond. obs. 4−57136
Ge:Cu, high-purity, low-temp. Hall effect anal. 4−53107
n-Ge:Li, neutron irrad., Hall effect obs. of acceptor levels 4−56780
Ge:P, Ga, heavily doped and compensated, resistivity, direction depend. 4−72773
n-Ge:P(As)(Sb)(Bi), γ-irrad., acceptor levels, annealing obs. 4−60761
Ge:Sb, far i.r. photocond., intermediate impurity conc. region 4−82450
n-Ge:Sb, neutron irradiated, electrical props. investigation 4−67216
Ge:Sb(Ga), dislocation motion, surmounting of local obstacles *(Russian)* 4−79042
^3He-^4He liquid mixture, impurity excitation interaction with negative ions 4−79219
HgSe, annealing effect on nature of donor defects 4−56735
ice:HF, cryst., Hall mobility meas., double freq. method 4−75887
In, elec. and transverse mag. resist., temp. depend., Pb impurity effect *(Russian)* 4−79464
In, residual resistivity in mag. fields, Pb impurities influence, 1.3-4.2K *(Russian)* 4−60914
InAs, donor-acceptor interaction investigation from Hall effect and microhardness meas. 4 −67237
InAs, Ge^+, Si^+ ion implantation, donor and acceptor levels, annealing effects 4−75816
InAs:Zn,Te, carrier conc., impurity conc. depend. rel. to solubility limit, Hall meas. 4−75818
$In_xGa_{1-x}As$:Zn epitaxial film, effect on optical absorpt. coeff. 4−45316
InGaP:N, electron ground state, screened ionic pseudopotential 4−60754
InP, ionization energy of shallow donors, mag. field effect, Hall coeff. and elec. cond. obs. 4−60760
n-InP, magnetophonon effect, warm electron relax. 4−57107
n-InSb, donor binding state in magnetic field 4−48993
InSb, electron drift and Hall mobility at 30, 77 K, impurity effects, calcs. 4−53095
InSb, electron effective mass determ. 4−75786
n-InSb, existence of donor states occupying two non equivalent lattice sites 4−49007
n-InSb, Hall effect, temp. depend., existence of two nonequivalent lattice positions of donors 4−67233
n-InSb, impurity hopping cond., mag. field effects 4−75861
K halide crystals, HS^- impurity ion vibr. absorpt. bands, phonon wings obs. 4−79765
K halides, O_2^- mol. centres, thermal broadening and shift of phononless lines, luminesc. obs. 4−73185
KBr, colour centres conversion, effect of photothermal treatment *(Russian)* 4−53478
KCl, colour centres conversion, effect of photothermal treatment *(Russian)* 4−53478
KCl, formation of impurity complexes associated with appearance of U-band 4−72725
KCl, position of d-like state of F-centre from Stark effect meas. 4−44867
KCl:Ag, photoionisation of Ag^0 centres obs. 4−79766
KCl:Eu^{2+}, local monoelectronic levels, two zone model *(Russian)* 4−72708
KCl:Eu^{2+}, localized levels, photoconductivity, light sum storage 4−53059
KCl:Eu^{2+}, many photon ionization process saturation 4−79796
KCl:Pb crystals, impurity induced Raman spectra 4−67570
KCl:Sm^{2+}, local single electron states calc. *(Russian)* 4−67174
KCl:Tl, luminesc. flash excitation spectra investigation *(Russian)* 4−53510
KI, S_2^- mol. centres, thermal broadening and shift of phononless lines, luminesc. obs. 4−73185
KI:Tl, X-irradiated, investigation of 4.66 eV absorpt. band *(Russian)* 4−53479
KI-Tl-type phosphors, luminesc., spin-orbit, Jahn-Teller interactions with vibr. modes investig. 4−70355
$KMgF_3$:Eu^{2+}, Zeeman effect in Stark lines exam. 4−79303
$KMgF_3$:V^{2+}, excitation transfer between localised mag. impurities 4−64041
Kr, solid film, photolum. due to intrinsic excitons and impurities 4−61216
$LaCl_3$:Ce^{3+}, electric multipole interaction investigation 4−67178
LiF, thermolum., role of Mg 4−70371
$Li_{0.5}Fe_{2.5}O_4$, impurity effects on phase transition 4−52889
$LuPO_4$:Ce^{3+}, energy levels, crystal field theory calcs. 4−79311
MgO:Cr^{2+}, dynamic Jahn-Teller effect, hypersonic attenuation 4−44858
MgO:Cr^{2+}, far i.r. spectra, ion conc., phonon scatt. 4−61148
MgO:Fe^{2+}, far i.r. absorption, spin-orbit levels 4−57583
$Mn^{125}I_2$:^{125}Te, antiferromag., Mossbauer studies of Te electronic state 4−76194
$MoSe_2$-$TaSe_2$, quasibinary alloys, mechanism of electrical conductivity 4−67217
NH_4Cl:Fe^{3+}, electronic absorpt. spectra of ion 4−64404
NH_4Cl:Tl, absorpt., excitation and fluoresc. spectra 4−73178
$(NH_4)_2SO_4$, $NH_4H_2PO_4$, HSO_4^- proton donor, charge transfer mechanism 4−60799
NaCl:S^{2-}, charge on dislocations, elec. cond. obs., 100-550°C 4−52775
$Na_2O.3B_2O_3$:Fe_2O_3 glass, u.v. absorpt. temp. depend. *(Russian)* 4−45344
$Ni_{1-x}Fe_x$-C, ($x=0$-0.65), C impurity effects on props., transition from strong to weak ferromag., band struct. 4−45111
$(POCl_3.SnCl_4)$:Nd^{3+} soln., Stark struct. of $^4I_{9/2}$ and $^4F_{3/2}$ levels *(Russian)* 4−49460
$PbCl_2$:Sn^{2+}, energy transfer mechanism *(Russian)* 4−79801
$PbSb_2S_4$, strong induced impurity photoconductivity obs. 4−67258

impurity electron states and effects continued
$PbSiO_3$:Fe_2O_3 glass, u.v. absorpt. temp. depend. *(Russian)* 4−45344
$Pb_{0.94}Sn_{0.06}Se$, p- and n-type, meas. of mag. susceptibility 4−49155
Pd dilute alloys, deviations from Matthiessen's rule and resistance minima, impurity resistivity 4−44887
nSi, Co acceptor state, temp. depend. of energy level and capture cross section 4−75812
Si, doping effect on position lifetime 4−72486
Si, far i.r. photoconductivity from majority and minority impurities 4−82454
n-Si, Hall effect meas. scatt. parameters 4−44941
Si, ion implanted impurity energy levels 4−69993
n-Si, magnetoresist., influence of compensation 4−57111
n-Si accumulation layers, energy levels and optical absorpt. at low temps. 4−82362
Si:Au, optical props. of donor and acceptor levels 4−67246
Si:Au,Pt,Pd,Rh, constant capacitance obs. in p-n junc. and Schottky barrier depletion layer 4−82376
Si:B, compression and low temp. laser irradiation, obs. of exciton recombination spectra 4−49438
p-Si:B, γ-irrad., steady state photocond. and excess carrier lifetime, theory 4−53118
Si:B, interstitial config., elec. props and diffusion after implantation 4−66909
Si:Be, H, i.r. absorp., Be-H complexes obs. 4−49400
Si:Li, Si:Li-O, thermal cond. meas. rel. to temp., phonon scatt. investig. 4−63950
Si:N, pseudo impurity theory for binding energy of first-row deep donors 4−57049
Si:Ni, i.r. quenching of photocond. 4−57138
Si:P, cond. mechanism, effect on n.m.r. 4−49248
Si:P, Fermi contact interaction anal. of shallow donor electron, ENDOR line interpretation 4−44869
n-Si:P, interacting donor clusters, e.s.r. obs., 0.5-4.2K 4−57050
Si:P(S), donor energies, Kohn-Luttinger effective mass theory 4−79307
Si:Pd, carrier density meas., heat treatment influence, acceptor levels 4−75857
Si:S, photocond. and i.r. quenching, impurity absorpt. 4−75922
Si:Zn, nonadditive photocond. due to combined illumination 4−49042
Si:Zn, rel. to i.r. quenching of photocurrent 4−49039
Si-SiO_2 interface states, O_2, Si and H_2 contribs. 4−60866
n-α-SiC, 6H, polytype, fundamental absorpt. edge, influence of impurities 4−61196
SiC, energy levels of substitutional impurities 4−57052
6H-SiC:Ti, low temp. ABC luminesc. spectrum, Ti role 4−61220
SiO_2:Al, smoky quartz, paraelec. reson., phonon bottleneck 4 -64320
$Sn_{1-x}Pb_xTe$:Se, physicochem. props., changes with impurity conc., local environment characts. 4−44557
$SrTiO_3$ single crystals, trapping levels, thermally stimulated cond. meas. 4−79353
$SrTiO_3$:Al(Fe), relative energy level scheme for impurities 4−44866
Ta_2O_5 film, sputtered, investigation of 2.1 eV trap, photocond. 4 -75919
Ti:Cd(Ta), impurity electric quadrupole interaction, temp. depend. obs. 4−57047
Tl superconducting transition temperature, possible nonlinear mechanisms *(Russian)* 4−79448
Tl_2S, molten, solid phases, elec. cond., thermoelec. power meas., doping investig. 4−44948
YIG:Pb^{2+},Si^{4+}, film, elec. and optical props., Pb^{2+} characts. 4−79420
YPO_4:Ce^{3+}, energy levels, crystal field theory calcs. 4−79311
ZnS, cubic, Cu^{2+} centre i.r. absorpt. and emission meas., Zeeman effect 4−67621
ZnS, reln. to band structure, effective mass theory 4−75806
ZnS:Cu,In, effect of trap filling on shift of thermoluminesc. peak 4−53541
ZnS:Mn, photoluminesc., impurity site depend. 4−70349
ZnSe, luminesc., donor-acceptor pair lines, energies listed 4−70357
ZnSe, shallow-donor ionisation energies determ. from Hall data anal. 4−75811
ZnSe, single cryst., halogen impurities, thermal neutron activation 4−73264
ZnSe:Be, i.r. lattice absorpt. spectra, localised mode sidebands 4−49403
ZnSe:Cr, discrete photoionization bands, photocond. and e.p.r. obs. *(German)* 4−48928
incandescent lamps *see filament lamps*
inclusive reactions, elementary particle *see elementary particle inclusive reactions*
incremental computers *see digital differential analysers*
independent particle model *see nuclear optical model; nuclear shell model*
indeterminancy
coherent states and uncertainty relations 4−65750
fuzzy observables, definition, covariant conditional expectations, photon position operator 4−51427
time arrow of quantum theory, prediction 4−43137
Uncertainty Principle, reln. between kinetic energy and size 4−68591
variable mass particles theory, inclusion of quantum mechanical effects, wavepackets 4−47162
indexing
rider card index requirements for meas. equipment laboratory 4−46556
indicating devices *see indicators*
indicating instruments *see indicators*
indicators
see also alarm systems; maximum-demand indicators
optical dividing head, ODG-5E, indication errors, comparison with other instruments 4−51015
radiation, using Geiger-Muller counter and electroacoustic transducer *(Czech)* 4−58930
radiographic image quality indicator, universal step-needle type 4−46908

indicators continued
- scaler, fast, with dynamic indication 4−51163

indium
- ammonium halide: In, photoluminesc., activator exciton bands *(Russian)* 4−73157
- atom, depolarisation ratios for anti-Stokes Raman scattering 4−72037
- atom, excitation by electron impact *(Russian)* 4−43749
- atom, Raman scattering cross sections 4−72036
- chemisorption on Si(111), mass spectra obs. 4−56991
- chemisorption on Si (111), flash desorpt. obs. 4−56992
- condensation on sapphire, contact angles determ. by thin film techniques 4−75686
- corrosion and void positron study, comparison with Mg-In 4−79063
- cyclotron resonance, Doppler-shifted, rot. symm. Fermi surface model 4−72692
- determination in precious metal concentrates by activation anal. using ^{241}Am-Be source 4−46962
- determination spectrochemically using d.c. arc light source in mag. field 4−46963
- diffusion in glassy CdGeAs$_2$, temp. depend. and activation energy 4−56913
- diffusion in liquid Ge, 930-1250°C 4−60636
- discharge plasma, emission spectrum 4−52616
- electric and transverse mag. resist., temp. depend., Pb impurity effect *(Russian)* 4−79464
- electron field emission energy distrib. spectra, d-band contrib. 4−53576
- electron-phonon scattering probability, temp. depend., 2.3-5.5K, r.f. size effect *(Russian)* 4−70105
- Fermi surface, stress depend., oscill. magnetostriction 4−82355
- film, supercond. props., helium ion injection effect *(Russian)* 4−82522
- fine particles, supercond. transition temp. meas., size depend. 4−60905
- galvanomagnetic size effects, Sondheimer oscillations obs. 4−75843
- gamma-gamma angular correlation, solid and liq. states 4−79652
- intermediate state, wave resist. *(Russian)* 4−79465
- irradiation effect on steady state and non-steady state creep *(Russian)* 4−69850
- islet film, morphology and struct. *(Russian)* 4−72649
- liquid, compatibility with Ti alloys and alloy steels 4−71997
- liquid, electrical resistivity using modified perturbation theory 4−79330
- liquid, temp. depend. of nuclear spin relax. rate 4−49257
- magnetoconductivity and magnetoresistivity tensor calcs., Fermi surface contrib. 4−48964
- metal-insulator-n-type diode, electrolum. model 4−70367
- ohmic contacts to CdS, heat treatment effects 4−72856
- particles, melting pt., size depend. 4−60599
- positron trapping, lifetime meas., 83-405K 4−60520
- residual electrical resistance, grain boundaries influence *(Russian)* 4−73289
- residual resistivity in mag. fields, Pb impurities influence, 1.3-4.2K *(Russian)* 4−60914
- solubility of InAs and InP, 500-1200°C *(German)* 4−69895
- spectral generation conditions in hollow cathode discharge during elec. charging *(Russian)* 4−59010
- superconducting, longit. u.s. absorpt. meas., energy gap parameters 4−57215
- superconducting, small particles, thermodynamic lattice and electronic props., size effects 4−45037
- superconducting, two-dimens. mixed state, paramag. effect *(Russian)* 4−72917
- superconducting, u.s. attenuation in intermediate state 4−57217
- superconducting film, type I, voltage steps obs. in current induced resistive state 4−64163
- superconducting layer on PbTe, interface superconductivity, LEED obs. 4−45038
- superconducting thin film, transition from type I to type II, density of states 4−57198
- superconducting thin films, transition from type I to type II under perpendicular mag. field 4−82519
- superconductor, strong-coupling, electron-phonon interaction const. calc. *(Russian)* 4−72904
- vapour pressure meas. over α-Ag-In alloys using atomic absorpt. 4−45527
- X-ray photoemission spectra, characteristic energy loss structure 4−67698
- Au to Au diffusion bonding, In interlayer 4−73337
- Bi-Bi$_2$O$_3$-In sandwich structures, prep., current-voltage characts. electron tunnelling 4−79413
- Cd:In, temp. depend. of elec. field gradient, γ-γ angular correlation meas. 4−64313
- CdS:In, photoluminesc. emission, elec. cond. 4−53509
- n-CdSb:In, temp. depend. of cond., Hall coeff. and thermopower 4−48983
- GaP:In, free excitons in luminesc. spectra 4−73183
- Ge:As-In, tunnel junction, characteristic curves, proton irrad. effect 4−64138
- In:Ga, liq., tracer impurity diffusion 4−56899
- In-Al$_2$O$_3$Al, In electrode effect on tunnel barrier 4−72872
- In-GaAs:Cr-In, recom., radiation, high-freq. instability in strong elec. fields *(Russian)* 4−73198
- In + Ga + P mixtures, liquidus isotherms determ. rel. to temp., by cryst. dissolution method 4−52866
- ^{111}In, carrier free prod. 4−70614
- KCl:In^{2+}, centre migration with charge transfer, light absorption *(Russian)* 4−82286
- KI:In, energy transfer from excitons to activator at 30K *(Russian)* 4−82744
- Mo-C, cast and recrystallised, effect of alloying with Fe, Ca, Ni, Ir, mechanical props. 4−82948
- Sn:In, normal state u.s. attenuation, residual resist. calc. 4−75580
- SnO$_2$:In, e.s.r., g-values *(Japanese)* 4−82615
- ZnS:Cu,In, effect of trap filling on shift of thermoluminesc. peak 4−53541

indium alloys
- *see also indium compounds*
- liquid binary, change in molar volumes during formation *(Russian)* 4−52678
- rare earth intermetallics, LnIn$_3$, (Ln = Ce,Pr, Nd,Sm,Eu,Gd,Yb), mag. props. 4−70143
- rare earth-indium intermetallics, Ln$_5$In$_3$, cryst. struct. 4−63792
- α-Ag-In solid solns., v.p. of In meas. using atomic absorpt. 4−45527
- Al-In, isochronal recovery of quenched in elec. resist. 4−57751
- Au-In liquid system, activity meas. *(Japanese)* 4−67762
- AuIn$_2$, AuIn$_2$:Fe, thermoelectric power obs. between 2 and 5K using SQUID device 4−60785
- Bi-In, superconductivity, high press. transition 4−79446
- Cd-In, dilute, Hall resistivity, temp. depend., mechanism 4−60787
- Cu-In, liq., comp. depend. of Hall coeffs. *(Japanese)* 4−44898
- Cu-In eutectoid alloy, unidirectional growth 4−64534
- Cu-In eutectoids, aligned, discontinuous coarsening obs. 4−53673
- Cu-In melt, struct. and elec. cond. *(Russian)* 4−45533
- Cu-In system, vol. diffusion coeffs. in β-phase region 4−53661
- Ga-In, elec. resist., −20 to 800°C *(Russian)* 4−48955
- GdZn$_{1-x}$In$_x$, galvanomag. anomalies, $(0\leqslant x\leqslant 0.15)$ 4−64102
- Hg-In alloys, liq., association equilibria, conc. depend. of enthalpy of mixing *(German)* 4−72423
- In-Bi (0.06 at.%), superconducting thin films, transition from type I to type II under perpendicular mag. field 4−82519
- In-Bi(Sn) melts, self-diffusion of indium *(Russian)* 4−45543
- In-Cd, dilute alloy, band-struct. effects on supercond. 4−64156
- In-Ga, liq., compatibility with Ti alloys and alloy steels 4−71997
- In-Ga, react. with O$_2$, i.r. spectra, struct. of prods. investig. 4−52157
- In-Ge-Te ternary system, phase equilib. 4−49643
- In-Mg, superconducting transition temp. exam. 4−75996
- In-Mg alloys, distorted struct. formation 4−64533
- In-Sn(Bi) resistance measurements 4.2-55K, deviations from Matthiessen rule *(Russian)* 4−82389
- In-Sn(0.01-0.09 at.%Sn), supercond., longit. u.s. absorpt. meas., energy gap parameters 4−57215
- In-Te, liquid alloys, elec. cond. and thermoelec. power meas. 4−82410
- In-Tl, elastic behaviour near martensitic transition 4−45703
- In-Tl, lattice softening and martensitic transform. 4−79921
- In-Tl, martensitic phase transformation, Bordoni peak formation 4−61351
- In-Zn liq. alloys, conc. depend. of self-diffusion coeffs. *(Russian)* 4−56898
- InBi and In$_2$Bi, solid and liq., γ-γ ang. correl. 4−79652
- In$_2$Bi, single crystal growth and elastic behaviour 4−53759
- InSb-CrSb(FeSb) eutectic alloys, directional solidification, struct. changes *(Japanese)* 4−45499
- β-In$_{0.75}$Sn$_{0.25}$, supercond., quenching effect on sp.ht. and transition temp. 4−64149
- Ir-Er, dilute, cryst. field effects in e.p.r. 4−45177
- Li-In, growth of single crystals, Bridgman method 4−73249
- Mg-In, superconducting transition temp., Mg content depend. 4−53172
- Mg-In (20-30 at.%Mg), positron study of corrosion and voids 4−79063
- Ni-In eutectoids, aligned, discontinuous coarsening obs. 4−53673
- Ni$_2$MnIn, Heusler alloy, neutron and X-ray meas., effect of heat treatment on structure 4−82937
- Pb-In, dilute, solute-vacancy binding energies, theory 4−52751
- Pb-In, supercond., microphotographs of flux distrib. *(Russian)* 4−70097
- Pb-In system, creep deform. increase at supercond. transition temp., comp. depend. 4−57209
- PbIn irreversible superconductor, flux expulsion 4−45053
- Pb$_{0.9}$In$_{0.1}$, supercond. mixed state, polarized μ^+ probe of vortex struct. 4−82521
- TbIn$_3$ polycryst. sample antiferromag., neutron diffr. study 4−76090
- Tl-In, localized phonons, lattice order transformations, superconductive tunnelling 4−64157
- YbIn$_3$, valency of Yb, elec. resist., mag. susceptibility and Mossbauer obs. *(French)* 4−61074

indium antimonide
- acoustic deformation potential calc. 4−64024
- amorphous and cryst. films, densities of valence states, photoelectron obs. 4−60742
- cyclotron phonon resonance in three phonon absorption 4−79734
- cyclotron resonance, i.r., mag. fields up to 140 T 4−79292
- Debye-Waller factors and melting criteria 4−75605
- deformation potential constants, p-n junction tunnelling stress effects obs. 4−53140
- degenerate band excitons, high mag. field effects 4−67188
- diffusion of Cd, proton-enhanced, theory and expt. 4−49590
- electron drift and Hall mobility at 30, 77K, impurity effects, calcs. 4−53095
- electron effective mass, temp. depend., i.r. cyclotron reson. meas. 4−48910
- electron effective mass determ. 4−75786
- energy subgap, mag. resolved fine struct. at E$_1$ edge 4−79748
- Faraday effect, intense mag. fields, electron effective mass obs. *(French)* 4−45275
- film, galvanomag. props., diffusion current effects 4−82499
- film, on LiNbO$_3$, acoustoelectric amplification using pseudosurface waves 4−57143
- free carrier absorption, two-phonon process contrib. 4−45302
- galvanomagnetic props., thickness dependence 4−79369
- Hall plate for mag. field meas., nonlinearity reduced by heating plate 4−42840
- helicon drift instability, strong intrinsic mag. field 4−72810
- helicon waves, electron transverse drift velocity effect 4−57125
- homogeneous single crystal 1/f noise measurement 4−82438
- hot electrons, drift vel. and average energy 4−72789
- i.r. difference frequency mixing, calc. of elec. dipole contribs. 4−47379
- Landau levels obs. by electroreflectance at E$_1$ and E$_1$ + delta$_1$ edges 4−76270
- laser, c.w. spin-flip, freq. stabilization, fine tuning characts. 4−62848

indium antimonide continued
magnetoresistance, effect of sample geometry on meas., conformal mapping technique 4−53112
magnetostatic wave drag, effect on electrons in hybrid sample, YIG/InSb 4−53109
microwave propagation, in crossed elec. and mag. field 4−64111
mm. band properties, nonlinearities, mixing 4−49501
m.o.s. device, photocurrent energy parameters 4−70073
multiphonon absorption, far i.r. obs. using Fourier transform spectrometer 4−53445
n^+-p junction, spectral oscillations of barrier photo e.m.f. in quantising mag. fields 4−67255
n-type, activated conduction and Hall effect, 4 to 30K 4−72778
n-type, combined resonance saturation and nuclear polarisation by alternating field 4−57402
n-type, compression of electron-hole plasma caused by θ-pinch 4−67243
n-type, diffusion thermoelec. power calc., func. of temp. 4−49019
n-type, doping characts., systematic control by nucl. reactions 4−70428
n-type, drag of cond. electrons by photons due to direct transitions between spin branches 4−57506
n-type, effect of mag. field on electron heating 4−49017
n-type, effect of uniaxial stress on longit. magnetophonon oscills. 4−49009
n-type, existence of donor states occupying two non equivalent lattice sites 4−49007
n-type, Hall effect, temp. depend., existence of two nonequivalent lattice positions of donors 4−67233
n-type, Hall mobility, 20-77K 4−49014
n-type, helicon propag. in quantised mag. field *(Russian)* 4−72815
n-type, helicon wave amplification, by transverse phonon-helicon interaction 4−44969
n-type, hot electron cyclotron resonance and nonlinear transport phenomena 4−48993
n-type, hot-electron mag. susceptibility at low temp., effect of nonparabolicity 4−57247
n-type, hydrogenic impurity bands, expt. results compared with calcs. 4−53057
n-type, impurity hopping cond., mag. field effects 4−75861
n-type, longit. magnetoresist. in quantizing mag. field, scatt. inelasticity and band nonparabolicity effects 4−49015
n-type, magnetoplasma type surface polaritons dispersion curves obs. 4−57155
n-type, mechanism of resistivity decrease by mm microwave irradiation 4−64092
n-type, negative longitudinal magnetoresistance at 77K 4−49002
n-type, non linear induction effect in alternating inhomogeneous magnetic field 4−75876
n-type, obs. of Knight shift near quantum limit, 0.4-4.2 K 4−53323
n-type, pinch effect under negative differential cond. conditions, instability 4−49032
n-type, plasma-electric effect in strong electric field 4−57127
n-type, resonant Raman scattering of 2LO phonon mode near E_1 transition 4−67587
n-type, spin-flip Raman laser operation at mag. fields up to 14 T 4−81328
n-type, strongly doped, quantum oscillation of Hall constant, temperature influence *(Slovak)* 4−67231
n-type, surface defects and mag. freezing, Hall and cond. meas. *(German)* 4−70037
n-type, transversely magnetised semicond. plasma, microwave propag. 4−75911
n-type, two-photon absorption and recomb. processes obs. 4−82452
n-type optimum acoustic wave second-harmonic generation 4−67261
nonlinear effects during high power helicon microwave propag. 4−72787
p-type, compensated, microwave emission, 77K 4−61251
p-type, compensated, nonlinear oscills. obs. 4−48999
p-type, effective mass of holes determ. from galvanomag. meas. 4−79372
p-type, Hall effect and elec. resist. temp. and intensity depend. *(Russian)* 4−49001
p-type, h.f. breakdown, 77K *(Russian)* 4−70046
p-type, lattice thermal cond. investigation at low temp. 4−67010
p-type, m.o.s. capacitor, C-V characts. 4−70075
p-type, piezoresistance meas. under mixed scatt. conditions 4−73079
p-type, thermoelectric power, temp. depend., 4 to 200K 4−67242
phonons, transverse, interaction with free electrons 4−75590
photoemission spectroscopy using synchrotron radiation, valence band struct. 4−64477
piezoresistnace, p-type, at 4.2K, impurity conc. depend. 4−70041
plasma, helical instability characts. 4−82444
plastically deformed, neutron irrad. defects, annealing 4−56781
polar-optical phonons, decay mechanism investig. 4−63871
polaritons, surface, high mag. field 4−75948
polaritons, surface, magneto-optical studies 4−75949
radiation detector, for γ-rays at 77K, design, fabrication and operation 4−58931
Raman lasers, spin flip, review 4−74509
Raman scattering, obs. of stress induced splitting from TO phonons 4−53444
second harmonic generation using CO_2 laser beam 4−77712
semiconductor plasma surface grooves, grating reflection and surface plasmon dispersion theory 4−71472
solid state plasma, instabilities 4−75915
solid-state plasma, instability in elec. and mag. fields of arbitrary orientation 4−72811
superradiative state and echo from coherent quasi-particles in interband transition 4−49391
surface conductivity meas. during O_2 adsorption 4−44978
surface magnetoplasmon theory, effects 4−64126
surface polariton dispersion, attenuated-total-reflection spectral linewidth 4−44876
thermoreflectance, obs. of struct., 4-9 eV 4−53466
transport properties, at cryogenic temperature, using microwave Faraday effect 4−64110
tunable far i.r. generation, difference freq. mixing 4−77707

indium antimonide continued
two photon absorption, exciton effect, degenerate valence bands 4−64387
u.s. absorption meas., lattice interaction theory 4−56820
vacancy formation energy, atomistic calc. 4−69803
valence states density, amorphous and cryst. 4−82790
zone melt growth, press. induced segregation effects 4−45462
$Al_xIn_{1-x}Sb$ alloys, preparation, electroreflectance spectra 4−76272
$Ga_xIn_{1-x}Sb$, scattering processes, transport phenomena under pressure 4−57096
$Ga_xIn_{1-x}Sb$ solid solns., liq. phase epitaxy, conditions for homogeneous growth *(French)* 4−53605
$(InSB)_x(CdTe)_{1-x}$, solid solution, bound parameters 4−72702
InSb-Zn-Te system, mutual effect of Zn and Te on distrib. ratios 4−61303
$(InSb)_x$-$(CdTe)_{1-x}$, solid soln., extremal conditions for interband interaction 4−67166
n-rype, observations of negative conductions under high mag. fields 4−82433
n-type, warm electron mobility, and comparison with theory 4−82425

indium compounds
see also indium alloys; indium antimonide
alkali metal indium double sulphates, $M^I_3In(SO_4)_3$, prep. and cryst. struct. *(French)* 4−63807
n-InSb, low temp. hot electron susceptibility 4−60733
minority carrier lifetime meas. with liquid and vapour phase epitaxial growth 4−45024
monocrystals, high temperature metallography *(Czech)* 4−64508
$CdIn_2S_4$ single crystal, phonon energy modes from tunnel effect 4−82234
$Ga_{0.5}In_{0.5}P$, electroluminescence of p-n junction 4−76320
(In,Ga)As, photoemission, Cs-O activation temp. effect on surface escape probability 4−64472
(In,Ga)As, vapour grown, transmission mode negative affinity, photoemission characs. 4−79844
In-P system simple soln. treatment, thermodynamic evaluation 4−52865
In-Se, amorphous film, growth and elec. props. 4−75988
InAs, acoustic deformation pots. calc. 4−64024
InAs, amorphous, band struct., Kohn variational method 4−69976
InAs, amorphous and cryst. films, densities of valence states, photoelectron obs. 4−60742
n-InAs, compensated, galvanomagnetic properties meas. 4−75897
InAs, donor-acceptor interaction investigation from Hall effect and microhardness meas. 4−67237
InAs, epilayer, anomalous transport coeffs. 4−79417
InAs, Ge^+, Si^+ ion implantation, donor and acceptor levels, annealing effects 4−75816
n-InAs, helicon propag. in quantised mag. field *(Russian)* 4−72815
InAs, optical obs. of lattice vibrs., theoretical approach 4−56837
InAs, phonon line broadening with polishing, surface refl. Raman scatt. obs. 4−44625
n-InAs, Raman scatt. by wave-vector-dependent LO-phonon-plasmon modes 4−79726
InAs, solubility in Pb, In, Sn and Bi, 500-1200°C *(German)* 4−69895
InAs, superradiative state and echo from coherent quasi-particles in interband transition 4−49391
InAs, thermoreflectance spectra, obs. of struct., 4-9 eV 4−53466
InAs crysts. from gaseous phase, morphology and struct. perfection *(German)* 4−49618
n-InAs:Se, modulated reflectance meas. at fundamental gap at 85K 4−45337
InAs:Zn,Te, carrier conc., impurity conc. depend. rel. to solubility limit, Hall meas. 4−75818
InAs-GaAs solid soln., iodide transfer, effect of source comp. 4−53610
$(InAs)_x$-$(CdTe)_{1-x}$, solid soln., extremal conditions for interband interaction 4−67166
InAs(c), vapour press. of As investig., enthalpies of form., decomp. determ. 4−52886
$InBO_2$, i.r. spectrum of vapour, study of molecular geometry 4−52166
$InBO_3$, single cryst., spectroscopic props. of BO_3^{3-} 4−53419
$InBr_4^-$, force constant calc., approximation methods evaluation 4−56155
$InBr_3(Cl_3)(I_3)$ vapours, i.r. absorpt. spectra, vibr. freqs. 4−69489
InCl, band spectrum in r.f. discharge, 3800-3350 Å, vibr. struct. 4−72177
$InCl_3$:Er^{3+}, cryst. field symm., optical spectra, calc. of props. 4−57582
$InCl_3$-H_2O system, thermodynamic characteriz. 4−80213
$InCl_4^-$, force constant calc., approximation methods evaluation 4−56155
$InCl_4^-$, normal coordinate anal., force constant determ. 4−47956
$InCl_5^{2-}$, normal coordinate anal., force constant determ. 4−47956
$InCl_6^{3-}$, normal coordinate anal., force constant determ. 4−47956
$InCoCrS_4$, synthesis and mag. props. investigation 4−76083
InD, Hund's case (c) $a^3\pi$ state, rot. energies, fine structure 4−43806
$InFeCrS_4$, synthesis mag. props. investigation 4−76083
$In_{1-x}Ga_xAs$, thermal diffusivity and thermal cond., depend., 300-750K 4−56850
$In_xGa_{1-x}As$, epitaxial layer, electron Hall mobility meas., phonon and disorder scatt. 4−45028
$In_xGa_{1-x}As$ epitaxial film, optical absorpt. coeff. as function of x and Zn acceptors 4−45316
InGaP:N, impurity ground state, screened ionic pseudopotential 4−60754
$In_{0.48}Ga_{0.52}P$, on GaAs, luminesc., laser and carrier lifetime behaviour 4−49417
$In_{0.5}Ga_{0.5}P$-$Ga_{0.4}Al_{0.6}As$, growth and laser operation 4−77682
$In_{1-x}Ga_xP$, laser quality cryst., direct-indirect transition 4−76303
$In_{1-x}Ga_xP$:Te, carrier conc., cond., Hall mobility, temp. depend. 4−82408
$In_{1-x}Ga_xP$:Te, Hall mobility, comp. depend., 300K 4−75890
$In_xGa_{1-x}P$ lattice-mismatched deposits on GaAs, asymmetric cracking obs. 4−49607
$In_2Ge_2O_7$, cryst. struct. exam. 4−78988

indium compounds continued
- InH, Hund's case (c) $a^3\pi$ state, rot. energies, fine structure 4−43806
- InI_4^-, force constant calc., approximation methods evaluation 4−56155
- $InMnCrS_4$, synthesis and mag. props. investigation 4−76083
- $InNiCrS_4$, synthesis and mag. props. investigation 4−76083
- In_2O, In_4O, InOGa, form., matrix isolated, i.r. spectra, force consts., struct. determ. 4−52157
- In_2O_3, heat of soln. in conc. HCl 4−80213
- In_2O_3 additions to MnZn ferrite, effect on phys. props. 4−49912
- InOCl, Tb^{3+} activated phosphor, synthesis, emission properties 4−64428
- $In(OH)_3$, heat of soln. in conc. HCl 4−80213
- n-InP, Ag-Ge-In and Au-Ge-Ni ohmic contacts *(Slovak)* 4−64134
- InP, amorphous and cryst. films, densities of valence states, photoelectron obs. 4−60742
- n-InP, bulk and epitaxial, vel.-field characts. 4−82402
- InP, Debye-Waller factors and melting criteria 4−75605
- InP, epitaxial growth, molar fraction effect in PCl_3-In-H_2 system 4−73263
- InP, exciton reflectance, surface characts. and field depend. 4−45325
- InP, excitons, degenerate, in mag. field, magneto-optical studies 4−75835
- InP, film growth from In and P_2 beams in u.h.v. 4−64515
- InP, high field transport, electron-phonon interactions 4−48992
- p-InP, hole mass, sub mm cyclotron reson. in pulsed mag. field 4−72698
- InP, ionization energy of shallow donors, mag. field effect, Hall coeff. and elec. cond. obs. 4−60760
- n-InP, magnetophonon effect, warm electron relax. 4−57107
- InP, melt-growth rel. to phase equilibria and v.p. of P and In-P systems 4−60593
- InP, optical obs. of lattice vibrs., theoretical approach 4−56837
- InP, oscillatory magnetoabsorption spectrum 4−73134
- InP, phonon line broadening with polishing, surface refl. Raman scatt. obs. 4−44625
- InP, second harmonic generation using CO_2 laser beam 4−77712
- InP, small signal characteristics at high fields 4−60802
- InP, solubility in Pb, In, Sn and Bi, 500-1200°C *(German)* 4−69895
- InP, superradiative state and echo from coherent quasi-particles in interband transition 4−49391
- InP, two photon absorption, exciton effect, degenerate valence bands 4−64387
- InP polycrystals, direct synthesis and vertical Bridgman method *(Czech)* 4−67719
- InP:Se, Te, S, epitaxial, dopant effective distrib. coeffs. 4−45482
- InP:Zn, p-n junction formation by diffusion at 700°C 4−49623
- InP-Zn(Cd)Te, molecular interactions in liquid solution 4−69890
- InP_xAs_{1-x} highly doped n-type solid solution, reflection spectra, carrier effective mass 4−53463
- In_2S_3-Se and In_2Se_3-S cross section phase diagrams 4−67018
- InSb films, amorphous and liquid, X-ray and electron diffr. exam. of short-range struct. 4−44468
- InSb:Te, impurity distrib. ratio investigation 4−45447
- InSe, amorphous thin films, short-range order determ. using elec. diffraction 4−53015
- n-InSe, hot carriers generation by strong microwave electric field 4−75877
- InSe, i.r. absorption cross section of nonequilib. carriers meas. at 300K 4−67593
- InSe, vapour deposition, dissociation into In_2Se 4−49583
- n-$In_xSn_{1-x}Te_{1+y}$, supercond. transitions, carrier density depend. 4−82517
- InTe, amorphous thin films, short-range order determ. using elec. diffraction 4−53015
- InTe, vapour deposition, dissociation into In_2Te_3 and In_2Te 4−49583
- InTe thin films, elec. registration of electron diff. struct. and comp. determ. *(Russian)* 4−63998
- In_2Te_5, single crystals, growth by chemical transport, struct. and props. 4−72457
- $InX_3(X=Cl_2Br,I)$, He I photoelectron spectra 4−72238
- $IrThC_2$, gaseous, mass spectral identification, mol. stability, struct. investig. 4−60109
- NH_4F-InF_3 system phases, lattice parameters *(French)* 4−44513
- PbO-In_2O_3-GeO_2 system, physical properties 4−61156

INDOR
- *see also Overhauser effect*
- bromoform, transient nutations, relaxation population transfer *(French)* 4−79642
- formamide, ^{14}N n.m.r. by INDOR technique 4−69522
- organophosphorus cpds., isolation of signals in n.m.r. spectra of heteronuclear double resonance with storage element 4−45210
- peptides, in soln., conformational anal. using n.m.r. techniques 4−52222
- KH_2AsO_4, of ^{39}K, ferroelec. phase 4−57424

inductance
- coil, induction, coaxial with arbitrary number of cylindrical conductors, theory 4−51501
- transformers, conformal transformation calc. *(Dutch)* 4−47276

inductance measurement
- convertor application, static *(Polish)* 4−46749
- d.c. inductance bridge, supercond. current quantum phase meas. 4−62486
- digital LCR meter, 1 MHz automatic 4−42832
- h.f., L-0170-2 set of inductance measures 4−50949

induction heating
- *see also electric furnaces; ovens*
- blood thermocoagulation, seed power study 4−65561
- plasma, circuit 4−56502
- plasma, PLT device, solid-state rectifiers and d.c. static breaker 4−56503
- plasma, PLT machine, ohmic heating and shaping field windings design 4−56539

inductor microphones *see microphones*

inductors
- *see also coils; transformers*
- coil, toroidal, e.m. field analysis *(Russian)* 4−47273

industrial atmospheres *see air pollution*

industrial control
- *see also process control; production control; quality control*
- manufacturing, laser beam applications and instrums., economics 4−47398

industrial economics *see economics*

industrial plants
- noise control problems 4−50923
- uranium enrichment, gaseous diffusion process *(French)* 4−71999

industrial research management *see research and development management*

industrial standards *see standards*

industries
- *this heading is restricted to those industries which are not covered by other specific headings*
- *see also ceramic industry; chemical industry; food processing industry; glass industry; metallurgical industries; petroleum industry; textile industry*
- precision meas. light sensing devices applications, non-scanned 4−71187

inert anodes *see anodes*

inert gases
- *see also argon; helium; krypton; neon; radon; xenon*
- adsorption isobars for small monocryst. surfaces *(French)* 4−82320
- adsorption on solid surfaces, isotherm determ. from virial data, model 4−69958
- adsorption on transition metals, differences for polycryst. and single cryst. surfaces *(French)* 4−44758
- alkali-inert gas atom pairs, pot. model, excited mol. term effects 4−52013
- atom, electron shell collective oscillations effective interaction with exchange RPA calc. 4−72016
- atom + CH_3X ($X=NO_2$, CN, I, Br) electron capture from excited atomic states 4−66510
- atom + ion (alkali and halide), repulsive interaction pot. curve calc. 4−66350
- atom + UF_6 interaction potential, statistical model 4−72254
- atom-electron scattering, absorption model 4−51412
- atomic collisions, I_2 collision-induced predissoc., appl. of classical trajectory calcs., pot. surface crossing 4−78525
- beam scattering from LiF surface, tangential rel. effects 4−64459
- collisional broadening of OCS rot. spectra 4−56260
- collisions, with pyrene isolated mols., effect on fluoresc., vib. relax., intermediate strong coupling 4−78524
- crystal, anharmonic contribs. to zero point energy 4−44638
- crystal, high order multipole long range interactions between atoms 4−79110
- crystal, lattice dynamics in terms of localised orbitals 4−44631
- defect configurations, inert gas complexes in W 4−72482
- density, refr. index, solid layers 4−70378
- diffusion in lunar soil particles and implanted glasses 4−62057
- diffusion of Br_2 and Cl_2, exptl. obs. 4−52333
- diluents, halogen atoms in, recomb. mechanism 4−80170
- discharge, positive column dynamic behaviour, linear theory derivation *(German)* 4−63714
- discharge, positive column dynamic behaviour, linear theory appl. to low and medium press. *(German)* 4−63715
- excimer laser, dynamic model 4−77645
- four-photon parametric amplification and generation calc. 4−59453
- gas discharge, normal current density, gas press. depend., metastable interactions *(Russian)* 4−82052
- Grotrian charts, atoms or ions 4−43720
- inert gas ion + alkali metal ion interaction, molecular ion formation 4−66353
- intermolecular pair-potential energy functions 4−72256
- intramolecular forces between atoms, self-exchange correction 4−56046
- ion, multiply ionized, Z-pinch discharge, ultraviolet laser oscillations 4−62834
- ion injection into UO_2, thermal evolution spectrometry 4−51896
- liquid, nuclear quadrupolar spin-lattice relaxation 4−79626
- long-range interatomic pots., dispersion coeff. ratios of atom pairs 4−59974
- multiple photoionisation 4−78565
- origin of inert gases in rusty rock 66095 from lunar surface 4−65109
- permeation through polymer membranes 4−54084
- plasma, high density, elec. cond. 4−56468
- plasma, thermally ionized gas, spectral characts., 5000-30000K 4−60317
- potential energy functions derived to represent intermol. pair pot. energies 4−48153
- purification and meas. of low residual impurity levels 4−74175
- quenching media for steel 4−76492
- rarefied, flow in capillary network, temp. depend. *(Russian)* 4−69596
- scintillation counters, gas-proportional, near i.r. and u.v., gas mixtures 4−46811
- solid, melting press. depend., anal. 4−56863
- subshell photoionization cross section determ. by u.v. photoelectron spectroscopy 4−74863
- thermal accommodation coeffs. on stainless steel and UO_2 4−59852
- translational absorption, field induced 4−81711
- u.s. wave propagation, force parameters and energy produced calcs. 4−60145
- viscosity measurement, classical slip correction for capillary viscometers 4−65599
- Cd_2 fluorescence in inert gas and NH_3 matrices 4−67629
- HCl(DCl) + $^{3(4)}$He(Ne)(Ar), V → T, R energy transfer 4−56314
- K + inert gas, electronic excitation cross section meas. 4−66319
- Rb-inert gas complexes, fluoresc. spectra meas., mol. pots. determ. 4−60089

inertial navigation
- Earth, revolving uniform ellipsoid, inertial navigation procedure *(Russian)* 4−80389

infinite series *see series (mathematics)*

inflammability *see combustion*

information analysis
- *see also classification; indexing*
- radiologic narrative data, computer processing 4−50869

- **information retrieval**
  - *see also information storage*
  - diagnostic X-ray three-dimensional information retrieval by optical filtering 4-58582
  - phase transitions materials with optically distinguishable states, pot. appl. 4-62871
  - radiology reporting, computerised, word retrieval using MTST 4-50867
- **information retrieval systems**
  - ALKHAL computer-accessible file, geologic salt systems 4-64766
  - card catalogue for chemical reagents in an organic laboratory 4-58721
  - geophysical input and output *(Russian)* 4-58154
  - interactive access system, for acoustics databank 4-68572
  - i.r. spectral computer storage and search system 4-77270
  - radiology report coding, automated system 4-50866
  - radiology reporting, on-line computer system, further development and initial use 4-50871
- **information science**
  - *see also classification; indexing; language translation and linguistics*
  - radiological applic. of computers, conference, Columbia, Mo., USA (1970) 4-50855
- **information services**
  - medical systems, future 4-50814
  - microscopy, automatic image analysis 4-51049
  - star catalogues on magnetic tape at Strasbourg Stellar Data Centre 4-65139
  - Texas medical physicists' professional organisation 4-46397
- **information storage**
  - *see also information retrieval*
  - chest radiograph reporting, with short list of disease processes 4-50870
  - diagnostic radiology, information system, DRIS 4-50868
  - i.r. spectral computer storage and search system 4-77270
  - phase transitions materials with optically distinguishable states, pot. appl. 4-62871
  - radiological reporting, automated system development 4-50872
  - radiology report coding, automated system 4-50866
- **information storage systems** *see information retrieval systems*
- **information systems, management** *see management information systems*
- **information theory**
  - *see also codes; correlation theory; decision theory and analysis; estimation theory; filtering and prediction theory; modulation; signal detection; signal processing; speech intelligibility*
  - acoustic wavefront reconstruction, concert hall problem 4-68552
  - de Broglie's cyclical action integral, mathematical form 4-55403
  - entropy, math. definition 4-74451
  - entropy eqn. from reduction of Faddeev's theorem 4-59073
  - epitaxy, nucleation and crystallisation, review and information theory anal. *(Russian)* 4-69965
  - Gaussian white noise, average powers, limit theorem 4-51306
  - geodetic networks, local adjustment by least squares filtering 4-61645
  - helical particles, computer-generated Fourier transforms 4-71503
  - measurement error empirical distribution approximation method *(Bulgarian)* 4-46548
  - Mellin transformation, power spectrum, appl. to extraction of information from noisy data 4-59050
  - modulation, laser beam, a.m. and intensity modulation, output S/N ratios, calcs. 4-59361
  - nonequilibrium thermodynamics, information theory approach 4-43221
  - optimal quantification of a measured physical process for transmission of results in discrete form *(Russian)* 4-68603
  - spectral density evaluation for uncertain operator *(Russian)* 4-54814
  - thermodynamical application 4-81257
  - Toeplitz$_{(\alpha \text{ by } \beta)}$ matrices and statistically periodic processes 4-65646
- **information use**
  - microscopy, automatic image analysis 4-51049
- **infrared astronomical observations**
  - AFCRL No.809-2992, spectrophotometry in 2.8-14 μ range 4-50636
  - RX Andromedae, dwarf nova, i.r. photometry near max. light 4-83225
  - RW Aurigae stars, i.r. photometric survey of 89 objects 4-50603
  - BC-10°4662, HKL colours rel. to classification as T Tauri type 4-46220
  - Be stars, IR excess in 2.3-19.5 μ range, rel. to circumstellar plasma shell 4-80561
  - BQ[] stars, 2 component model and evolutionary sequence from 3800-10900 A obs. 4-76830
  - Bright Dark Nebula in Chamaeleon, discovery, UBVRI plates 4-62210
  - V Cancri, angular diam., effective temp. from 1973 April 11 lunar occultation 4-54479
  - carbon stars, mean absolute magnitudes from motions and photometry 4-62121
  - η Carinae, 34 μ flux from circumstellar dust shell 4-68444
  - chromospheric He I 10830 and 20581 A emission line obs. during 1973 June 30 eclipse 4-70875
  - Circinus X-1 candidate, JHKL i.r. magnitudes 4-54532
  - Coalsack, T Tauri star search, photographic UBVI obs. 4-50717
  - Comet Bradfield (1974b), i.r. and visual magnitudes and tail obs. 4-50521
  - Comet Kohoutek (1973f), i.r. obs. near perihelion 4-58270
  - cool stars, detection of i.r. electronic transition of AlO in spectra 4-80594
  - cool stars, i.r. fluxes, spectral types and temps., 0.55-10.2 μ photometry 4-50567
  - cosmic background spectrum in 800 μ to 3 mm range 4-83240
  - SS Cygni, dwarf nova, i.r. photometry near max. light 4-83225
  - NML Cygnus analysis of near i.r. image at 8000 A 4-50634
  - DR 21, broadband i.r. obs. in 800 μ-2 mm range 4-50711
  - extreme Be stars, i.r. excesses from 0.32-3.5 μ energy distribs. 4-62120
  - F and G type stars, C and Fe abundances 4-76832
- **infrared astronomical observations** continued
  - F supergiants, OI 7774A equivalent width and absolute mag. 4-58295
  - far i.r. obs., interpretation 4-73869
  - Fourier spectra of stars and planets 4-62110
  - G333.6-0.2, 34 μ energy distribution 4-68444
  - galactic centre, 34 μ energy distribution 4-68444
  - galactic centre, spectrum in 8-13.5 μ region and interstellar silicate 4-73809
  - galactic centre region, i.r. polarization search 4-46318
  - galactic nucleus, i.r. polarisation at 11 μ 4-50675
  - Galilean satellite i.r spectra rel. to H_2O frost surface 4-50494
  - GD229, white dwarf, circular polarisation, wavelength dep. in 3260-9260A range 4-62141
  - H II regions, multicolour far i.r. photometry in galactic plane 4-73851
  - HD 92964 and 147889, JHKL i.r. photometry of interstellar extinction 4-76842
  - Hergig-Haro objects and reflection nebulae illumination rel. to evolution 4-70981
  - interstellar circular polarisation from survey of 84 bright stars 4-62217
  - interstellar K I lines, interferometric scans 4-46288
  - Io, He 10830A emission line obs. 4-68357
  - IRC + 10011, angular diam. at 2.2, 10 and 20 μ from lunar occultations 4-80570
  - IRC sources, 2.3-18 μ obs. 4-71027
  - JHKL photometry of 13 stars in LMC 4-73712
  - Jupiter, C_2H_2 and C_2H_6 identification in i.r. spectrum 4-73620
  - Jupiter, cloud structure from H_2 quadrupole line intensities 4-54422
  - Jupiter i.r. video pictures at 5 μ, comparison with colour photographs 4-50478
  - K3-50, compact H II region,, i.r. spectrophotometry rel. to interstellar reddening 4-50704
  - K giants, CO band strengths, $^{12}C/^{13}C$ ratio 4-70975
  - late-type star Ca 8498A triplet profiles 4-70970
  - linear interstellar polarization meas. in u.v. and i.r. 4-58435
  - luminosity function field LF 15, M giant space distrib. 4-50593
  - lunar craters, i.r., radar and geologic mapping 4-68383
  - RULupi, T Tauri type, 3490-10410 A obs., protoplanetary system candidate 4-73693
  - β lyrae, complex i.r. emission features in spectrum 4-65153
  - Mars, atmospheric vertical temp. profile 4-50501
  - Mars, tidal pressure, wind fields, from Mariner 9 i.r. spectroscopy experiment 4-65105
  - Mars polar hood, ozone and cloud distrib. 4-65101
  - Martian surface hydrate and solid water from 1969 Mariner IRS obs. 4-54420
  - Mercury, i.r. radiometry, preliminary Mariner 10 obs. 4-70944
  - mercury CO_2, CO atmosphere upper limit form i.r. spectra 4-46172
  - Moon, i.r. remote spectral reflectance meas. 4-50510
  - NGC 1068, i.r. emission by dust in Seyfert galaxy, 5-27 μ obs. 4-65200
  - NGC 1068, Seyfert galaxy i.r. flux at 11 μ 4-46268
  - NGC 2024, 400 μ ground-based obs. of nebula 4-80659
  - NGC 4151, Seyfert galaxy i.r. flux at 11 μ 4-46268
  - NGC 6334 and 6357, i.r. photometric obs. of galactic H II regions 4-73853
  - NGC 6572, planetary nebula line identification and flux values in 1.6-0.9 μ range 4-54588
  - NGC 6857, planetary nebula, i.r. spectrophotometry rel. to interstellar reddening 4-50704
  - NGC 7009, planetary nebula spectrophotometry in 4000-8600 A range stratification effects 4-54585
  - NGC 7027, planetary nebula, absolute spectrophotometry in 7000-10000 A range 4-54590
  - NGC 7099, globular cluster, i.r. photometry, selection of cluster members 4-80630
  - NGC 7538, H II region, new i.r. sources discovered in 1.65-20μ range 4-46255
  - Nova Delphini 1967, 4000-9000 A spectroscopic obs. 4-80575
  - Orion i.r. nebula, magnetic field from i.r. polarisation, microwave OH emission 4-62172
  - orion molecular cloud, 350 μ mapping and thermal radiation from dust 4-73837
  - Orion Nebula, 21 μ map 4-54571
  - Orion Nebula, 400 μ ground-based obs. 4-80659
  - Orion nebula, emission lines near 8500 Å 4-62211
  - Orion Nebula, filamentary structure seen in OI 8446 Å emission line 4-83257
  - Orion Nebula, new i.r. complex and molecular cloud 4-80609
  - Orion Nebula broadband i.r. obs in 800 μ-2 mm range 4-50711
  - penumbral filament temps., variation with wavelength 4-80487
  - Periodic Comet Encke, visible and i.r. magnitudes 4-50518
  - Phobos, i.r. radiometry from Mariner 9 rel. to dust cover 4-65090
  - photospheric B abundance from B I 16244.66 A line obs. 4-73613
  - planetary nebulae, i.r. emission by dust, 5-27 μ obs. of three objects 4-65200
  - red giants in four globular clusters, i.r. photometry 4-76854
  - Saturn rings, i.r. radiometry 4-58247
  - BM Scorpii and six i.r. sources near M6, obs. at i.r. wavelengths 4-80610
  - FK Serpentis (BD−10°4662) i.r. obs. rel. to post T Tauri type 4-83226
  - Sh 2-157, i.r. source detect. at 2.2 μ 4-76876
  - SN 1972e in NGC 5253, objective prism spectra near max. phase 4-58356
  - SN 1972e in NGC 5253, spectra, fluoresc. theory 4-58355
  - southern emission-line stars, i.r. photometry 4-50606
  - southern galaxies, 10 μ obs. of seven objects 4-73794
  - stars, i.r. spectroscopy 4-58292
  - stellar planetary nebulae, i.r. excesses 4-71002
  - sunspot magnetic field temporal variations 4-70904
  - sunspots, large, umbral intensities 4-70905
  - super Li stars, KI resonance lines rel. to Li abundance 4-58294
  - supernova envelopes, test for existence of dust from Ca II emission spectrum 4-83218
  - TTauri emission nebula photoelectric and spectrographic obs. 4-80564
  - Titan, i.r. photometry and atmospheric model constraints 4-70926

infrared astronomical observations continued
- Titan, narrow band photoelectric meas. rel. to methane band contours, geometric and bolometric albedo 4-50483
- 47 Tucanae (NGC 104), near-i.r. photometry of metal-rich globular cluster 4-50684
- type I supernova envelopes, initial expansion phase, light element abundances 4-65177
- unidentified IRC stars, near i.r. photometry 4-80571
- Venus, i.r. radiometry from Mariner 10 4-70935
- Venus, Mariner 10 encounter 4-70934
- Venus, water vapour, airborne obs. at 8200 A 4-50482
- W3, 0.70 and 0.92 μ obs. of three i.r. sources 4-76914
- W3, H II region, new i.r. sources discovered in 1.65-20μ range 4-46255
- H II region i.r. emission in 1.5μ→-1.5 mm range 4-58441
- OH/i.r. stars, time var. of OH microwave and i.r. emission from 14 late-type objects 4-62126

infrared astronomy
- asteroid size determ., recalibration of photometric/radiometric method 4-76920
- Cassegrain telescopes, i.r. background radiation reduction 4-83261
- chopper designed for i.r. photometry 4-65229
- far i.r. obs., interpretation 4-73869
- First European Astronomical Meeting, Athens 1972 4-73803
- flux nomogram, units conversion 4-73866
- Fourier transform spectrophotometer, 700-10000 cm^{-1} 4-62264
- interferometry, three element optical systems 4-65451
- M-stars, 2μ absorptions and 11μ emissions 4-50561
- narrow-band electrophotometer with wedge interference filter 4-54616
- observation techniques and equipment, review 4-73870
- planetary atmospheres, i.r. radiation transfer 4-73641
- red-i.r. colour measurement, stellar effective temp. determ. 4-58466
- review 4-73868
- scanning Michelson interferometer, phase correction in Fourier transform spectroscopy 4-62235
- NH$_3$, spectral absorpt. coeffs. 4-63429
- SiO interstellar masers, i.r. pumping processes 4-73838

infrared communication *see optical communication*

infrared detectors
- *see also bolometers; photodetectors*
- bolometer, semiconductor, limiting sensitivity *(Russian)* 4-54849
- bolometer, uses p-type TlSe chip as temp. sensitive element 4-54835
- construction, including pyrometer, voltage-level detector and trip circuit 4-42753
- gas analyser, sub-ppm 4-81081
- hygrometer, high precision atm. hygrometry using solar i.r. spectrum 4-64996
- Josephson junction device 4-67318
- laser beam applications *(German)* 4-47367
- microrefrigerator, Joule-Thomson, for i.r. detector cooling, crit. CO$_2$ conc. 4-68653
- nondestructive testing, materials and components *(Czech)* 4-64669
- nondestructive testing, military applics. 4-57795
- photoconductive, cryogenically cooled, transimpedance preamplifier 4-71166
- photoconductive i.r. detectors, ultralow noise preamplifier and bias supply 4-62426
- pyrgeometer for terrestrial atmospheric i.r. radiation meas., evaluation 4-46103
- pyroelectric cavity bolometers for i.r. spectral meas. *(Russian)* 4-80897
- review, applications 4-42742
- review, spectral response, time constants, temperature of operation 4-42743
- target identification system, bivariate distrib., correl. and transform. props. 4-51529
- thermal thin film detectors, dynamics in imaging systems, basic eqns. and Fourier anal. 4-58755
- thermovision, temperature distribution detection by thermal imaging *(German)* 4-46592
- triglycine sulphate vibrating plate, temp. autostabilized 4-71165
- Ge:Au, sensitivity enhancement, 4-8μ region 4-67730
- HgCdTe, spectral response, time constants, temperature of operation 4-42743
- Hg$_{1-x}$Cd$_x$Te crystal production Cd distrib. meas. by neutron radiography 4-62573
- (Pb,La)(Zr,Ti)O$_3$, pyroelec. detector, radiation absorption 4-73109
- PbSnTe, spectral response, time constants, temperature of operation 4-42743

infrared imaging
- colour film, optimum colour balance selection 4-46721
- electron mirror image tube i.r. photocond. layer, prep. from PbO and S 4-72817
- fluoride-based multiple-photon, phosphors for i.r. to green light conversion *(German)* 4-49463
- multiple-photon phosphors, physics and technology review *(German)* 4-49462
- nondestructive testing, military applics. 4-57795
- nondestructive testing, scan laser heat source applic. 4-55535
- phosphors, i.r. to visible light conversion mechanism and efficiency 4-49444
- power transistor current distribution 4-54867
- remote sensor systems 4-46730
- surveying land use, low cost computer aided image interpretation 4-50979
- thermal thin film detectors, dynamics in imaging systems, basic eqns. and Fourier anal. 4-58755
- thermovision, temperature distribution detection *(German)* 4-46592
- GeTe application, exponential photocond. edge, spectral response 4-67245

infrared-infrared double resonance *see two-photon spectra; two-photon spectroscopy*

infrared radiometers *see radiometers*

infrared sources
- diffuse cavities, isothermal and nonisothermal, cones and cylinders 4-42745

infrared sources continued
- electron beam modulation, coherent emission up to 30 MW 4-43232
- flash source, EV-39, calibration 2.4 to 5.3μ, 20000K brightness temp. 4-58783
- heating apparatus, for single crustal growth 4-79874
- lasers, far i.r., review 4-77640
- radiation efficiency *(German)* 4-80891
- soft mode anomaly device applications 4-63883
- stimulated Raman scattering tunable source 4-81351

infrared sources (astronomical)
- AFCRL No.809-2992, spectrophotometry in 2.8-14 μ range 4-50636
- AFCRL-UOA IR source No.19, compact H II region, radio detection 4-65220
- BQ[] stars, 2 component model and evolutionary sequence from 3800-10900 A obs. 4-76830
- VY Canis Majoris, emission bands of ScO 4-50558
- η Carinae, 34 μ flux from circumstellar dust shell 4-68444
- cocoon star gas and dust shell breakup producing high velocities in H II regions 4-65173
- cool carbon and O rich stars, high resolution spectra in 10, 20 μ regions 4-50560
- cool stars, i.r. fluxes, spectral types and temps., 0.55-10.2 μ photometry 4-50567
- cosmic background spectrum in 800 μ to 3 mm range 4-83240
- V1057Cygni OH source, var., polarization and position at 1720 MHz 4-71028
- NML Cygnus, analysis of OH interferometry at 1612 MHz 4-50635
- NML Cygnus analysis of near i.r. image at 8000 A 4-50634
- electron pair production in IR and X-ray extragalactic sources 4-73769
- G333.6-0.2, 34 μ energy distribution 4-68444
- galactic centre, 34 μ energy distribution 4-68444
- HD 45677, infrared Be star, dust shell model 4-50559
- IRC + 10011, angular diam. at 2.2, 10 and 20 μ from lunar occultations 4-80570
- IRC sources, 2.3-18 μ obs. 4-71027
- AP Librae, Lacertid, UBVRIJHKL photometry 4-73757
- molecular mm emission lines rel. to early stellar evolution 4-80608
- NGC 7538, H II region, new i.r. sources discovered in 1.65-20μ range 4-46255
- Orion i.r. nebula, magnetic field from i.r. polarisation, microwave OH emission 4-62172
- Orion Nebula, CO and CS line emission maps 4-73854
- Orion Nebula, filamentary structure seen in OI 8446 Å emission line 4-83257
- Orion Nebula, new i.r. complex and molecular cloud 4-80609
- BM Scorpii and six i.r. sources near M6, obs. at i.r. wavelengths 4-80610
- Sh 2-157, i.r. source detect. at 2.2 μ 4-76876
- southern galaxies, 10 μ obs. of seven objects 4-73794
- stars with extreme interstellar reddening 4-76877
- supergiant binary systems containing i.r. stars 4-65152
- type I OH sources, 6.3 cm excited line obs. 4-73752
- unidentified IRC stars, near i.r. photometry 4-80571
- W3, 0.70 and 0.92 μ obs. of three i.r. sources 4-76914
- W3, H II region, new i.r. sources discovered in 1.65-20μ range 4-46255
- H II region i.r. emission by dust grains 4-80655
- H II region i.r. emission in 1.5μ→-1.5 mm range 4-58441
- H II regions, i.r. excess and dust grain absorption of trapped Lyman α photons 4-54567
- OH maser sources assoc. with H II regions, pumping by far i.r. radiation 4-54529
- OH sources, unusual strong 1612 MHz emission, i.r. pumping explanation 4-73751
- OH stars, 6 cm. emission from i.r. 4-54482
- OH/i.r. stars, time var. of OH microwave and i.r. emission from 14 late-type objects 4-62126

infrared spectra of organic molecules and substances
- *see also molecular rotation; molecular vibration*
- acetamide, cryst., i.r. spectra, normal modes, valence force field determ. *(French)* 4-43848
- acetone-electrolyte solutions, i.r. spectra interpret. by CNDO treatment 4-48004
- acetonitrile, chloroform soln., i.r. spectral lines, rot. and vibr. broadening, correlation functions *(French)* 4-72189
- acetonitrile, Coriolis reson. anal. 4-72184
- acetonitrile, rot. diffusion and vibr. relax. 4-53409
- N-2-acetyl-1,3-indanedione quinolinium iodide, i.r. absorption, H-bonding 4-60064
- acetylene, i.r. spectra, integrated intensity of three bands meas. 4-66440
- m-acrylamide-styrene copolymer, amide groups assoc. *(Russian)* 4-61612
- adenine, and Na salt, deuterated derivs., i.r. and Raman spectra, band assignment *(French)* 4-57519
- L-alanylglycine, i.r. spectrum, normal vibrs. 4-56210
- alcohols, Raman fundamentals and i.r. overtones of O-H stretching vibrs. investig. 4-70289
- alcohols, specific hydrogen bonds, i.r. spectroscopy *(Russian)* 4-70604
- alkali-TCNQ salts, light absorption, 4000-20000 cm^{-1}, Bloch model 4-73115
- alkyl acetates and formates, torsional vibrs., freq. shift 4-63438
- alkyl ammonium cadmium chloride, 2-dimens. layer, for i.r. optical phonon spectra 4-73110
- alkyl ammonium copper chloride, 2-dimens. layer, for i.r. optical phonon spectra 4-73110
- alkyl isoselenocyanates, vibr. spectra, rot. isomerism 4-56246
- alkyl propionates, vibr. spectra, investig., mol. force constants determ. 4-72194
- amine-alcohol systems, gas phase hydrogen bonding, i.r. spectroscopic investig. 4-66396
- amines, Raman fundamentals and i.r. overtones of N-H stretching vibrs. investig. 4-70289
- p-aminophenylacetate, i.r. spectra in crystal phase 4-61142
- ammonium acetate and formate, high press. phase transitions 4-63911

infrared spectra of organic molecules and substances continued

- anthracene, cryst., reflect. line shape anal. rel. to exciton dynamics, distortion effects investig. 4−48940
- anthracene, Davydov doublet parameters, crystn. and temp. effects *(Russian)* 4−67594
- p-azoxyanisole series, preorientation pot. barriers, i.r. absorpt. spectra 4−49333
- benzene, CNDO/S calcs. of transition moments, vibronic oscill. strengths 4−60034
- benzene, phosphoresc., absorpt. spectra, lower electronic states, vibrs. investig. 4−66472
- benzene, temperature and dilution effects on sub-millimetre absorption 4−45297
- benzilidene-aniline, i.r. spectra in crystal phase 4−61142
- benzoic acid, disappearance of COOH i.r. bands 4−57518
- benzophenone, i.r. absorpt. spectra of single crysts. in polarized light *(Russian)* 4−67595
- p-benzoquinone(-d$_4$), (-h$_4$), solid, i.r. and Raman spectra, vibr. assignment 4−48019
- benzoyl halides, i.r., Raman spectra, vibr. assignments 4−74986
- benzyl alcohols, substituted, conform. equil. obs. *(Russian)* 4−52179
- bromoform, in soln., i.r. spectral lines, vibr. and rot. broadening, correlation functions *(French)* 4−72191
- bromomethylgermane, and deuterate, i.r. spectra, vibr. assignments, force consts. 4−56225
- 1-butanethiol, liq., solid, i.r. and Raman spectra, vibr. analysis, rot. isomerism 4−49340
- p-n-butylaniline, i.r. spectra in crystal phase 4−61142
- n-butyryl bromide, solid and liq., vibr. spectra and rot. isomerism 4−66431
- n:butyryl chloride, solid and liq., vibr. spectra and rot. isomerism 4−66431
- calcium formate, i.r. spectra, vibr. anal. of polymorphism 4−57546
- carbon tetrachloride, total band absorpt. models 4−49367
- carboranes-12, B-andC-halogensubstituted, structure and infrared spectra *(Russian)* 4−66444
- carboxylic acids, torsional vibrs., freq. shift 4−63438
- 2-chloro, 4-nitrotoluene, Raman and i.r. spectra 4−52146
- 1-chloro-2-phenyl ethane, vibr. spectra, assignments and internal rot. barrier 4−56248
- chloroform, in soln., i.r. spectral lines, vibr. and rot. broadening, correlation functions *(French)* 4−72191
- chloroform, i.r. vibr. spectra, ^{12}C/^{13}C isotope shifts, force field 4−48023
- chloroform, liq., solid, permittivity, i.r. spectra, residual absorpt. investig., mol. rot. 4−82693
- β-chloropropionyl chloride, liq., rot. isomerism, Raman, i.r. spectra 4−78455
- β-chloropropionyl chloride, solid and liq., vibr. spectra and rot. isomerism 4−66431
- choline chloride, irrad., solid-state chemistry 4−80692
- copolymers of unsaturated acids with styrene, hydrogen bond form., struct. influence *(Russian)* 4−56334
- trans-α-cyanostilbenes, i.r. and u.v. spectral study 4−47968
- cyclic carbonates, i.r. and Raman spectra, vibr. assignment, mol. struct. 4−48034
- cyclohexane derivatives, low temp. h.p. far-i.r. spectra of condensed phases 4−64392
- cyclopropyl halides, i.r. spectra, mol. vibrs., force constants 4−56224
- β-cyclotetramethylene tetranitramine and isotopic isomers, cryst. and in soln., vibr. spectra 4−52149
- dibenzenechromium(0), synthesis, and i.r. spectral assignments 4−63430
- dibenzyl, comparison of laser Raman and far i.r. spectra 4−52175
- 1,1-dibromocyclopropane, vibr. spectra assignment, 4000-50 cm^{-1} 4−48038
- 1,1-dibromoethane, and deuterate, far i.r. and Raman spectra, vibr.-rot. anal. 4−52156
- 2,6-dichloro-4-bromophenol, study of solid phase transitions 4−52890
- 9,10-dichloroanthracene, solution dielec. const. effect on $\Delta\nu_{00}$ of electronic transition *(French)* 4−45279
- trans-1,2-dichloroethylene, temperature and dilution effects on submillimetre absorption 4−45297
- 2,4-dichloropentane, normal coords. calc. of vibr. spectra 4−52161
- 3,5-dichlorophenol, near u.v. and i.r. absorption spectra 4−56185
- N,N′-diethyl aniline, laser Raman and i.r. spectra, mol. association in liq. and soln. 4−57511
- 2,4- and 2,5- difluoro nitrobenzene, liq., i.r. and laser Raman spectra 4−53412
- p-difluorobenzene, temperature and dilution effects on sub-millimetre absorption 4−45297
- 1,1-difluoroethane, rotational spectrum 4−66439
- diheptyloxyazoxybenzene, liq. crystal, benzene ring rot. IR correl. functions 4−56607
- N,N′-dimethyl aniline, laser Raman and i.r. spectra, mol. association in liq. and soln. 4−57511
- dimethylchlorosulphonium-hexachloroantimonate(V), vibr. assignments *(German)* 4−56242
- diols in DMSO/CCl$_4$ solns., ν(O-H) valence vibr. band obs. *(French)* 4−48014
- 1,2-diphenyl ethane, vibr. spectra, assignments and internal rot. barrier 4−56248
- 2,3-diphenyl-3-(N-methylbenzamido)-1-propanols, conformational equilibria *(Bulgarian)* 4−47918
- 9,10-diphenylanthracene *(French)* 4−45279
- dipolar liquids, microwave and far-i.r. absorpt. spectra interpret. w.r.t. librational and relax. motion 4−61250
- $\gamma\gamma'^{d}$ipyridyl, solid and soln., i.r. and Raman spectra, vibrs., mol. struct. 4−56212
- ethane, ν_9 fundamental, intensity, absorpt. meas. rel. to Jupiter and Saturn atms. 4−74993
- ethane, torsion-vibr.-rot. interaction, $\nu_{12}+\nu_4$, ν_8 and ν_6 bands 4−43849
- ethanol glass, photoconversion of solvated electrons to trapped electrons at 6K 4−73439
- ethenylvinyl ethers and thioethers, vibr. spectra analysis *(Russian)* 4−60046

infrared spectra of organic molecules and substances continued

- p-ethoxybenzilidene, i.r. spectra in crystal phase 4−61142
- ethylene, dipole moment derivatives and i.r. intensities 4−74989
- ethylene oxide, and deuterate, mol. vibrs., force constants 4−56223
- ethylene sulphide, and deuterate, mol. vibrs., force constants 4−56223
- ethylene-1,1-D$_2$, high resolution i.r. spectra 4−60072
- ethylenediamine-perchlorate solutions, NH band splitting in vib. spectra 4−48005
- flavones and iso flavones, i.r. spectra, IF$_3$ and BF$_3$ effect on carbonyl freq. 4−56238
- 9-fluorenone, mol. freq. anal. of crystal polarised i.r. and Raman spectra 4−53423
- fluoro alcohols, conform. analysis, CNDO/2 calcs., i.r. evidence and dipole moments 4−66363
- fluoro-bromo-toluenes, vibrational spectra in 200-4000 cm^{-1} region 4−48016
- o- and p-fluoroacetophenone, i.r. spectra, vibr. assignments 4−60063
- formaldehyde, dipole moment derivatives and i.r. intensities 4−74989
- formaldehyde-d$_2$, i.r. spectrum, ν_2 vibr.-rot. band anal. 4−72200
- furazan(1,2,5-oxadiazole), i.r. spectra and vibrational assignments *(Spanish)* 4−48003
- glycerol, polycrystalline films, mid-i.r. spectrum 4−49339
- glycine anhydride and N-deuterated compound, vibr. spectra, normal coord. anal. 4−48040
- glycolic vinyl and isopropenylacetylene series, specific hydrogen bonds, i.r. spectroscopy *(Russian)* 4−70604
- glyoxal, in glass matrix of 2-methyltetrahydrofuran, i.r. spectra, lower excited states 4−63424
- guanidinium aluminium disulphate hexahydrate, and hexadeuterate *(French)* 4−70290
- imidazole, NH stretching vib. subband struct. 4−56218
- intermolecular complexes, vib. spectroscopy, applic. to binary chloroform solns. 4−43840
- i.r. spectrometry, review and bibliography, on apparatus, techniques, chem. appls., anal. 4−81067
- isobutyramide, amide groups assoc. *(Russian)* 4−61612
- Kristik 189, props. of resin *(Bulgarian)* 4−53847
- lecithin-phosphatidyl serine-water, liquid crystals 4−75444
- liquid, i.r. circular dichroism of C*-H and C*-D stretching modes 4−52147
- liquid, i.r. circular dichroism of C*-H and C*-D stretching modes 4−52148
- liquid crystals, anisotropy of rotational diffusion in nematic and isotropic phases, i.r. spectra determ. 4−82112
- lithium acetate dihydrate, gamma irrad., e.s.r., u.v. and i.r. spectra 4−48091
- low temperature crystalline phases, unit cell symmetry and phase transitions obs. 4−48758
- mesitil, molecular conformation, spectral analysis 4−74927
- meso-1,2-dicyano-1,2-diphenyl ethane, vibr. spectra, assignments and internal rot. barrier 4−56248
- metallocenes, mol. crysts., vibr. spectra assignments 4−70294
- methane, ^{13}C enriched, $3\nu_3$ band lines meas., comparison with ^{12}C $3\nu_3$ band lines 4−52200
- methane, anharmonicity, local-mode anal. of XH-stretching overtone spectra 4−48020
- methane, multiplet intensities, inert gas-broadened linewidth meas. in ν_3 fundamental 4−69506
- methane, spectral constants for $(\nu_1+\nu_4)$ vibration-rotation band *(French)* 4−78458
- methane, study of $(\nu_3+\nu_4)$ vibration-rotation band *(French)* 4−52176
- methanol, deuterated, i.r. spectra in Ar matrix, force field calc. 4−48039
- methanol, valence force field, i.t. spectra rotamers and conformation, deuterated derivs. 4−66438
- methanol-perchlorate solutions, OH band splitting in vib. spectra 4−48005
- methoxyacetonitrile, vibr. spectra, internal rot. barriers and conform. 4−66441
- methyl acetylene, deuterated, vibr.-rot. spectra, Coriolis reson. 4−56229
- methyl bromide, Fourier transformed i.r. spectra of $2\nu_5$ band, assignment 4−56228
- methyl bromide, Fourier transformed i.r. spectra of ν_4 band, assignment 4−56227
- methyl bromide, isotopic splitting, Fourier transform anal. *(French)* 4−51029
- methyl bromide, solid, harmonic vibr. freqs. and intermol. pot. *(French)* 4−53410
- methyl chloride, rotational spectra, Fourier transform anal. *(French)* 4−51029
- methyl cyanide and deuterated analogue, Fermi reson. shifts, predicted vibr. spectra 4−48042
- methyl fluoride, laser Stark spectroscopy in 10 μm (infrared) region, nu$_3$ bands 4−66436
- methyl iodide, CH$_3$I-CD$_3$I solid soln., exciton splitting, Fermi reson. 4−70297
- methyl iodide crystal, exciton absorpt. features with Fermi reson. 4−49350
- methyl nitrate and deuterated analogue, in N$_2$ matrix, i.r. spectra, intermol. pots. 4−48021
- methyl propionate, i.r. vibr. spectra, conformational behaviour 4−56206
- methyl trifluoroacetate, mol. conformation, rot., vibr., spectra between 4000-10 cm^{-1} 4−43850
- N- methyl-ethylidenimine, i.r. spectrum, rot. constants, valence force field 4−63426
- N-methylacetamide-N, N-disubstituted (methyl or phenyl) amide complexes, H bonding, i.r. spectroscopic studies 4−52062
- m- and p-methylanisoles, liq. phase, i.r. absorption, vibr. analysis 4−56213
- methylanisoles, meta- and para-, i.r. absorpt. spectra 4−43844
- 2-methylanthracene, solution dielectric const. effect on $\Delta\nu_{00}$ of electronic transition *(French)* 4−45279
- methyldichlorosulphonium-hexachloroantimonate(V), vibr. assignments *(German)* 4−56242

infrared spectra of organic molecules and substances continued
  methylgermanium fluorides, i.r. and Raman spectra, vibr. assignment, normal coord. anal. 4−48035
  molecular crystal, exciton absorpt. features with Fermi reson., theory 4−49350
  monoalcohols in DMSO/CCl_4 solns., ν(O-H) valence vibr. band obs. *(French)* 4−48014
  monohaloacetylenes, deuterated, i.r. spectra C-D stretching bands, rot. structures 4−48043
  monosubstituted phenylazides, tetrachloromethane solution, antisymmetrical vibration absolution band intensity of azide group *(Russian)* 4−69497
  monothiocyanoactic acid salts, synthesis and spectroscopic studies *(Russian)* 4−67597
  N,N-dimethylselenoformamide, i.r. and Raman spectra, assignment of fund. vibrs. 4−69493
  naphthalene, cryst. growth, i.r. spectra rel. to struct. defects 4−73142
  naphthalene, Davydov doublet parameters, crystn. and temp. effects *(Russian)* 4−67594
  naphthalene, near i.r. absorpt. spectrum, vibronic struct. investig. 4−76249
  naphthalene anion radical, i.r., Raman spectral investig., band assignment, comparison with parent mol. 4−45287
  naphthalenediols, i.r. spectra, vibr. assignments 4−74985
  nitroethane, far i.r. absorpt. spectrum meas., internal rot. investig. 4−63428
  octafluoronaphthalene, vapour, soln. and cryst., vibr. assignment 4−45298
  octafluorotoluene, vibr. spectra and thermodynamic functions 4−56240
  organic adsorbates on silica, hydrogen bonding 4−69960
  organic liquids, atom polarisability evaluated from i.r. intensities 4−78456
  organic polymers, conformationally impure, vibr. spectra; i.r., Raman, neutron scattering, struct. investig., review 4−52317
  organometallic compounds, i.r. and Raman spectra, vibr. assignments 4−78464
  organophosphorus (arsenic) cpds., intra- and intermolecular interactions, opt. spectra 4−43843
  oxalic acid, i.r. and Raman spectra, vibr., mol. struct. 4−63437
  2-oxazoline, conformation, moments and quad. coupling consts., spectroscopic determ. 4−78467
  perfluorocyclobutane, gaseous and solid, vibr. spectra, mol. struct. investig. 4−66432
  peroxyacetylnitrate, i.r. spectra in oxygen matrix, isotopic shift, mol. config. 4−48033
  phenol, hydroxyl absorption band, temp. and solvent effects *(German)* 4−61139
  phenols, p-substituted, MO calcs., i.r. meas. of torsional barriers, applic. to macromol. conform. prediction 4−52021
  phenylchlorophosphonium-hexachloroantimonates(V), vibr. spectra assignments *(German)* 4−56247
  phenylethyne and deutero derivatives, vibr. spectra analysis *(Russian)* 4−60047
  phenylhydrazines, i.r. spectra, NH valence vibr. intensities of $NH-NH_2$ fragment 4−52178
  phenylisocyanide and perdeuterophenylisocyanide, i.r. and laser Raman spectra, vibr. assignment 4−48022
  picoline N-oxide and complexes, solvent effects 4−43842
  poly(ethylene terephthalate), crystn. induced changes, valence force field interpret. basis 4−53426
  poly-γ-benzyl-l-glutamate, cholesteric liq. cryst., orientation fluctuation scatt. effects, light-beating spectra 4−63760
  poly-n-phenyleneterephthalamide, i.r. spectra and structure *(Russian)* 4−53456
  polyatomic molecules, i.r. and Raman vibr. spectra, book 4−63436
  polycaprolactum, moisture and mech. stress effects 4−49354
  polyethylene oxide, for i.r. and Raman spectra 4−72263
  polyethyleneterephthalate, multi-internal refl. spectra *(Russian)* 4−43897
  polyphenyl ether and intermediate synthesis compounds; i.r. and u.v. spectra *(Russian)* 4−48168
  polyphenylpyridine ether, and intermediate compounds of its synthesis, and u.v. spectra *(Russian)* 4−43896
  polypropylene films, orientation meas. using polarised i.r. spectrum *(Russian)* 4−53455
  polyvinyl acetate, low temp. i.r. spectrum analysis 4−57508
  potassium citrate monohydrate, single cryst., citrate ion vibr., symm. 4−79713
  potassium dithioformate(-d_1), i.r. and Raman spectra, vibr. freq. assignment *(German)* 4−69494
  propargyl methyl ether, vibr. spectra, internal rot. barriers and conform. 4−66441
  propionamide and N, N-deuterated propionamide, i.r. spectra, vibr. assignment 4−66430
  propyl ions and radical, bonding with metals, vibr. spectra and mol. struct. 4−63425
  pyridine-I_2(-ICl) complexes, i.r. intensity and band shape analysis 4−43837
  pyrrolidine, i.r. and Raman spectra, normal vibr. freq. and forms 4−48030
  quinuclide, plastic phase dipole moment, far i.r. absorpt. 4−61153
  rhodamine C, covalent bonding to natural silk, spectroscopic obs. *(Russian)* 4−67955
  rhodamine solutions, absorpt. and fluorescence spectra, soln. concen. and acidity effects 4−67580
  solvation of molecules and ions from n.m.r. and vib. spectroscopy 4−43841
  strontium formate, i.r. spectra, vibr. anal. of polymorphism 4−57546
  symmetric $[AHA]^-$ and $[BHB]^+$ complexes in acetonitrile, hydrogen bonding 4−43789
  TCNQ complex, (NMePh)(TCNQ), energy gap and metal-insulator transition, far i.r. spectra obs., low temp. *(Russian)* 4−72719
  tetrafluoroallene, vibration freq. determ. rel. to photoelectron spectra anal. 4−56295
  tetrahedral molecules, rot. transitions in excited vibr. states, Stark shift 4−52152

infrared spectra of organic molecules and substances continued
  thioformaldehyde, mol. struct., normal vibrs. calc., MO calc. method 4−69479
  thiophene, i.r. spectra and structure of low-temperature cryst. phases 4−67575
  N,N-thiopropionamide, deuterated, i.r. and Raman spectra normal vibrs. 4−56211
  thiopropionamide, i.r. and Raman spectra normal vibrs. 4−56211
  triacetylene, vibr. spectra, assignments, struct. and force consts. calcs. 4−56244
  2,4,6-tribromophenol, study of solid phase transitions 4−52890
  1,1,1trichloroethane, liq., solid, permittivity, i.r. spectrum, residual absorpt. investig., mol. rot. 4−82693
  2,4,6-trichloroheptane, normal coords. calc. of vibr. spectra 4−52161
  trifluoroacetonitrile, i.r. spectra, l-doubling const. 4−48018
  trifluoroethanol-triethylamine complex, temp. effect on hydrogen bond ν_s bond, liq. phase obs. 4−52167
  2,2,2-trifluoroethyl vinyl ether, conform. obs. 4−60074
  trifluoromethane (−d), rot. analysis 4−56221
  trimethylamine-CO-BH_3 adduct, and deuterated derivatives, i.r. ${}^{11}B$ n.m.r. spectra, struct., bonding investig. 4−74987
  trimethylammonium halide, i.r. and Raman band profiles, H-band and isotope effects 4−66428
  trimethylcyclopropenium hexachloroantimonate, i.r. spectra, 4000-100 cm^{-1}, normal coord. anal., vibr. assignment, mol. symm. 4−48037
  trimethylene sulphide; ring puckering and D isotopic substitution 4−52164
  trimethylene sulphide, deuterated analogues, i.r. CH_2 scissoring region, ring puckering progressions 4−48029
  trinitromethane, vib. spectra and struct. 4−63442
  trioxane, high press. phase transitions 4−63911
  triphenylamine, vibr. spectra and mol. struct. *(Russian)* 4−52180
  triphenylboron, vibr. spectra and mol. struct. *(Russian)* 4−52180
  tris-sarcosine calcium chloride, ferroelec. crystal, Raman and i.r. spectra 4−53434
  trithiane, high press. phase transitions 4−63911
  TTF-TCNQ films, frequency-dependent conductivity 4−53440
  uracil, H-bonded cryst., i.r. spectrum, deuteration fine struct. changes 4−61141
  vibrational frequency data collection for 49 mols. 4−69491
  vinylidene copolymers, block struct. 4−63504
  o-xylyl radical, 4683 Å emission band, rot. contour anal. using rigid rotor approx. 4−52141
  acetonitrile(-d), cryst. film, i.r. spectra, polarisation and intensity measurements, cryst. struct. 4−70310
  2,2'-bifurane, i.r. and Raman spectra, fundamentals assignment, cryst. struct. 4−70309
  2,2-dichloropropane, liq., solid, permittivity i.r. spectrum, residual absorpt. investig., mol. rot. 4−82693
  H-bond breaking by fluorocarbons, anaesthetic props. 4−65238
  $NH_4H(ClCH_2COO)_2$, $ND_4H(ClCH_2COO)_2$, ferroelec. transition, Raman and i.r. studies 4−82671
  SiH_4, i.r. spectra, ground-state rot. consts. evaluated 4−63434
infrared telescopes *see telescopes*
infrared transmitters *see infrared sources*
infrasonic waves *see acoustic waves*
initial value problems *see boundary-value problems*
injection lasers *see semiconductor lasers*
injury by radiation *see biological effects of radiation*
inorganic insulators *see insulating materials*
inorganic molecule configurations and dimensions
  bond length and angle predictions for small mols. using floating ellipsoidal Gaussian orbitals 4−56081
  β-chloropropionyl chloride, liq., isomerism, Raman, i.r. spectra 4−78455
  CNDO/2 parametric adaptation, diatomic and organic mol. equilib. struct. and force consts. *(French)* 4−72129
  compliance constants, triatomic mols., Green's function anal. 4−72117
  diatomic molecule, first-row, FSGO open-shell calcs. 4−66379
  ethyl nitrate, microwave obs. of rot. isomerism, Stark dipole moment determ. 4−52187
  3-ethyl-2-methylbenzothiazolium tetrafluoroborate, mol. struct. determ. *(French)* 4−66886
  form., matrix isolated, i.r. spectra, force consts., struct. determ. 4−52157
  group II dihalide molecules, valence angles 4−66360
  hydrides, small, ab initio calcs. inc. electron correl. 4−56064
  ice II crysts., CNDO/2 hydrogen bonding calcs. of struct. parameters 4−72446
  inert gas halides, stability, validity of three-centre four-electron model, exchange perturbation calc. 4−66386
  molybdotellurate complex, $(NH_4)_6(TeMo_6O_{24}).Te(OH)_6.7H_2O$, cryst., mol. struct. of $(TeMo_6O_{24})^{6-}$ ion determ. 4−75484
  transition metal complexes with metal-ligand multiple bond, mutual influence of ligands 4−66368
  β-UOF_4, formed by slow crystn., X-ray diffr. 4−60435
  Van der Waals molecules, polarity 4−43820
  $[Pt(NH_3)_6]^{4+}$, $[Pt(NH_3)_5X]^{3+}$, X=Cl, Br, $[Pt(NH_3)_3Cl_3]^+$, $[Pt(NH_3)Cl_5]^-$, vibrational spectra 4−53428
  $AlCl_3$, bond angle determ. 4−56054
  Al_2O, ab initio versus CNDO potential surface calcs., mol. struct. 4−52053
  Al_2O, electron diffr. investig. 4−69447
  ArClF, microwave and r.f. spectra obs. 4−78466
  ArHF, struct., r.f. spectra determ. 4−56255
  BCl_2SH, barrier to internal rot. calc., Huckel, CNDO/2 methods 4−74934
  BF_2, ab initio calc. of geometry 4−56060
  BF_2 radical, excited state props. from HF calcs. 4−60025
  B_2H_5 radical, cryst., e.s.r. spectal investig. of struct. 4−53282
  BH_3NH_3, LCAO MO SCF calcs. of one electron props. rel. to mol. struct. 4−81768
  $BeH_3{}^+$, geometry, stability, isomerisation reaction investig., electronic wave function calc. 4−68004
  $C_4B_2H_6$, 2,3,4,5-tetracarbahexaborane (6), microwave spectra, mol. struct., dipole moment determ. 4−72205

inorganic molecule configurations and dimensions continued
CO, elec. field effects on equilib. nuclear config., SCF calcs. 4—52039
CO_2, $\pi^3\pi^*$ config., Rydberg character and dissociative behaviour, orbital dimensions approach 4—75020
C_3O_2, equilib. geometries and reaction energies from even-tempered atomic orbital calcs. 4—52034
C_3O_2, pot. function for CCC bending, ab initio calcs. 4—72143
COF_2, isotopes, microwave rot. spectra, 18-77 GHz, rot. consts., mol. struct. 4—48051
$Ca(NO_3)_2.4CH_3OH$, cryst., mol. struct. determ. *(French)* 4—78968
CeO_2, matrix-isolation i.r. spectral obs. 4—52154
Cl_2^- in crystals and solutions, electron populations from nuclear shielding and quadrupole coupling 4—66383
Cl_3, geometry, LCAO MO SCAF theory 4—72118
ClF, ClF_3, ClF_5, ClF_2^+, ClF_2^-, ClF_4^+ and ClF_4^-, ab initio SCF-MO calc. of geometries 4—43768
ClF_2, geometry, LCAO MO SCAF theory 4—72118
$ClF_2^\pm$, SCF MO LCAO calcs. in CNDO approx. 4—69445
$Cl^-(H_2O)_n$, Hartree-Fock potential, pairwise additivity approx. 4—74928
$ClNSOF_2$, gas electron diffraction mol. struct. determ. *(German)* 4—56071
Co complex, $Co(CO)_2NOSb(C_6H_5)_3$, cryst., mol. struct., parameters determ. by Patterson and Fourier methods 4—56663
$(-)_{589}-(Co(C_{11}H_{30}N_6))$ $(Co(CN)_6)$ cryst., mol. struct. configuration, $3H_2O$, conformation determ. 4—56664
Co(III) complex, $(+)_{510}$-oxalatobis-(R,S-2,4-diaminopentane) cobalt (III) perchlorate monohydrate, cryst. mol. struct., absolute configuration determ. 4—78967
Co(III) complex, $(+)_{589}$-tris(biguanide)Co(III) trichloride monohydrate 4—60443
Co(III) complex, cis-[adeninato-chloro-bis(ethylenediamine)cobalt(III)]bromide monohydrate, cryst., mol. struct., parameters determ., conformation 4—56669
Co(III) complex $(+)_{589}$-$[Co(R\text{-}pn)_3][Co(Cn)_6].2H_2O$, cryst. struct., complex cation conformation investig. 4—75485
Cr(III) complex, diaquo-μ-triethylenetetraminehexaacetatodichromium(III) hexahydrate, cryst., mol. struct. determ. 4—66868
CsI_3, cryst., vibr. spectra, I_3^- ion config. investig. 4—73116
$Cs_3(Sb_3F_{12}O_3)$, X-ray diffr. anal. *(German)* 4—78982
Cu (II) complexes, 1,8-bis-(2'-pyridyl)-3,6-diazaoctanecopper(II) perchlorate, cryst., mol. struct. determ. 4—78952
Cu complexes tetraphenylporphin and phthalocyanine, X-ray photoelectron spectra 4—52243
$CuCl_4^{2-}$ ion, flattening of tetrahedra estimated by mean mag. moment meas. *(French)* 4—56652
$CuCl_4^{2-}$ ions, electronic absorpt. spectra, rel. to tetrahedra deformation *(French)* 4—56653
Cu(I) complex, dichloroethane solvate of 2:1 derivative of CuCl and bis(diphenylphosphine)methane 4—48560
Cu(II) complex, bis{dichloro-[2,6-diacetylpyridinebis(picolinoylhydrazonato)]dicopper(II)}dihydrate, cryst. struct., spectroscopic props. determ. 4—78953
Cu(II) complex, dichlorobis-(9-methyl-6-oxypurine)diaquo Cu(II) trihydrate, cryst., mol. struct. 4—69757
Cu(II) complex, dinitratobis(antipyrine)Cu(II) *(French)* 4—82139
Cu(II) complex, thiamine hydrochloride-$CuCl_2$ 4—60433
DCNO, i.r. bending-rot. spectrum, quasilinear mol. model 4—52162
EuO, matrix-isolation i.r. spectral obs. 4—52154
FH_2^+, MO calcs., protonation path of HF *(French)* 4—59985
FH_2^+, SCF LCGO MO calcs. and hydrogen bonding interaction with FH 4—56066
$F^-(H_2O)_n$, Hartree-Fock potential, pairwise additivity approx. 4—74928
F_2POPF_2, conformational anal. and electronic struct., CNDO/2 calcs. 4—56049
Fe complex, cyclobutadiene iron carbonyl, vib. averaging effects on n.m.r.-derived geometry 4—78396
Fe complex, phthalocyanineiron (II), Mossbauer spectra in mag. field, mol. symmetry investig. 4—64302
Fe(II) complex, $Fe(II)dipy_2X_2$, X, high spin, $^5E\leftarrow{}^5T_2$ transition, splitting, geometry investig., MO studies *(German)* 4—69496
Fe(II) complex, $Fe(II)phen_2X_2$, high spin, $^5E\leftarrow{}^5T_2$ transition, splitting, geometry investig., MO studies *(German)* 4—69496
Ga(III) complex, tris(acetylacetonato)gallium(III) 4—48558
GeF_2 and $(GeF_2)_2$, structure determ. from matrix i.r. and Raman spectra 4—48008
H_2-H_2, intermolec. energy in different geometrical configs., ab initio SCF-CI calc. 4—56301
H_3^+ ion, ground state electronic props., geometry depend., SCF-CI calcs. 4—66364
H_4, linear complex, energy minimum, interatomic dist. depend. 4—47915
HCNO, i.r. bending-rot. spectrum, quasilinear mol. model 4—52162
H_2O, as ice, O-H distance 4—72459
H_2O, mol., X_α-approx. calcs. 4—74940
H_2O, molecular cluster, props., Monte Carlo simulation 4—74930
H_2O, molecular complex, Hartree Fock anal. 4—72112
H_2O geometry, VSEPR model, using localized MO 4—43776
$(H_2O)_2$, hydrogen bonded, struct. form microwave spectra 4—56254
H_2O_2, rot. barriers, localised orbitals and short range mol. interactions 4—60002
H_2O_2, structure, bond lengths and angles 4—69478
H_2O_3 and D_2O_3, i.r. and Raman spectra, vibr. anal. and mol. struct. 4—52150
H_2O_4 and D_2O_4, i.r. and Raman spectra, vibr. anal. and mol. struct. 4—52150
H_3O^+, conformation by SCF calcs. 4—72116
$H_3PO_4.{}^1/_2\,H_2O$, cryst., mol. structure and parameters determ. by neutron diffr. 4—56661
H_3S^+, barrier to pyramidal inversion, MO calcs. 4—81745
HSSH, electron redistribution about S-S bond under torsion 4—60029
He_3, He_4, nonadditivity in localised orbitals and short range mol. interactions 4—60001
HgI_2, Mossbauer spectra of ^{129}I, bridged and isolated form electronic struct. 4—67492
$Hg_3O_2Cl_2$, cryst. struct., bond lengths determ. 4—66864
$InBO_2$, geometry determ. by i.r. spectrum of vapour 4—52166

inorganic molecule configurations and dimensions continued
In_2O, In_4O, InOGa, form., matrix isolated, i.r. spectra, force consts., struct. determ. 4—52157
KBH_4, hindered rot. of BH_4^- 4—52706
$K^+(H_2O)_n$, Hartree-Fock potential, pairwise additivity approx. 4—74928
$K_4[Si_8O_{18}]$, cryst. struct. determ., layer struct. investig. *(German)* 4—78960
Li-1,3 dionates, i.r. spectra, struct. and vibr. interaction isotope shift anal. 4—56243
$Li^+(H_2O)_n$, Hartree-Fock potential, pairwise additivity approx. 4—74928
Li_2O, ab initio versus CNDO potential surface calcs., mol. struct. 4—52053
Li_2S, MO SCF calcs. of mol. geometry and pot. energy surface 4—66369
Mn complex, tricarbonyl-1-syn-(1',2'-dihydro-2'-oxo-azulen-3'-yl)-h^5-pentadienylmanganese, cryst., mol. struct., parameters determ. 4—56673
Mn(II) complex, dichloro-2-(2'-pyridyl)-3-(N-2-picolylimino)-4-oxo-1,2,3,4-tetrahydroquinazolineMn(II) 4—78977
Mo compounds, conf. Reading, Berks., England (Sep. 1973) 4—61601
Mo(IV), (V), (VI) oxo-species, stereochemistry, bonding 4—59988
Mo(IV) complex, bent bis-π-cyclopentadienyl complexes 4—78971
Mo(IV) complex, bis[bis-(π-cyclopentodienyl) molybdenum(IV)-bis-μ-methanethiolato]nickel(II) tetrafluoroborate 4—78972
Mo(V) complex, $[Mo_2S_2O_2(L\text{-histidine})_2].1^1/_2H_2O$ 4—60450
Mo(V) complex, $Cs_2[Mo_2S_2O_2EDTA].2H_2O$ 4—60450
Mo(V) complex, $Mo_2[NC(CH_3)_3]_2(h^5\text{-}C_5H_5)_2(\mu\text{-}S)_2$ 4—60451
Mo(V) complex, tetrachlorobis-[o-phenylenebis(dimethylarsino)]Mo(V) triiodide, cryst., mol. struct. determ. 4—66862
NCl_3, isotopes, microwave spectra 4—48050
NH_3, chemisorbed on Mo, K-LL Auger spectra 4—73225
N_2H_2, geometry of excited state, from near-u.v. absorption spectrum 4—52126
N_5H_5, cryst., mol. struct. determ., conform. investig. *(French)* 4—78963
NH_4Br, barrier to rotation for NH_4^+ in disordered and ordered phases 4—47916
NH_4Cl, barrier to rotation for NH_4^+ in disordered and ordered phases 4—47916
N_2H_5Cl, N_2D_5Cl, i.r. and Raman spectra, vibr. fundamentals assignment 4—67585
$NH_4HgCl_3.H_2O$, cryst., mol. struct. determ., X-ray diffr. meas. 4—56668
N_2O, adsorbed, mode of attachment, i.r. spectra 4—56971
N_2O_3, gaseous, vib. spectrum obs. 4—74991
N_2O_4, gaseous, vib. spectrum, torsional pot., bonding 4—74990
NT_3, microwave rotation-inversion spectrum, molecular substitution structures 4—48054
Na complex, 1,4-anhydroerythritol. $NaClO_4$, cryst., mol. struct., parameters determ. 4—56667
$NaBH_4$, hindered rot. of BH_4^- 4—52706
$Na^+(H_2O)_n$, Hartree-Fock potential, pairwise additivity approx. 4—74928
$Na_2PO_3F\beta$, cryst., mol. struct., parameters determ., X-ray diff. meas. *(French)* 4—56666
α-$NaVO_3$, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4—56671
Nb(IV) complex, bent bis-π-cyclopentadienyl complexes 4—78971
Nb(V) complex, bis[bis-(π-cyclopentadienyl) niobium(V)-bis-μ-methanethiolato]nickel(0) tetrafluorate dihydrate 4—78972
Ni (II) complex, bis(acetylacetonato) nickel(II)diethanol, cryst. and mol. struct. 4—69774
Ni(II) complex, $[(CH_2H_5)_4N]_2[C_6H_4N_2C_2S_2]_2Ni(II).2H_2O$, cryst., mol. struct. determ. 4—78956
Ni(II) complex, $[(CH_3CH_2)_2B(C_3N_2H_3)_2]_2Ni(II)$, cryst., mol. struct. determ. 4—78955
Ni(II) complexes with quadridentate Schiff bases, spin state and stereochem., electronic spectra 4—57569
Ni(II) complex, hexakis(pyridine-N-oxide)nickel(II)bis(tetrafluoroborate) 4—60434
O_2^- ion radical complexes with group IV metal ions, structure and coordination determ. by e.s.r. 4—66366
O_3, correlated wavefunctions of ground and excited states, INDO and ab initio calcs. 4—59998
P_2D_4, P_2D_3H and P_2H_4, microwave spectrum, struct. parameters and dipole moments 4—74994
PF_5, mol. symmetry group tunnelling effects *(French)* 4—74992
$P_3N_3Cl_6$ molecular symmetries determ. from ^{31}P n.m.r. spectra 4—57408
$P_4N_4Cl_8$, molecular symmetries determ. from ^{31}P n.m.r. spectra 4—57408
$P_3N_3F_6$, molecular symmetries determ. from ^{31}P n.m.r. spectra 4—57408
PO_4 tetrahedra, distortion geometry, predictive relationships 4—48550
$PbTi_3O_7$, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4—56672
Pd(II) complex, μ-N,N'-ethylenebis(salicylaldiminato)bis-[2-methylallylpalladium] 4—78981
PrO, PrO_2, matrix-isolation i.r. spectral obs. 4—52154
Pt complexes, $(PtenX_4)(PtenX_2)$, X = Cl, Br, I, cryst. struct., parameters determ., X-ray diffr. meas. 4—56675
Pt(II) complex, trans-I), cryst., mol. struct., parameters determ. 4—56670
RbI_3, cryst., vibr. spectra, I_3^- ion config. investig. 4—73116
β-Rb_2SO_4, low temp., cryst. growth, cryst., mol. struct., parameters determ. 4—56674
$Rb_2(Sb_2F_{10}O)$, symm., bond lengths and angles *(German)* 4—82140
$Re_2(CO)_{10}$, structure determ. by gas-phase electron diffraction 4—43767
Re(V) complex, bent bis-π-cyclopentadienyl complexes 4—78971
Rh (III) complexes, $[Rh(NH_3)_5Cl]Cl_2$ and $[Rh(NH_3)_5Br]Br_2$, cryst. and mol. struct. 4—69776
Rh_2, gaseous mols., thermodynamic investig. 4—43874

inorganic molecule configurations and dimensions continued
γ-S_3, cryst. struct. determ., mol. packing, mol. configurations and dimensions determ. 4−56659
$S_3(BX)_2$, X=Cl, Br, I, i.r. and Raman spectra 4−57522
SO_2, rot. struct. at long wavelength end of 2900 Å system 4−72167
SiF_3BF_2, microwave spectra, internal rot. barrier, dipole moment 4−56251
Si_2H_6, pure rotational Raman spectrum 4−52169
SnH_4, i.r. and Raman spectra, vibr.-rot. anal., ground state interatomic distances 4−56232
Sn(IV) complex, dimethyl(IV)bis acetylacetonate, Mossbauer, Raman spectra, mol. dynamics struct. investig. 4−76196
TbO, TbO_2, matrix-isolation i.r. spectral obs. 4−52154
ThO, ThO_2, matrix-isolation i.r. spectral obs. 4−52154
TiRh, Ti_2Rh, gaseous mols., thermodynamic investig. 4−43874
$TlBO_2$, geometry determ. by i.r. spectrum of vapour 4−52166
$Tl_4P_4O_{12}$, cryst., mol. struct. determ. 4−66867
Tl_2SO_4, determ. by gas-phase electron diffraction 4−47920
U (VI) complex, bis(tropolonato)-dioxo(ethanol)uranium(VI), cryst. and mol. struct. 4−69775
UCl_6, cryst., mol. struct., parameter determ. by X-ray, neutron diffr. meas. 4−56662
UO, matrix-isolation i.r. spectral obs. 4−52154
U(VI) complex, bis(protonated thiamine)tetrachlorodioxouranium(VI), X-ray diffr. 4−52731
XeF_6, crystal-field model, energy levels, mol. geometry 4−60018
Zn(II) complex, $Zn[SC(NHCH_2)_2]_2S_2O_3$, cryst., mol. struct. determ. 4−78954
Zr complex, bent bis-π-cyclopentadienyl complexes 4−78971

inorganic molecule electronic structure
alkali halides, elec. field gradients calc. from HF wavefunctions 4−78421
alkali halides, gaseous, photoelectron spectra 4−56294
alkali metal halides, gaseous, photoelectron spectra 4−52259
alkaline earth monohalides, radiative lifetimes 4−56265
ammonia, mol., electron momentum distrib. in N-H bond, valence-bond wavefunction calc. 4−81760
complex molecules, algorithm development 4−69453
diatomic hydrides, virial partitioning of charge distributions and properties 4−74952
diatomic molecules, electronic band systems, non-LTE spectral absorpt. coeffs. derived 4−74979
diatomic molecules, involving Li through F, Hartree-Fock-Roothaan wavefunctions 4−74951
diatomic molecules, rot. temp. determ. from electronic-vibr. spectral band intensity 4−72192
dinitrogen complexes, chemical bond theory 4−69468
form., matrix isolated, i.r. spectra, force consts., struct. determ. 4−52157
halogen compounds, linear, SCF MO calcs. 4−56148
inert gas halides, stability, validity of three-centre four-electron model, exchange perturbation calc. 4−66386
molecule, Herman-Kaplan system high resolution obs., rot. anal., E state struct. 4−52133
oxyanions, X-ray emission and photoelectron spectroscopy 4−69464
positronium hydride, improved wave function, cusps, binding energy 4−63380
transition metal complexes of phthalocyanine and tetrazaporphin, extended Huckel calculations 4−52049
transition metal complexes with conjugated ligands, electron transfer transitions 4−43787
transition metal complexes with metal-ligand multiple bond, mutual influence of ligands 4−66368
transition metal complexes with organic ligands 4−78425
transition metal phthalocyanines, MCD spectra, charge transfer bands assignment 4−67576
transition metal phthalocyanines, mol. electronic struct. calc., optical props. 4−52029
transition metal tetraoxo complexes, HFS-DVM method 4−66403
$[Li(HCONH_2)_2]^+$ complex, chelate effect, ab initio LCGO SCF calcs. 4−60016
$[Mo_6Cl_8]^{4+}$, mag. susceptibility and mag. circular dichroism spectra, ground state config. 4−63397
$[Nb_6Cl_{12}]^{4+}$, one centre model, electronic ground state, diamagnetic character *(German)* 4−66404
Ag, complexes, olefinsilver(I) complexes, SCF-Mo calc. 4−60030
AlF, excited electronic state struct., Hartree-Fock calcs. 4−74960
Ar_2^+, π_u and π_g energies from $Ar^+ + Ar$ differential elastic scatt. obs. 4−74915
As_2 rot. anal. of bands from A(ν=0-9) and B(ν=0-7) vibr. levels 4−47992
AsF, near u.v. spectrum, electronic $A^3\pi$ state investig., vibr., rot constants. determ. *(French)* 4−43829
AsF, radical, near i.r. emission spectrum, charact. of electronic ground and excited states 4−48007
B_2Cl_4 and B_4Cl_4, ab initio calcs. 4−52081
BF_3 adducts, ab initio MO calc. of electronic structure and heats of formation 4−43797
BF_4^-, nonempirical MO-LCAO-SCF calc. 4−47951
B_2F_4 and B_4F_4, ab initio calcs. 4−52081
BH_2, electronic transition moments and oscillator strengths 4−60021
BH_3:NH_3, electronic struct. anal. using LCAO method, charge transfer, bonding investig. 4−52072
B_2H_5 radical, cryst., e.s.r. spectal investig. of struct. 4−53282
B_2H_6, bridge bonds, ab initio calcs. 4−52087
BH_3CO, MO calc. 4−66388
BH_3NH_3, LCAO MO SCF calcs. of one electron props. rel. to mol. struct. 4−81768
BaO, lowest $^3\pi$ and $^1\pi$ state assignment 4−56125
BeF_4^{2-}, nonempirical MO-LCAO-SCF calc. 4−47951
C_2^-, low-lying electronic states investig., valence shell CI approx. calcs. 4−47944
CN_2, groundstate triplet spin dipole-dipole interaction, ab initio calc. 4−47942
CO, chemisorption on Cu, Ni and Pd 4−48859
CO, INDO and ab initio wave functions, comparison, electronic struct. investig. 4−78407
CO electronic states, wave function calc. with Gaussian-type orbitals 4−63481

inorganic molecule electronic structure continued
CO^+, radical on H−Y type zeolite, e.s.r., CNDO/SP calcs. 4−57361
CO_2, K-shell energy loss spectra of 2.5 keV electrons 4−52276
CO_2, $\pi^3\pi^*$ config., Rydberg character and dissociative behaviour, orbital dimensions approach 4−75020
CO_2, Rydberg states using model potentials 4−56129
C_2O, groundstate triplet spin dipole-dipole interaction, ab initio calc. 4−47942
$CO(CN)_2$, electronic spectrum, CNDO calculations 4−56201
$CO(X^1\Sigma^+)$, dipole moment function, multiconfig. SCF calc. 4−66417
CaO, lowest $^3\pi$ and $^1\pi$ state assignment 4−56125
CdX_2, X=halogen, photoelectron spectra obs., electronegativity 4−78513
Cl_2^- in crystals and solutions, electron populations from nuclear shielding and quadrupole coupling 4−66383
ClF, charge distribution from core electron binding energies 4−47948
ClF_4, radical, SCF-MO calcs. of mol. symmetry 4−59999
ClF_5, electronic structure calc. using NDDO approximation of SCF LCAO MO method 4−66395
ClO_4^- anion, X-ray spectral meas. of electronic structure 4−78436
Co complex, $Co(DMSO)_6^{2+}$, n.m.r. obs. 4−48083
Co(II) and Co(III) complexes, X-ray photoelectron spectra, electronic struct. 4−61271
CrO_4^{3-}, unrestricted CNDO-MO calcs. 4−56110
Cs_2MoOS_3, Cs_2WOS_3, X-ray photoelectron spectra in valence region, level assignment 4−72233
CsO, matrix isolated in N_2, Kr, Ar, e.s.r., $^2\Sigma$ ground state, inner shell bonding 4−52213
D_2^+, ground state, props. of adiabatic energy curves 4−60020
D_2^+, non-adiabatic calcs. for lowest energy levels 4−81761
DBr, u.v. spectra, 800-1000Å, assignment of autoionising Rydberg states 4−48002
$E110F_6$, ground state one-electron energy states, calc. by self-consistent multiple scatt. Xα method 4−66373
F_2POPF_2, conformational anal. and electronic struct., CNDO/2 calcs. 4−56049
Fe complex, iron tricarbonyl butadiene, photoelectron spectra, SCF MO calcs. 4−78425
Fe complex, octamethyltetrabenzporphyriniron(II), magnetic moment, spin electronic groundstate, Mossbauer effect 4−49267
Fe complex, phthalocyanineiron (II), Mossbauer spectra in mag. field, mol. symmetry investig. 4−64302
Fe complexes, iterative Huckel MO calc. 4−56094
$FeCl_4$ anions, Hartree-Fock-Slater model calcs. 4−56128
Fe(II) complex, Mossbauer spectra, thermally induced highspin ($^5T_2$) to low spin ($^1A_1$) transition 4−67491
Fe(II) complex, tris-(1,10-phenanthroline)iron(II) ion, rot. strengths of electron transfer transitions 4−56202
H_2, energy calculation using wave functions for electron motion in field of fixed nuclei 4−69461
H_2, energy levels and pot. energy curves from independent particle model 4−56083
H_2, excited $^1\pi_u^-$ Rydberg levels, spectrum calc. using quantum-defect theory 4−63414
H_2, excited electronic states investig. by microwave mag. res. induced by electrons 4−52201
H_2, fine and hyperfine struct. of $^3\pi_u$ states 4−63400
H_2, frozen core approximation, total electronic energy calc. 4−74943
H_2, ground state wavefunctions, natural spin orbital analysis in terms of generalized diatomic orbitals 4−60010
H_2, INDO and ab initio wave functions, comparison, electronic struct. investig. 4−78407
H_2, local energy calc., importance sampling 4−43791
H_2, metallic modification, chemical bond collapse, H atom electronic struct. breakdown *(German)* 4−52089
H_2, para, anticrossing and microwave transitions between electronic states 4−74995
H_2, singlet-triplet differences, $^{1,3}\Pi$ states 1/Z expansion analysis 4−72139
H_2, singlet-triplet separation using level-anticrossing technique 4−63421
H_2, spin-rotation interaction, magnetic shielding 4−60027
H_2^+, excited sigma state energies, expansion method of calcs. 4−60024
H_2^+, ground state, props. of adiabatic energy curves 4−60020
H_2^+, HD^+, non-adiabatic calcs. for lowest energy levels 4−81761
H_2^+, variational perturbation calc. using Green function method on united atom 4−63398
H_2^+ electronic structure, students computer program for LCAO-MO calculations 4−54789
H_3^+, pot. energy surfaces in complex plane, rational fraction calcs. 4−81767
H_3^+ ion, ground state electronic props., geometry depend., SCF-CI calcs. 4−66364
HBr, u.v. spectra, 800-1000Å, assignment of autoionising Rydberg states 4−48002
HCN, electron impact spectra, Rydberg states 4−52258
HCN, geometries of excited electronic states 4−56127
HD^+, ground state, props. of adiabatic energy curves 4−60020
HF, $\chi^1\Sigma^+$ state, dipole moment and i.r. transition matrix calcs. 4−56130
HF, INDO and ab initio wave functions, comparison, electronic struct. investig. 4−78407
$(HF)_n$ chains, hydrogen bonding, LCAO-MO studies 4−78426
H_2F, excitation and ionisation energies using core analogies 4−63463
HN_2^+ molecule ion, ground and excited states, SCF, CI, calcs., mol. dissoc. investig. 4−78413
H_2N-BF_2, CNDO and INDO calcs. *(French)* 4−47945
H_2O, point charge models 4−56145
H_2O, valence state energies, ab initio calcs. 4−56150
H_2O, X_α-approx. calcs. 4−74940
H_2O dimers, hydrogen bonding, SCF-perturbation theory calcs. 4−52086
H_2O geometry, VSEPR model, using localized MO 4−43776
H_2O^+, mol. orbital calcs., electronic struct. and geometry 4−47926

inorganic molecule electronic structure continued

- $(H_2O)_n$ chains and clusters, hydrogen bonding LCAO-MO studies 4−78426
- H_3O, excitation and ionisation energies using core analogies 4−63463
- $H_5O_2^+$ ion, hydrogen bonding investig. using semiempirical model and IR data comparisons 4−52078
- HOF, vertical ionisation pot., perturbation corrections to Koopmans' theorem 4−48104
- H_2S, electronic excited states 4−52065
- H_2S^+, mol. orbital calcs., electronic struct. and geometry 4−47926
- H_3S^+, electronic struct. and barrier to pyramidal inversion, MO calcs. 4−81745
- HSSH, electron redistribution about S-S bond under torsion 4−60029
- HX (X=second row atoms), correlation energy correction, Hartree-Fock density 4−52074
- HX_2^-, X=Cl, Br, I, hydrogen bonding using semiempirical model 4−56132
- He_2 molecule, $a^3\Sigma_u^+$ state, spin-spin electronic fine struct. investig. 4−81790
- HeH^+, HeH^{2+}, excited sigma state energies, expansion method of calcs. 4−60024
- HeH^+, singlet-triplet differences, $^{1,3}\Pi$ states 1/Z expansion analysis 4−72139
- HeH^{++}, pot. energy surfaces in complex plane, rational fraction calcs. 4−81767
- HgI_2, Mossbauer spectra of ^{129}I, bridged and isolated form electronic struct. 4−67492
- HgX_2, X=halogen, photoelectron spectra obs., electronegativity 4−78513
- InD, Hund's case (c) $a^3\pi$ state, rot. energies, fine structure 4−43806
- InH, Hund's case (c) $a^3\pi$ state, rot. energies, fine structure 4−43806
- In_2O, In_4O_2, InOGa, form., matrix isolated, i.r. spectra, force consts., struct. determ. 4−52157
- $IrThC_2$, gaseous, mass spectral identification, mol. stability, struct. investig. 4−60109
- Li_2, 2s electrons distrib. in rel. to atomic functions used *(German)* 4−43786
- LiH, point charge models 4−56145
- LiH^{2+}, singlet-triplet differences, $^{1,3}\Pi$ states 1/Z expansion analysis 4−72139
- $Li^+(donor)_n$ complexes, CDNO/2 studies of ion solvation, rel. to charge transfer, struct. 4−45940
- Mg ferrite, $MgFe_{2-x}Sc_xO_4$, X-ray and Mossbauer spectra, change in electronic struct. of Mg and Sc ions *(Russian)* 4−45379
- MgH, $A^2\pi - X^2\Sigma$ system, Franck-Condon factors, r-centroids evaluated 4−81758
- Mg complexes of phthalocyanine and tetrazaporphin, extended Huckel calculations 4−52049
- Mn ferrite, $MnFe_{2-x}Sc_xO_4$, X-ray and Mossbauer spectra, change in electronic struct. of Mn and Sc ions *(Russian)* 4−45379
- $Mn(CO)_5X$, X=Cl, Br, I, MCD and absorpt. spectra 4−52128
- Mn(II) complex, fluoresc. and reflectance spectra struct. depend. 4−57593
- MnO_4^{2-}, unrestricted CNDO-MO calcs. 4−56110
- $Mo_6Cl_8^{4+}$ cluster, molecular orbitals, electronic structure calc. using extended Huckel method 4−78408
- N-N bond, character, electronic struct. investig. for several compds., LCAO-SCF-MO calcs. *(French)* 4−56133
- N_2, energy levels and pot. energy curves from independent particle model 4−56083
- N_2, INDO and ab initio wave functions, comparison, electronic struct. investig. 4−78407
- N_2^+, $C^2\Sigma_u^+$ state, photoelectron spectrum, 23.5 to 28.0 eV 4−52263
- NCN, groundstate triplet spin dipole-dipole interaction, ab initio calc. 4−47942
- NF, $b^1\Sigma^+ - X^3\Sigma^-$ band system, Franck-Condon factors, r-centroids calc. 4−81757
- NH_3, chemisorbed on Mo, K-LL Auger spectra 4−73225
- NH_3^{++} ion, ionisation pots. determ. by double charge transfer spectroscopy, electronic states calc. 4−60106
- NH_4, excitation and ionisation energies using core analogies 4−63463
- N_2H_2, ab initio calcs. of triplet ground state 4−56143
- NO, electron scatt., temporary negative ion formation, $NO^-(^1\Delta)$ state 4−56303
- NO_2, N_2O, Rydberg states using model potentials 4−56129
- NO_2, rot. resonance Raman spectrum, electronic state symmetry 4−48028
- NO_2, visible spectrum, hyperfine structure obs. 4−63417
- N_2O, K-shell energy loss spectra of 2.5 keV electrons 4−52276
- Ni complex, $Ni(DMSO)_6^{2+}$, n.m.r. obs. 4−48083
- Ni complex formed by ethylene chemisorbed on Ni 4−48853
- Ni nickel acetylacetonate complexes with isoquinoline, spin density distrib. 4−52085
- O_2, identification of new Rydberg states and other structures in electroionization spectrum 4−60120
- O_2, matrix-isolated mag. circular dichroism spectra 4−78440
- O_2 electron scatt., temporary negative ion formation, vibr. struct. 4−56303
- O_2, energy levels and pot. energy curves from independent particle model 4−56083
- OCC unstable intermediate, restricted HF LCAO-MO-SCF calcs. 4−56146
- OH, valence state energies, ab initio calcs. 4−56150
- OsO_3N^-, electronic spectrum, vibronic structure, π-bonding 4−69484
- P centred free radicals, equilib. geometry and spin density, CNDO method 4−66402
- PF, emission spectra of HPF_2, PF_3, PF_5 in Ar discharge, electronic state assignment of PF 4−52130
- POF_3, electronic struct., SCF LCAO MO calcs. 4−74954
- PSF_3, electronic struct., SCF LCAO MO calcs. 4−74954
- Pd(II) complex, $[Pd(C_{10}H_{22}N_2OS_2)](NO_3)_2$, cryst., mol. struct. determ. *(French)* 4−69756
- Pt complex, dioxygenbis(phosphine)platinum, SCF Xα scattered wave calc. 4−78422
- $Pt(CN)_4^{2-}$, ScF Xα scattered-wave calcs. 4−56121
- $PtCeC_2$, $PtThC_2$, gaseous, mass spectral identification, mol. stability, struct. investig. 4−60109

inorganic molecule electronic structure continued

- PtF_6, ground state one-electron energy states, calc. by self-consistent multiple scatt. Xα method 4−66373
- RbO, matrix isolated in N_2, Kr, Ar, e.s.r., $^2\Sigma$ ground state, inner shell bonding 4−52213
- Re_3Cl_9 and Re_3Br_9 clusters, Re-Re bond energies calc. 4−66393
- RhCeC, gaseous mass spectral identification, mol. stability, struct. investig. 4−60109
- S complex, fluoresc. determ. of electronic struct. *(Russian)* 4−48069
- SCN^-, determ. from X-ray K spectra 4−66392
- SCl_2, S_2Cl_2 and S_2Br_2, photoelectron and electronic absorpt. spectra interpret. 4−66496
- SO dimer, microwave spectra, mol. struct., dipole moment determ. 4−74997
- SO_2, $^3B_1$-$^1A_1$ transition, absorpt., emission spectra, Franck-Condon treatment, transition moments 4−52153
- SO_2, rot. struct. at long wavelength end of 2900 Å system 4−72167
- SO_4^{2-}, X-ray emission and photoelectron spectroscopy 4−69464
- S_2O, microwave spectra investig., isotope effects, struct. rot. consts. determ. 4−74996
- SbF radical, near i.r. emission spectrum, charact. of electronic ground and excited states 4−48007
- ScF, electronic states, reassignment of mol. orbital config. 4−78401
- ScH, low-lying electronic states, Hartree-Fock approx. 4−74959
- SeO_2 vapour, electronic emission spectrum 4−81777
- Si centred free radicals, equilib. geometry and spin density, CNDO method 4−66402
- SiF_2, HeI photoelectron spectrum and INDO calcs., ionisation pot., electronic struct. 4−48120
- SiF_2, non-empirical LCAO-MO-SCF calc. 4−56096
- SiH_4, valence MO calc., use of at. pseudopots. 4−66371
- SrO, lowest $^3\pi$ and $^1\pi$ state assignment 4−56125
- TiCO and $TiCO^+$, generalized valence bond description 4−52064
- TiO, pot. energy curves, calc., ground-state dissoc. energy estimated 4−43875
- TiO, rot. consts. of singlet electronic states 4−47960
- Tl, $7^2S_{1/2}$ state, lifetime investigation using zero-field level crossing technique *(Spanish)* 4−63456
- UO_2^{2+} ion, aq., photolytic form., excited state i.r. absorpt., lifetime, alcohol quenching 4−50190
- VBr_4, non-empirical INDO-MO calculations 4−69458
- VCl_4, non-empirical INDO-MO calculations 4−69458
- $W_5Cl_8^{4+}$ cluster, molecular orbitals, semi-empirical calc. of electronic structure 4−78408
- X_2 (X=second row atoms), potential energy curve, correlation energy correction, Hartree-Fock density 4−52075
- Xe_2, $^3\Sigma_u^+$ state, spontaneous decay investig., at., mol. decay rate calc. 4−48072
- Xe_2^+, fine-structure states from $Xe^+ + Xe$ differential elastic scatt. obs. 4−74915
- XeF_6, crystal field model, excited state energies 4−60019
- XeF_6, crystal-field model, energy levels, mol. geometry 4−60018
- XeF_8^{2-}, crystal field model, excited state energies 4−60019
- XeO_3, crystal field model, excited state energies 4−60019
- $XeOF_4$,crystal field model, excited state energies 4−60019
- XeO_2F_2, crystal field model, excited state energies 4−60019
- ZnX_2, X=halogen, photoelectron spectra obs., electronegativity 4−78513
- Zn complexes of phthalocyanine and tetrazaporphin, extended Huckel calculations 4−52049

input-output media (computers) *see computer peripheral equipment*

insolubility *see solubility*

inspection

- *see also quality control; reliability; testing*
- adhesion fault detection by nondestructive holographic inspection *(French)* 4−73403
- conference, Toulouse, France (May 1974) *(French)* 4−73395
- contactless inspection of planar surfaces by moving-mirror scanner 4−47387
- FBR components, preoperational and inservice inspection 4−81602
- foam insulation on large metallic structs., pulsed laser interferometric holographic inspection 4−47391
- laser beam and photodiode matrix systems, control of moving prod. ions 4−43361
- neutron radiography with nitrocellulose track detector *(French)* 4−73402

instability *see stability*

installation

- adiabatic toroidal compressor, engineering tests and preliminary operation 4−60314
- particulate filters and gas absorbers, acceptance testing 4−55980
- soil resistivity problems *(Spanish)* 4−46104

instrumentation

- *see also aerospace instrumentation; digital instrumentation; digital readout; nuclear instrumentation; physical instrumentation control; signal generators*
- amplifiers, remote low level signals, requirements, isolation amplifiers 4−58862
- for electrochemical trace analysis 4−46968
- jets, contrary, position measuring *(Bulgarian)* 4−48312
- load and deform. meas. under high press., internal instruments 4−73986
- measuring and recording automatically, threshold radiometer count dispersion 4−47817
- microwave, for moisture content meas. 4−46947
- microwave non-contact meas., in steel industry 4−46741
- nuclear power reactor instrumentation systems, book 4−51128
- object positioning by microshift magnetostrictive drive 4−46557
- terms definition, MSZ 18200-73 standard specification *(Hungarian)* 4−50943
- water pollution, review 4−65288
- X-ray spectrometers, noise 4−55114

instruments

- *see also individual types of instruments, e.g. astronomical instruments, bridge instruments, optical instruments*
- accurate measuring, testing *(German)* 4−46575
- calibration and accuracy, hints on 4−80828

instruments continued
dynamic parameter of measuring instrument, determ. by high-speed cine camera 4−77112
electrical, industrial measurement, voltage, current, resistance, temperature *(German)* 4−46755

insulated gate field effect transistors *see field effect transistors*

insulating coatings
see also coating techniques; varnish
epoxy-coated cathode, h.v. vac. insulation 4−65481
GeO, physicochem. characteriz. 4−69968
SiO, physicochem. characteriz. 4−69968

insulating materials
see also asbestos; ceramics; composite insulating materials; dielectric materials; glass; mica; organic insulating materials; thermal insulating materials
air, compressed, electric breakdown 50 Hz conditioning curves 4−75411
antiferromagnetism in insulators, Slater's split-band theory rel. to Anderson's superexchange theory 4−49149
cable, solid dielectric comparative properties 4−49967
for cryogenic apparatus, electrical props. and design 4−80856
dielectric props. determ. method 4−57447
electric insulation and dielectric phenomena, conference, Varennes, Quebec, Canada, (Oct 1973) 4−82650
exoelectron emission, physico-chemical nature 4−53584
loss-angle and permittivity meas., BS 2067 revision 4−65494
polyethylene, low-density, mol. wt. effects on elec. breakdown strength *(German)* 4−57472
solid-liquid dielectric interface, electric field distortions 4−44986
static electrification, time depend. 4−79400
thermally stimulated exoelectron emission after excitation by electrons 4−53580
thermally stimulated exoelectron emission for electron penetration depth determ. 4−53581
trifluoromonochloroethylene oligomers, dielec. props expt. 4−82662
N_2 + freon, comparison with pure freon of sparking pots. and swarm coeffs. 4−75410
N_2O-$SF_6(O_2)$ mixtures, dielectric strength, sparking potentials 4−75357
SF_6, h.p. and liq. state elec. strength temp. depend. 4−75406
SF_6, h.p. electric breakdown, conducting particle effects 4−75405
SF_6, high voltage breakdown mechs. 4−75408
SF_6, in electron microscope power supply units *(Russian)* 4−71241
SF_6, ionisation, electron detachment in discharge gap, time resolved obs. 4−75360
SF_6, ionisation in long uniform field gaps, formative time lag 4−75358
SF_6, spark breakdown, time lags 4−75359
SF_6-N_2 mixtures, dielectric characts. and breakdown voltages 4−75401
$SF_6 + N_2$, h.p. electric breakdown, conducting particle effects 4−75405
$SrHfO_3$, synthesis, sintering and technological characteriz. 4−61504

insulating materials, acoustic *see noise abatement*

insulating materials, thermal *see thermal insulating materials*

insulating oils
cable, dielectric response and conduction 4−45250
partial discharge detection, soln. *(Russian)* 4−55140
transformer, antioxidation *(Korean)* 4−48867

insulating thin films
see also insulating coatings
anodic oxide, on Al, deuterated, n.m.r. investig. of structs., hydrogen-bonding 4−61041
collodion film, etch pits formed on alpha particle irradiation 4−60693
defects characterisation, localised, rel. to semiconductor device manufacture 4−49621
dielectric, laser damage investigation 4−43342
e.m. surface waves, dispersion props., phenomenological method *(Russian)* 4−67681
epoxy resin, moisture absorption deterioration investigation, electronic packaging appl. 4−80115
ferroelectric, theory of phase transition characts. 4−73089
island films, dielec. props., statistical theory, surface material coeffs. 4−72879
Langmuir film, low thickness, breakdown cond. mechanism 4−73074
Langmuir film, molecular, destructive breakdown 4−73075
m.o.s. structure, equilib. distrib. of uncompensated mobile charge in dielec. layer, analytic expressions 4−67282
multilayer, nondestructive optical thickness determination 4−42715
mylar, thin film capacitor, X-ray effects on dielectric conductance, dosimetry 4−68543
organic monomolecular layers, dielec. losses 4−79674
oxide, CVD, quantitative investig. of porosity and water content *(Japanese)* 4−74180
passivating glass film formation by ion implantation 4−64513
plastics, elec. conductivity meas. 4−79425
poly(N-vinylcarbazole), amorphous film, dark current, temp. depend. 4−79427
polyethylene, breakdown by surface discharge 4−67297
polyethylene 2,6 naphthalate film, electrical and thermal properties meas. *(Japanese)* 4−82655
polyfluoroethylenepropylene foil, electron irrad., electret charge dynamics 4−79671
polymer, breakdown voltage, statistical distrib. 4−53168
polymer, electrostatic charging, discharge mechanism *(German)* 4−72854
polymer deposition in glow discharge using triode system 4−73246
polymer films formed on metals in sliding contact, Auger anal. 4−75567
polymer passivating layers on Si, elec. characts. 4−57171
polymeric microporous films, elastic cryst., form., properties, porosity, struct. 4−53866
polystyrene film, glow discharge deposition on glass 4−73246
polyvinylidene fluoride, pyroelectricty and piezoelectricity 4−82669

insulating thin films continued
PVC, soln. grown amorphous film, metal induced recrystn. 4−75741
refractive index and thickness meas., synchronous angle method 4−74045
r.f. sputter cleaning, ion migration effects 4−67285
silicone, secondary ion mass spectrometry analysis 4−77312
AlF_3, dielec. props. and cond. 4−53154
AlN, props. rel. to solid-state device appls. 4−45463
AlN encapsulation dielectric on ion-implanted GaAs 4−53616
Al_2O_3, gate insulator for single cryst. CdS m.i.s. struct., evaluation 4−82490
Al_2O_3, on Al, oxygen content and thickness, X-ray emission obs. 4−72660
Al_2O_3, plasma deposition conditions effect on physicochem. props. 4−44802
Al_2O_3, with amorphous semiconductors, fabrication 4−49581
Al_2O_3 sputtered, electron beam induced conductivity 4−82505
Al_2O_3:Ta, chem. vap. deposition, elec. cond. 4−45465
α-Al_2O_e, sapphire, single cryst. growth by chem. vapour deposition *(Japanese)* 4−79868
As_2S_3, high field absorption current nd space charge meas. 4−82507
B, purification control thin layer composition and impurity determination 4−58999
B-O_2 polymer compound films, electrophys. props. *(Russian)* 4−75992
$BaTiO_3$, with bulk ferroelectric properties, r.f. sputtering 4−49560
Bi_2O_3, anodic, photovoltaic effect 4−53167
CaF_2, epitaxial growth on NaCl 4−44797
Dy_2O_3, amorphous in m.i.m. struct., s.c.l. cond. 4−53155
GaAs anodic oxidation, props. of oxide film 4−49606
Ge-nitride, oxide and oxynitride, prep. by ion implantation 4−76396
Ge-O-N composition, growth and characts., plasma anodization 4−45464
Ge_3N_4, amorphous dielec. film, growth from $GeH_4 + N_2H_4$, 300-700°C, physicochemical props. 4−49586
GeS, on Ge, interface struct., LEED obs. 4−56949
HfO_2, gate insulator for single cryst. CdS m.i.s. struct., evaluation 4−82490
MgO on Mo, secondary electron emission 4−70386
NaCl, appearance of dislocations in strong elec. field 4−79052
Nb-Al_2O_3 codeposited films, prep. and props. 4−70088
for semiconductor technology, refractive index dispersion, simplified representation 4−49588
Si, polycrystalline, elec. props. in m.i.s. struct. 4−45031
SiC film, recrystallisation on electron-beam pulse annealing in microscope 4−64001
Si_3N_4, amorphous thin film, conduction under non-uniform electric fields 4−64098
Si_3N_4, deposition by pyrolysis of SiH_4-NH_3 mixtures *(French)* 4−79860
Si_3N_4, deposition from SiH_4 and NH_3, props. *(Japanese)* 4−82821
Si_3N_4, r.f. sputtering on Si, struct., interface instability 4−45010
Si_3N_4, solution of layers in H_3PO_4, dependence on conc. and temp. 4−67728
Si_3N_4 encapsulation dielectric on ion-implanted GaAs 4−53616
SiO, SiO_2, electron escape depth 4−67688
SiO, SiO_2, X-ray K-line fine struct., massive and thin film effects *(Russian)* 4−53543
SiO, vacuum deposition on Al, rates of diffusion phenomena *(Russian)* 4−53593
SiO doped with metallic impurities, thermally stimulated currents obs. 4−82506
SiO_2, breakdown characteristics 4−64328
SiO_2, catalyzed crystallization, P diffusion 4−75730
SiO_2, charge storage under low energy electron bombard. 4−79424
SiO_2, chem. vap. deposition, elec. and optical characts. 4−76397
SiO_2, chemical vapour deposition from SiH_4 oxidation by CO_2, expt. 4−49564
SiO_2, contact potential meas. of charge distrib. 4−75991
SiO_2, defect distrib. determ., self-healing breakdown appl. 4−44529
SiO_2, degradation mechanism, cond. meas. 4−45251
SiO_2, diffusion of Ga into Si, h.f. capacitance and inversion voltage obs. 4−53621
SiO_2, from anodisation of SiC, struct. 4−72663
SiO_2, gate insulator for single cryst. CdS m.i.s. struct., evaluation 4−82490
SiO_2, growth, effects of HCl and Cl_2 on Si oxidation kinetics 4−57707
SiO_2, growth by anodisation of SiC 4−72644
SiO_2, implantation of Ar^+ due to backsputter cleaning prior to metallisation 4−45470
SiO_2, on Si, contact potential meas., oxide charge obs. 4−60872
SiO_2, on Si, determ. of sign of carrier transported across insulating film 4−70070
SiO_2, on Si, growth and characts., plasma anodization 4−45464
SiO_2, on Si, growth control using HCl oxidant 4−45440
SiO_2, on Si, interface state generation by Au diffusion, m.o.s. and neutron activation analysis obs. 4−60864
SiO_2, on Si, prep. by plasma anodisation, and props. 4−49084
SiO_2, on Si, removal of Na impurity from thermally grown film, growth of phosphosilicate layers 4−57705
SiO_2, partially crystallized, anomalous rapid P diffusion 4−75644
SiO_2, prep. by d.c. reactive sputtering, minimum oxygen content in gas flow determ. 4−67709
SiO_2, r.f. sputtered, elec. cond. mechanisms 4−60892
SiO_2, r.f. sputtered films, oxygen-deficient defect centres, e.s.r. 4−56738
SiO_2, r.f. sputtered films, oxygen-deficient, defect centres, thermoluminescence 4−56739
SiO_2, thermally grown, in m.o.s. struct., elec. cond. switching 4−60865
SiO_2, vapour deposition on Si, device applic. 4−67742
SiO_2 amorphous layers, TSEE glow curves, correl. between short range order defects and electron trap spectra 4−49548
SiO_2 encapsulation dielectric on ion-implanted GaAs 4−53616
SiO_2 film, amorphous, trap ionisation by electron impact, effect of Na centres 4−60891
SiO_2 film, dielectric breakdown rel. to growth in halogen and HCl environments 4−61108

insulating thin films continued
SiO_2 on $Al_xGa_{(1-x)}As$, deposition and Auger anal. 4−57720
SiO_2 on Si, nucleation of small metal particles 4−61322
SiO_2 r.f. sputter cleaning, ion migration effects 4−67285
SiO_2:P, concentration profile, by Auger spectroscopy 4−45453
SiO_2-B_2O_3 glass, i.r. obs. of H_2O absorption 4−56967
SiO_2-Si, m.o.s., oxide potential barriers to electron tunnelling in ultra-thin films 4−49086
SiO_x, in m.i.m. struct., thermally stimulated current 4−75990
Ta:N oxide layer formed by anodisation, struct. and dielec. props. 4−72658
Ta_2O_5, anodic, secondary ion mass spectrometry analysis 4−77312
Ta_2O_5, anodic, u.v. stimulated photocurrent spectroscopy and trapping kinetics of 2.1 eV trap 4−53166
Ta_2O_5, on Ta, oxygen content and thickness, X-ray emission obs. 4−72660
Ta_2O_5, sandwich structures, reactively sputtered, high field elec. cond. meas. 4−79428
Ta_2O_5, sputtered, investigation of 2.1 eV trap, photocond. 4−75919
Ta_2O_5, sputtering press. effect on physical props. 4−76383
Ta_2O_5, thin film capacitor, X-ray effects on dielectric conductance 4−68543
Ta_2O_5 film, on Ta, reoxidation, phase-boundary reacts. investig., vacancy diffusion 4−79243

insulation
see also cable insulation; electric breakdown; insulating materials; insulators; transformer insulation
air gap discharges, long, 1973 results *(French, English)* 4−82048
for cryogenic apparatus, electrical props. and design 4−80856
electric insulation and dielectric phenomena, conference, Varennes, Quebec, Canada, (Oct 1973) 4−82650
plasma implosion heating expt. 4−60302

insulation, thermal *see thermal insulation*

insulation testing
cable plastic insulation, radiation resistance 4−48643
electrical, epoxy resin coating film for electronic packaging 4−80115
epoxy-coated cathode, h.v. vac. insulation 4−65481
expoxy and polyester resins, breakdown voltage determ. switching impulse *(Hungarian)* 4−49303
impulse flashover, insulators in vacuum, effect of d.c. prestress, expt. 4−68729
plastic films, elec. conductivity meas. 4−79425
polythene cables, dielectric strength *(German)* 4−45248

insulator-metal boundaries *see metal-insulator boundaries*

insulator-semiconductor boundaries *see semiconductor-insulator boundaries*

insulators
i.e. insulating devices. For materials see insulating materials
see also insulation
high density alumina spacers, surface flashover, expt. 4−68729
polluted surface, long discharge, flashover 4−60372
Al_2O_3, effect of Cs vapour on insulating props. 4−49887

integral equations
see also integro-differential equations
Abel's equation inversion, appl. to plasma spectroscopy 4−56511
affinity theorem for integral imaging equation 4−71510
approximate solns. for dynamic contact problems 4−74226
arbitrary range integral evaluation by contour integration technique 4−59049
astrophysics, optically thin extended sources, spatial spectroscopic diagnostic 4−58206
astrophysics, optically thin extended sources, spatial spectroscopic diagnostics, Fredholm integral eqn. 4−58207
biological model, induced e.m. field calc. 4−65276
boundary value problem formulation, in elasticity 4−59177
boundary-integral equation method, solid mechanics applic. 4−59109
Cauchy-Poisson problem, nonsteady state wave motion of liquids 4−48331
channel flow, integral eqns. for continuity, momentum and energy *(German)* 4−63551
close coupling equations, integral form. appl. to atom-electron scatt. 4−66327
contact stresses between elastic cylinder and layered elastic solid 4−74311
convolution integral notation 4−74472
convolution-type, eigenvector expansions applic. to numerical deconvolution 4−62666
cracks in elastic plane problem, integral eqns. for randomly orientated rectilinear system *(Russian)* 4−74303
derivation using Green's third identity 4−59061
disordered system, one-dimensional, ReG and ImG joint probability distrib., transport coeffs. 4−51474
dual, involving H-functions solved using theory of Mellin transforms 4−65626
dual, of two variables, formal soln. 4−43010
dual coupled pairs, with trigonometric kernels, soln. by reduction to single Wiener Hopf eqn. 4−43021
dynamical contact problems of semi-plane strengthened by elastic beam *(Russian)* 4−55245
elastic layer, axisymmetric double contact problem 4−43052
elastic transversally isotropic bodies, soln. of axially-symmetric problem by generalised analytic functions *(Russian)* 4−55251
elasticity, 3-D problem analysis, by integral representation of displacement 4−59174
elasticity, zoned anisotropic continuum problems 4−59173
elasticity theory, plane antisymmetrical mixed problems, orthogonal polynomials method *(Russian)* 4−55246
electric field in excited dielec. cylinder, 1st kind 4−81269
electric potential, plane problem, integral eqn. represent. *(French)* 4−43224
electron flow, fast, generalised time and phase-space variables *(Russian)* 4−81251
elliptical normal integral, approx. of first and second degree *(German)* 4−51299
e.m. fields in biological tissues 4−65270
e.m. wave propagation over inhomogeneous surfaces 4−62783

integral equations continued
e.m. wave scatt. by rectangular cylinder with surface impedance 4−77609
e.m. wave scatt. by thin cirular disc over lossy dielectric half-space 4−71486
e.m. wave scatt. integral equations for numerical soln. 4−71482
Faddeev, for three particle scattering, solution without contour rotation 4−43148
far field diffraction pattern of slit, uniform asymptotic soln. 4−71487
Feynman convergent type, partial differential eqns. 4−47044
four mirror ring resonator 4−47362
Fredholm, coupled, reln. to elastic layer deformation 4−74292
Fredholm, for stress distribution in adhesive lap joint 4−43047
Fredholm, problem embedded flaw 4−65678
free surface flows with and without gravity 4−52342
Gelder continuity of solutions of singular equations of normal type *(Russian)* 4−55204
glancing sound wave propagation above plane interface with fluctuating impedance *(Russian)* 4−80774
H-function for anisotropic scattering, Reyleigh's phase function 4−62749
H-functions of two variables used to evaluate double integrals H-function products 4−65632
Hajdin's method, for equation solution in Reissner's theory of plates 4−59175
heat transfer, closed system of bodies with diathermal surfaces 4−62762
Hermite polynomial, master integral determ. using operator methods 4−43150
hypar shells, variational and integral methods 4−59176
induced surface currents from e.m. waves interaction with bodies of revolution 4−68991
inverse scattering, uniqueness of solution 4−51274
irrotational flows, small perturbations, integral eqn. analysis 4−52421
Kadomtsev and Kontorovich's solution for weakly turbulent distributions *(Russian)* 4−52363
Kondo integral evaluation by contour integration technique 4−59049
Langevin equation, generalized, random integral eqn. formulation 4−62745
linear, summation of field moments, scatt. of sound from rough surface 4−76990
magnetic dipole and spin-orbit integrals over Slater functions 4−74941
Milne's eqn., exact solution in kernel approx. 4−81132
Milne-Thomson, free streamline problems an incompressible fluid 4−66559
multicentre quantum chemical integrals and matrix elements, computer calc. 4−43796
Neumann problem, function harmonic in half-space 4−51265
neutron slowing down density, semi-infinite cylindrical pile, integral operator soln. 4−78136
neutron slowing down theory, analytical evaluation of resonance integrals 4−81518
neutron transport, space and angle dependent collision probability 4−66244
nonlinear, soln. for transonic flow *(German)* 4−66611
nonlinear viscoelastic media problems, approx. error of analytic soln. 4−43064
nucleation, phase transition kinetics, growth site impingement 4−56632
operator nuclearity, generated by Holder continuous kernels 4−51287
optical images from point like element pupils, eigenfunctions of integral eqn. 4−47321
orthotropic viscoelastic plates and shells, unsteady vibrs. problem 4−59211
path integral formulation of quantum mechanics, classical limit *(Spanish)* 4−47146
planetary nebulae, local absolute monochromatic energy, inversion of integral equations 4−58444
point charge moving in anisotropic medium, radn. field, Fourier integrals 4−47283
pressure difference across cochlear partition, soln. of integral eqns., short-wave cochlear model 4−80713
quadrupole, involving inverse Mellin transforms 4−55225
radiative transfer, exponential kernel approx. 4−47237
recursive, for viscoelastic waves generated by unsteady shear crack 4−43134
rigid body motion about fixed point, algebraic integrals of Euler-Poisson eqns., Liouville's theorem *(Russian)* 4−43030
rigid body rotation about fixed point, fourth integral of Euler-Poisson eqns. *(Russian)* 4−47059
rocket trajectories, optimal, first vector integral derivation *(Spanish)* 4−65045
round bar, radial crack propag. during torsion *(Russian)* 4−56805
scalar wave scattering from random irregular interface 4−43175
scaled particle theory, soln. of integral eqn. for hard spherocylindrical fluids 4−72424
semi-infinite strip problem, singular integral eqn. approach 4−43068
shaft coupled through sleeve, load transfer problem 4−43074
single variable, solns. for four identical particles reln. to nuclear theory 4−63081
singular, numerical soln. method 4−51309
singular equation in random rough surface scattering, numerical solution 4−74223
small aperture in planar conductive screen, integral eqn. formulation 4−81277
stochastic, of mixed type, random solns. 4−51275
stochastic, Uryson type, random soln. 4−59075
temperature fields of solid placed in container, nonlinear boundary conditions 4−51484
The Galaxy, third integral, approx. form, rel. to numerical orbits 4−58421
three-body scattering in quantum mechanics 4−65751
torsional wave propagation, infinite elastic medium, embedded rigid oblate spheroid 4−65713
transient diffusion 4−51477

integral equations continued
transport theory in critical assemblies with uniform neutron distrib. 4–81541
triple, reln. to crack problem anal. in elasticity theory 4–74291
two-centre overlap integrals involving Slater-gaussian mixed orbitals, Fourier convolution method 4–56073
Volterra, numerical soln. for supersonic flow past slender bodies *(German)* 4–66610
Volterra, reln. to elementary particle sequential decay approach to multiple production 4–47605
Volterra, soln. in problem of acoustic wave action on rigid cylindrical surface *(Russian)* 4–47131
wedge, three-dimensional, mixed boundary problem for finite number of contact segments *(Russian)* 4–55249
Wiener Hopf type, solns. in elasticity theory *(Russian)* 4–47088
Yvon-Born-Green equation, modification of Kirkwood superposition approx., liq. props. 4–52856
integral transforms *see transforms*
integrated circuit production
see also masks; photolithography
bipolar, role of sequential annealing, oxidation and diffusion in defect generation in ion-implanted Si 4–61308
cathodic sputtering applics. in lab. and industry *(French)* 4–53566
chip separation in two stages by laser beam 4–55536
electron beam lithography, electron energy dissipation in polymer film 4–66951
film, step coverage from extended sputtering source, computer simulation 4–73245
glass scribing with pulses from Q-switched laser 4–47385
hybrid IC trimming using laser beam *(German)* 4–43356
lateral nonuniform doping concurrent with ion implantation 4–57698
mask fabrication metrology, photolithography 4–77068
masking, holography application *(Polish)* 4–68704
metal film, step coverage in vacuum deposition 4–79866
patterns recording using electron beam camera 4–69101
polyimide adhesion to IC alumina substrate, improvement 4–49975
scanning electron beam method, post-lens deflection system 4–51660
SEM, digitally driven, system for materials study and microfabrication 4–42926
surface cleaning, by u.v. radiation 4–67112
surface temperature limit detector, using nematic liq. cryst., appl. to microcircuits 4–62425
thin film resistor adjustment, by laser beam, cross-sections methods *(Czech)* 4–62873
Si, polycrystalline films, obs. of deform. during deposition 4–57701
SiO_2, vapour deposition 4–67742
SiO_2 film, implantation of Ar^+ due to backsputter cleaning prior to metallisation 4–45470
Ta:N, film, anodisation, struct. and dielec. props. of oxide layer 4–72658
W, film, growth from sputtering, step profile 4–73245
integrated circuit testing
failure analysis, use of N ion probes 4–42954
LCR meter, digital 1 MHz automatic 4–42832
integrated circuits
see also digital integrated circuits; hybrid integrated circuits; large scale integration; linear integrated circuits; masks; monolithic integrated circuits; substrates
in counter construction for classroom demonstration 4–73965
e.e.g. electrode, thermal performance 4–74157
photographic materials and processes, operation *(German)* 4–68714
radiation indicator application, using Geiger-Muller counter and electroacoustic transducer *(Czech)* 4–58930
integrated data processing *see data processing*
integrated optics
see also laser beam applications
conference, Washington, USA, Spring (1974) 4–46624
data processing and communications applic., coupling problems 4–43357
electro-optics conference, Montreux, Switzerland, (1974) 4–43281
electrooptic laser deflector configuration 4–51078
miniaturisation, laser applic. *(French)* 4–47392
plastic integral optics 4–51023
quantum electronics, conference, San Francisco, USA, (1974) 4–69036
waveguide, grating type, plane-wave theory for, characteristics, implementation 4–43247
GaAs, distrib. feedback homojunction injection laser, for integrated optics 4–74504
GaAs-Al$_x$Ga$_{1-x}$As five layer structure, forming heterostructure laser and dielec. slab waveguide 4–43327
integrating circuits
analogue device for ratio meas. of two voltage inputs 4–80947
beam current integrator for reaction cross-section meas. by residual radioactivity 4–46874
low-drift printing integrator 4–81064
Mossbauer spectroscopy of gold, appl. of integrating counting method 4–55087
on-line analogue electronic reset integrator, blood flow measurement applic. 4–65560
integration
anisotropic media, 3-dimens. dislocation problems 4–52769
blunt body in supersonic flow, method of integral relations improvement 4–48260
boundary conditions reduction, integration points 4–56106
boundary layer eqns. for Howarth flow in presence of suction, computer calcs. *(Russian)* 4–52408
boundary layer eqns. of power law fluids for arbitrary press. gradients 4–44079
boundary-value problem in ordinary differential eqns., field method of integration 4–77433
Cauchy problem for differential eqns., stability of Dzyadyk method *(Russian)* 4–77354
contour technique for evaluation of Kondo and other integrals of arbitrary range 4–59049
convolution integral of linear differential eqn., simple derivation leading to Green's function methods 4–58684
integration continued
Coulomb integrals, free-free integrals in Coulombic field, tables and sum rules 4–71309
creep, hereditary, finite-difference method for nonlinear integral eqn. soln. *(Russian)* 4–51375
cylindrical shells, thick, impulsive deform., numerical analysis 4–43075
of differential equations, multi-step, multi-off-grid methods 4–59085
discrete dynamic systems, complete integrability and stochastisation *(Russian)* 4–78780
dynamic response, large step integration 4–51396
Einstein equations, exact time dependent with axial symmetry, numerical integration 4–74386
Emden's functions for polytropes with negative index 4–65146
Encke equation for orbit integration in celestial mechanics 4–54358
Feynman parametric integrals, computer generation of integrands 4–69135
finite element models, analysis 4–78170
fractional, Hankel and hypergeometric function operators 4–55221
fractional, operators of two variables 4–47023
Friedmann equation for dust-filled viscous universes 4–58211
Gibbs-Duhem equation, integration method 4–51892
hydroynamic coefficients in random rotational field, generalised integration algorithm *(Russian)* 4–56354
hypergeometric functions, generalised, associated products 4–47029
integrodifferential equations, quasilinear, with small parameter, asymptotic integration method *(Russian)* 4–77379
Korteweg-de Vries eqn., two-dimens., analytical soln. *(Russian)* 4–77369
Lie algebra u(p,q), integrability of discrete representations 4–51246
liquid nonuniform free motion, criterial eqns. *(Russian)* 4–43919
Lommel diffraction correction integral evaluation 4–54740
magnet coils, calc. of field integral or bending power 4–55018
many-particle integrals, determ. by method of distance functions 4–72134
meson-nucleon scatt. amplitude high-energy behaviour in scalar model, functional integration 4–51687
MHD boundary layer equation, integration by Meksyn's method 4–44105
molecular integral, numerical integration techniques 4–56104
molecular integral evaluation, three dimensional numerical integration 4–52056
molecular integrals determination over generalized Gaussian basis sets 4–59995
molecules with cylindrical symmetry, numerical integration points selection method 4–56107
multiple integrals evaluation routine in BASIC 4–51308
multitail ring diagrams for Fermi systems, general integration method *(Russian)* 4–68954
N-body problem, numerical integration, by separating force into near and far components 4–59091
N-body problems, macroscopic properties, effect of integration errors 4–59093
N-body problems, numerical integration, explicit Taylor series applic. 4–59094
N-body problems, star clusters, numerical integration 4–61982
N-doby problem, numerical integration, variable order method 4–59089
Navier-Stokes equations integration for axisymmetrical vortex flow of incompressible fluid 4–81858
nonlinear differential eqn. approx. soln. *(Italian)* 4–43004
nonlinear mechanical system eqns. of motion, general integrals *(Russian)* 4–74258
numerical calculation techniques in spaces of high dimensionality 4–65651
numerical evaluation of many-dimensional integrals in solution of Schrodinger equation 4–60006
numerical techniques for aeronomic problems 4–83138
orbit integration, multirevolution methods 4–59095
orbital calculations, numerical integration techniques, comparison 4–59086
ordinary differential eqn., time transformation for analytical stabilization *(German)* 4–51301
oscillating systems, new numerical integration methods *(Russian)* 4–77364
oscillator and H atom matrix elements determ. by operator algebra 4–81220
path, in quantisation of generalized mechanics, equivalent Lagrangians 4–59240
satellite orbit prediction, numerical averaging procedure 4–50432
scattering phase shifts, elastic, comparison of Numerov method with perturbation theory 4–74370
Schur's lemma on irreducible sets of matrices, application to continuum mechanics 4–43034
second order autonomous equation containing multiterm power series *(Russian)* 4–55200
shell continuum, geometrically nonlinear, method of asymptotic integration applic. 4–55258
shell of revolution, approx. elasticity soln. 4–43069
shells of revolution, static, stability and dynamic anal. by integration, program comparison 4–47127
slow flow, MAC code, numerical expts. 4–78568
Stephan problem, single-phase stationary, for crystallisation of ingots, approx. calc. *(Russian)* 4–56634
Stephan problem two-phase stationary nonlinear, classical soln. *(Russian)* 4–56633
stiffened shells of revolution, inelastic nonlinear analysis by numerical integration, computer program STARS-2P 4–81186
thermal stresses in heterogeneous thick isotropic shells, soln. by numerical integration 4–81165
threshold signal retrieval, dynamic background subtraction by multiple differentiation-integration 4–71200
time integration operators, for equations of motion in nonlinear structural dynamics 4–81183
transonic flow, around aerofoils at zero incidence, improved calculation 4–48292
Vlasov equation, by vector method 4–48386

integro-differential equations
  asymptotic solution for equation with delay forms in arguments *(Russian)* 4−51279
  atom-electron collision calcs., computer program soln. of coupled integro-differential eqns. 4−74889
  boundary value problem, reduction to Cauchy system 4−74224
  Cauchy problem for second-order eqn. 4−62667
  conservation equations, numerical soln. *(German)* 4−74230
  coupled shear walls, natural vibration anal. 4−55274
  delayed neutron one-velocity transport equation, eigenfunctions closure and completeness 4−78149
  diffusion in random velocity field 4−81842
  dynamic stabilization, for system where one parameter oscillates sinusoidally with small amplitude 4−82029
  elastohydrodynamic problems, expansion method development 4−48697
  Euler equation, modified, for correlation function of many fermion system, asymptotic behaviour 4−71420
  Fokker-Planck equation, nonlinear, critical relaxation 4−74448
  Gurtin's variational principles, initial value problem 4−51263
  kinetic theory of gases, temperature-density effects, method of elementary solutions 4−48172
  Lyapunov stability for finite solutions full and truncated systems *(Russian)* 4−55202
  magnetically soft bodies, numerical soln. of magnetis. problem 4−70657
  Newtonian fluid flow through random array of rigid objects, drag 4−63553
  nonlinear, solns. existence, uniqueness and stability 4−81120
  nonlinear dynamical problems in viscoelasticity theory, method of averaging 4−77488
  nonlinear two-point boundary problem, averaging method *(Russian)* 4−74252
  orthotropic viscoelastic plates and shells, unsteady vibrs. problem 4−59211
  population balance, similarity soln. 4−45840
  quasilinear, with small parameter, asymptotic integration method *(Russian)* 4−77379
  radiative transfer, efficient stream distributions 4−47236
  scattering, inelastic, coupled eqns. in hyperspherical formalism *(French)* 4−43138
  scattering from asymmetric non-local potential 4−47156
  selection rules, causality and unitarity in stat. and quantum physics 4−55365
  semi-infinite absorbing and isotropically scattering medium with refr. index >1, emittance calc. 4−47243
  Stefan problem, iteration scheme for soln. of nonlinear integro-differential eqn. 4−48743
  temperature distribution in finite cylinder with distributed heat channels *(Russian)* 4−51494
  transport equation, time dependent for thermal and delayed neutrons 4−78148
  vanes near separation boundary, convergence of small parameter expansion *(Russian)* 4−52340
  viscoplastic medium, nonsteady-state flow in plane channel 4−66633
  Volterra, of growth rate type, asymptotic behaviour 4−77377
  Volterra type, initial value problem *(Italian)* 4−77348
  Volterra-type sets, integral excitations 4−74242

intelligibility, speech *see speech intelligibility*

intensification *see amplification*

intensity measurement
  see also acoustic intensity measurement
  constant light flux, by nonsteady photoconductivity *(Russian)* 4−58796
  continuum light variation, pulse technique 4−71237
  electron diffraction spotty ring patterns intensity meas., Au film example 4−75428
  ring interferometer, accuracy of small optical rotation meas. *(German)* 4−80915
  Co_2 laser radiation angular divergence and transverse intensity distribution meas. 4−80932

interactive terminals
  see also light pens
  experimental curve overlapping peak resolution, using minicomputer 4−51189

interatomic potentials *see atomic forces*

interface phenomena
  see also adsorption; crystal surface and interface vibrations; films; interface structure; Kapitza resistance; surface phenomena
  bimetallic interface, self-consistent theory of adhesion 4−79403
  Bragg-Williams interface model, multilayer consistent 4−61331
  compensation effect from surface polaritons, Raman scattering 4−71575
  composite, mechanical response, interface model 4−64629
  contacting pairs in metallic melts and vacuum, testing method *(Russian)* 4−53934
  corrugated surface systems, contact thermal resist. 4−43197
  Coulomb Green's functions at diffuse interfaces 4−61621
  density interface, turbulent struct. 4−72281
  dielectric bipartite medium, wave propag. 4−71493
  diffraction, plane e.m. waves, on array comprising two layers of anisotropic magneto-dielec. *(Russian)* 4−74462
  diffuse interface, minimization of mean field free energy 4−53914
  elastic half-spaces, dynamic intensity factor for interface flaw extending at non-uniform rate 4−51340
  electric field distortion, solid-liquid, Kerr cell obs. 4−44986
  electrical energy barrier characts. for metal-insulator and metal-semiconductor boundaries 4−75962
  electrode/solution interface, electrical double layer perturbation by light absorption investig. 4−54033
  ferromagnetic insulator, anisotropic, surface e.m. waves investigation 4−79568
  fluid-fluid moving interface on solid surface 4−72289
  gas-liquid flow, cocurrent, interfacial area obs. 4−52483
  Gaussian beam reflection and refraction at planar dielectric interface 4−81271
  interfacial tension boundary problem, Chebyshev polynomial series soln. *(Russian)* 4−55220

interface phenomena continued
  layered medium, elasto-plastic indentation 4−62689
  light reflection, Cauchy profile, lateral shift 4−47293
  liquid layer, immiscible, in porous medium, Saffman-Taylor instability 4−44158
  liquid Zr-pyrocarbon, interphase energy 4−67961
  liquid-gas interface, longitudinal wave dispersion, thickness effect 4−44744
  martensite/austenite interface shear stresses generated by hydrostatic press. 4−61332
  metal-superionic conductor interphase, model 4−54032
  monolayer structure, 2-D random packing 4−82336
  Onsager model in one dimension, appl. to germinate recomb. 4−49068
  point junctions between normal metals, nonlinear effects in elec. cond. and electron-phonon interaction *(Russian)* 4−67273
  polymer solution, adsorpt. at interface, multilayer theory 4−68023
  PTFE-spherical metal surface, sliding electrification 4−60847
  rubber, shearing force variation during extended stationary contact under const. compression 4−45815
  rubbery materials, actual contact area formation kinetics 4−50002
  scalar wave scattering from random irregular interface, integral eqn. 4−43175
  semi-infinite absorbing and isotropically scattering medium with refr. index >1, emittance calc. 4−47243
  SOFAR ray caustics, media with bilinear sound-speed profiles, closed-form solns. 4−80782
  solid-gas, rel. to ultrahigh vacuum 4−54862
  stability problems of stagnant immiscible fluids variational approach 4−67092
  surface Green's function for two interface system 4−70060
  surface tension, Van der Waals and Cahn-Hilliard theory, investig., lattice gas system 4−61636
  surface-reactive metals, thin-film bicrystals, vacuum welding technique, grain boundaries obs. 4−82864
  Taylor instability in solids 4−48703
  thermal impedance, meas. using metal and superconducting foils below 1K 4−82309
  two-phase systems, pile-up of screw of dislocations 4−48629
  ultrahigh vacuum and solid/gas interface, reviews 4−53555
  u.s. wave energy partitioning at interface, computer calc. 4−48828
  vapour layer form. at a liquid to hot wall interface 4−63905
  Ag-electrolyte interface, effect of surface plasmon excitation on photoemission and photooxidation 4−75950
  Cd-As contact fusion, phase diagram *(Russian)* 4−61339
  CdS/indifferent electrolyte system, electron transfer involving tunnelling from surface states 4−68009
  Cu-Zn, brass, alpha/beta interface, capillarity effect 4−82836
  GaAlAsP, heteroepitaxial layers, dislocation elimination 4−45436
  n-Ge, in contact with Na_2SO_4:Au^{3+} soln., anisotropy of surface props. *(Russian)* 4−72855
  Hg concentrated salt solution, electrochem. system, effect of metal, soln., on elec. double layer 4−45920
  KHF_2, solid electrolyte, α- and β-phases, a.c. impedance investig., interface phenomena 4−54028
  Mg, interfacial Auger transitions obs. 4−57656
  Na, oxidised, interfacial Auger transitions obs. 4−57656
  Na liquid-vapour interface, rapid transient movement meas. 4−46900
  Pb concentrated salt solution, electrochem. system, effect of metal, soln., on elec. double layer 4−45920
  PbTe/M interface, M=Pb, In, Al, Sn, Tl epitaxial layers, superconductivity and LEED obs. 4−45038
  n-PbTe-oxide, accumulation layer, surface quantisation, tunnelling 4−64130
  SiO_2-Al, chem. reaction, X-ray and electron diffr. 4−44807
  Ti/Mo/Au, composite film interface control by sequential sputtering 4−79865

interface structure
  anisotropic surfaces Monte Carlo simulation of cryst.-fluid interface equilib. struct. 4−66847
  composite, fibrous, design appl. of self adjusting interfaces, shear, tensile strength 4−80075
  1,2-diphenylbenzene, related compounds, crystallisation behaviour 4−66836
  polystyrene-polybutadiene triblock copolymers, interfacial morphology, mechanical hysteresis 4−49979
  ternary system, phase separation, boundary face structure *(German)* 4−75634
  Al-oxide boundary anal. using electron diffraction 4−72411
  Ge-GeS film interface, LEED obs. 4−56949
  $MgSiO_3$, exsolution lamellae interfaces, transmission electron microscope obs. 4−57935
  Pd-Si contact, film form., struct. and phase vars. *(Russian)* 4−60675

interface tension *see surface tension*

interface vibrations *see crystal surface and interface vibrations*

interfaces, computer *see computer interfaces*

interfacial tension *see surface tension*

interference
  see also acoustic wave interference; electromagnetic interference; electromagnetic wave interference
  magnetometers, compensation of magnetic interference from carrier *(Russian)* 4−51120

interference spectrometers
  calibration, using Fabry-Perot etalon 4−51036
  Fabry Perot coupled modular monochromator, space appl. 4−83266
  Fabry-Perot scanning apparatus for plasma spectroscopic diagnostics, laser control system 4−66770
  field compensated Michelson multiplex spectrometer, visible region optical design 4−77077
  i.r. dispersive reflection technique 4−71194
  nuclear excited level width determ. using wide-angle interference method *(Russian)* 4−65522
  resolution increase using Fabry-Perot apparatus, CS_2 spectral line width determ. *(Russian)* 4−42805
  SIMAC, interferential multichannel spectrograph *(French)* 4−51037

interference spectroscopy *see spectroscopy*

interferometers
see also acoustic wave interferometers; electromagnetic wave interferometers; interferometry
electron microscope Elmiskop 101 use as interferometer 4−68811
quantum interferometers, d.c. biased double junction, noise limitations 4−77123
superconductor quantum, high sensitivity elec. meas. instrum. applic. 4−74095
Si-single crystal neutron interferometer 4−44445

interferometry
see also acoustic wave interferometry; electromagnetic wave interferometry; interferometers
holographic, meas. of pulsed elec. beam absorbed energy distribs. in water 4−74075
particle beams, coherent scatt. 4−65953
u.s., precise length measurement under hydrostatic pressure, transit time 4−71157

intergalactic matter
see also clusters of galaxies; galaxies
Abell 2199, upper limit on ionized intracluster gas 4−73792
Arp 295, tidal origin of intergalactic bridge of interacting galaxy pair 4−68450
charged intergalactic gas of protons or electrons, cosmological model 4−65054
clusters of galaxies, magnetic field and inverse Compton radiation 4−46270
Coma cluster, galactic motion heating of intergalactic and intracluster medium 4−71049
hot gas in galaxy clusters as source of background X-rays 4−54553
Magellanic Stream, H I 21-cm survey 4−65199
polarisation, of intergalactic matter, universal mag. field and baryon photon ratio, matter antimatter considerations 4−68325
quasars, dust in line of sight, u.v. extinction 4−50622
H I obs. of external galaxies and intergalactic gas 4−76906

intermediate bosons
magnetic moment in unified gauge theory without heavy leptons 4−71648
mass, from nuclear and hyperon β-decay and $K^+{}_{e3}$ decay 4−71644
mass, lower limit assessment from cosmic ray neutrinos interaction with electrons and neutrons *(Russian)* 4−58187
mass restriction from positivity bounds on total neutrino cross-sections 4−69155
neutral, effect on hyperfine splitting of muonium 4−47474
neutral, effect on hyperfine splitting of muonium 4−47475
neutral current carrier in neutrino expts. *(Russian)* 4−69156
rest mass determ. in general relativistic weak interaction treatment 4−69203
search in cosmic ray nuclear interactions, review *(Russian)* 4−65023
unified theories of $e^+e^-\rightarrow$hadrons 4−69165
weak interaction lepton-antilepton massless vector bound states, $O_4{}^{\Pi c}$ analysis 4−81399
weak interaction model, renormalisable SU(3) × SU(3) intermediate scalar boson coupling scheme 4−66019
weak interaction unified model, unitary triplet scheme 4−66018
γp interaction search with missing mass technique, s and t distribution of hadronic continuum 4−62956
$\nu p\rightarrow l^+ n\gamma$, emission of high energy photons, cross section calcs., W meson effects 4−59546
W spin 0, detection possibilities, Duffin-Kemmer formalism and possible decay modes 4−47473
W-boson pair prod. by high energy particles, e.m. mechanism *(Russian)* 4−62945
W-meson photo- and electroproduction on hadron target, energies much higher than threshold *(Russian)* 4−66039
Z boson, bremsstrahlung total cross section, high energy asymptotes *(Russian)* 4−77845
W, photoprod. with almost real photons 4−59572

intermetallic compounds *see alloys*

intermodulation measurement
state of art, comparison with harmonic distortion *(Spanish)* 4−58867

intermolecular forces
see also Van der Waals forces
anthracene, external vibr. freqs., transferability of intermol. pots. *(French)* 4−74963
anthracene dimer, stable, struct. from intermol. force calcs. 4−78538
aromatic hydrocarbon dimer formation, intermolecular interactions, perturbation theory 4−69540
binary liquid mixtures, excess thermodynamic function prediction 4−60626
C-potential surface for predicting conformations of molecules in solution 4−69449
chiral discrimination between laevo-laevo and laevo-dextro molecular pairs, permanent moment contribution 4−48152
colloidal dispersions, stability, interaction between particles dispersed in regular mixture 4−67959
dense gas at high temperatures, corrections to thermodynamic functions 4−69547
diatomic molecular solids, structure anal. 4−66856
elastic scattering potential construction from ang. and energy depend. of cross section 4−72258
electrostatic interactions between polar molecules, comparison of semiempirical methods of calculating energy 4−48156
electrostatic potential, multipole expansions 4−56323
electrostatic potentials obtained with CNDO and INDO wavefunctions 4−56322
excitation transfer rates, dipolar interactions 4−78539
fluids, correlation functions for Coulomb attractions formulated, eq. of state derived 4−48154
formaldehyde dimer, intermolecular interactions, SCF-MO calc. 4−60132
fragments of molecular ion, interaction pot., mass spectrometric fragmentation 4−48109
hexachlorobenzene, single crysts., intramol. pot. function model 4−56852
inert gases, intermolecular pair-potential energy functions 4−72256

intermolecular forces continued
intermolecular spectroscopy, collision-induced i.r. absorption 4−72195
Kirkwood-Rice-Allnatt, kinetic theory, transport in liqs. 4−69927
liquid, intermolecular vibr. relaxation, i.r. band shapes 4−53411
liquid film, free and on solid surface, spontaneous rupture, hydrodynamic stability 4−44752
localised orbitals and short range interactions 4−60000
molecular liquid, mean square intermol. force, Monte Carlo calcs. 4−63744
molecular torque in mixed dense fluids, Monte Carlo perturbation comparison 4−60395
naphthalene, external vibr. freqs., transferability of intermol. pots. *(French)* 4−74963
nonspherical molecules, perturbation mol. fluid internal energy calc. with nonspherical reference pot. 4−66505
pentafluorobenzenes, substituted, free radical dynamic nuclear polarisation *(German)* 4−63460
polar molecules, second virial coeff. eqns. force const. for BBD potential 4−69539
polychlorotrifluoroethylene, dielectric relaxation time, temp. and pressure depend., intermolecular interaction 4−45243
polymer, linear, fibre-forming type, intermol. interactions correl. with mech. props. 4−45828
PTFE, sliding, pot. energy changes 4−53871
semiflexible molecules, monolayer, free energy, phase equilib. *(French)* 4−52893
three molecule potential, linear polarisability contribs. 4−72257
Van der Waals constants, combined local linear response and inner projection approach 4−59975
water, second virial coefficient, calc. for Lennard-Jones spherically symmetric pot. 4−52858
water, structure and thermodynamics, Monte Carlo method 4−44461
Ar-HCl, interaction pot. determ. 4−56047
ArClF, microwave and r.f. spectra obs. 4−78466
BF_3, vibration spectra, intermolecular effect correlation with alterations in quadratic valence force field 4−74968
CO_2, intermol. pots. determ. from second virial coeffs., polarisabilities, quadrupole moment 4−66526
CS_2, i.r. spectrum, antisymmetric stretching vibr., intermol. interactions 4−78460
D_2, intermol. pots. determ. from second virial coeffs., polarisabilities, quadrupole moments 4−66526
F_2, intermol. pots. determ. from second virial coeffs., polarisabilities, quadrupole moments 4−66526
H-H_2 system, diff. coeff. and interaction pot. 4−56348
H_2-H_2 short range potential review 4−60133
HCl, in soln., i.r. spectrum, intermolecular forces effect on rot.-vibr. band 4−66442
HCl + $SO_2(CO_2)(CO)(N_2)(Ar)$ collisions, temp. influence in intermol. interactions *(Russian)* 4−63495
HF, DF, HF-CO_2, DF-CO_2, vib. relax. temp. depend. 4−52287
H_2O, molecular cluster, props., Monte Carlo simulation 4−74930
H_2O-ion interactions in prenucleation embryos, effective potential 4−56871
N_2, intermol. pots. determ. from second virial coeffs., polarisabilities, quadrupole moments 4−66526
O_2, intermol. pots. determ. from second virial coeffs., polarisabilities, quadrupole moments 4−66526

intermolecular mechanics
see also association; intermolecular forces; liquid structure; liquid theory; Morse potential
acetone, $n\rightarrow\sigma^*$ band, universal internal interactions, intermol. H-bonds 4−66426
amino-N-methylphthalimide solutions, stimulated emission, intermolecular interactions effect 4−70324
angular pair correlation function derived for interacting systems, perturbation theory 4−63500
Ar and Ar-alkane mixtures, second virial coeffs. meas., pot. parameters calc. *(German)* 4−56340
aromatic complexes, external deuterium isotope effect, spectroscopic obs. 4−45353
aromatics, polycyclic, rot. barriers in mol. solids, pot. energy calcs. 4−72439
atomic clusters, struct., vibr. props., melting investig., mol. dynamics simulation method 4−66804
binary mixture, of polar and non-polar liquids, compressibility investig. using u.s. method *(French)* 4−56793
bound double molecule formation in polar gases, dipole and quadrupole moments 4−43901
convex molecule fluid, statistical thermodynamics, Kihara pot. function 4−43217
diagrammatic perturbation theory for interaction of two mol. systems treated by EHT 4−52265
diatomic, vibrational relaxation through translational and radiational 'heat baths' 4−63413
diatomic gas molecules, rigid rotors, mag. field effect on viscosity, thermal cond. 4−48177
dimer formation by three-body collisions, mol. dynamics model 4−73421
2,5-diphenyloxazole, interaction with N heterocycles spectral obs. *(Russian)* 4−78444
dispersion interactions of axially symmetric mols. 4−56298
double molecule formation and breakdown, in dipolar and quadrupolar gases, rot.-translational energy transfer 4−66527
elastic mol. beam scatt., generalised pot. model, Simons-Parr-Finlan theory 4−63469
enamino thiones, inter- and intramol. hydrogen bonds involving thione proton acceptor group 4−43788
ethylbromide and deuterated analogues, liq., relative mol. orientation determ. from proton mag. relax. meas. 4−57419
ethylene + Ar(Xe) mixtures, press. induced absorpt. spectra, quadrupolar field induced dipole moments investig. 4−74973
fluid, soft repulsive particle mol. dynamics calc. of long-time vel. autocorrelation function 4−66507
fluids, thermodynamic perturbation theory for simple polar fluids 4−43216
fused salts, appl. of mol. dynamics method 4−82101
intermolecular complexes, vib. spectroscopy, applic. to binary chloroform solns. 4−43840

intermolecular mechanics continued
intermolecular energy, perturbative ab initio calc., complex ground state and excited configs. 4−56074
kinetic theory, Boltzmann's equation and dynamic methods development means *(German)* 4−52324
Lennard-Jones 12-6 potential, vibr. eigenvalues, approx. formula 4−66529
Lennard-Jones fluids, mean spherical model for struct., correlation function calcs. 4−60390
linear polarisability model, modification to perturbation expansion of Ursell-Mayer function, 4−48155
liquid, surface structure and surface tension, perturbation theory and Monte-Carlo calculations 4−44748
liquid film-vapour phase separations, Lennard-Jones system, investig. by Monte Carlo methods 4−67045
liquid self-diffusion theory using dynamical superposition approx. 4−75638
liquid structure and properties, review of theories 4−75432
long-range interaction in many-electron systems, double perturbation theory 4−56045
long-range many-molecule interactions, Heitler-London renormalization 4−75057
macromolecular solutions, diffusion, intermacromolecular interaction effects, two-component solutions 4−52319
macromolecular solutions, diffusion, intermacromolecular interaction effects, three-component solutions 4−52320
methyl fluoride + Ar(Xe) mixtures, press. induced absorpt. spectra, quadrupolar field induced dipole moments investig. 4−74973
methyl nitrate and deuterated analogue, in N_2 matrix, i.r. spectra, intermol. pots. 4−48021
molecular interactions, perturbation calcs. using biorthogonal orbitals 4−60131
molecular liquids, orientational single particle correl. functions, J diffusion model theory derived 4−60393
molecular liquids, translational single particle correl. functions, model hard sphere system 4−60392
n-body repulsive potentials, Heitler-London scheme, for many-mol. systems 4−63498
naphthalene in n-alkane solns., spectral shifts of $\pi\pi^*$ bands, mol. orientation, theory 4−72111
organic molecules, liq. phase, pot. barrier to reorientation 4−60389
organophosphorus (arsenic) cpds., intra- and intermolecular interactions, opt. spectra 4−43843
penetrable sphere model, bounds to thermodynamic props. 4−74443
perdeuterobenzene, in nitrobenzene soln., ^2H n.m.r. spectrum, elec. field effects, mol. alignment 4−64271
photochromic cpds., electronic spectra rel. to mol. interaction determ. 4−43823
polyatomic gas molecules, rigid rotors, mag. field, effect on shear viscosity, applic. to N_2 4−48178
polyatomic gases, quantum mech. treatment of elec., mag. field effects on transport props. 4−48176
polyatomic liquids, isothermal compressibility and partial molar vol., perturbation treatment 4−60391
polymer solution, dynamical viscosity theory 4−75063
potential energy functions derived to represent intermol. pair pot. energies 4−48153
pure spherical gases and binary gas mixtures, second virial coeff. meas. rel. to temp., pot. parameters calc. *(German)* 4−52322
quadrupolar gases, second virial coeff. calc. 4−56341
R17 virus, soln., light scatt. obs., macromol. ordering 4−52316
rotation-vibration coupling effects on i.r. and Raman spectra of diatomic mols. in solution 4−64384
solvated electron, volume expansion in ammonia compared with water investig., CNDO/2 calc. 4−50216
square well potential, modification of Kirkwood superposition approx., liq. props. 4−52856
trifluoromethane + Ar(Xe) mixtures, press. induced absorpt. spectra, quadrupolar field induced dipole moments investig. 4−74973
water, intermol. pot. energy function derived from mol., lattice, struct. parameters 4−78536
water, rel. to neutron pulse thermalization 4−43583
Xe, SF_6, alkanes, second virial coeffs. meas. rel. to temp., pot. parameters calc. *(German)* 4−56340
Br_2, long-range interaction consts. determ. using [1, 0] Pade approximant 4−63499
Br_2 crystal, intermol. pots. and lattice dynamics 4−79119
CO_2, mol. cryst, intermol. pot. energy and Gruneisen parameter, lattice Raman spectra 4−56845
CO_2 double molecule formation and breakdown, in dipolar and quadrupolar gases, rot.-translational energy transfer 4−66527
$CO_2 + N_2$ system, CNDO calc., intermolecular V-T and V-V potentials 4−72253
Cl_2, long-range interaction consts. determ. using [1, 0] Pade approximant 4−63499
Cl_2 crystal, intermol. pots. and lattice dynamics 4−79119
$D_2 + He$, quantum mech. scatt. of asymm. mols., comparison to He + HT 4−75058
$D_2 + I$, elastic scatt., intermolecular pot. 4−66528
D_2O, dielec. const. determ. rel. to press., struct. investig. 4−61089
Fe complex, iron(III)bisdithiocarbamates, mag. interactions 4−53222
H_2, liquid, isotopes, shock compression anal. of intermol. pot., metallic transitions investig. 4−60550
H_2, long-range interaction consts. determ. using [1, 0] Pade approximant 4−63499
H_2-H_2, intermolec. energy in different geometrical configs., ab initio SCF-CI calc. 4−56301
$H_2 + H_2$ interaction, comparison of various perturbations procedures 4−63473
$H_2 + H_2$ potential, absolute integral cross section meas. 4−78540
HD + H, collinear collision, quantum vibr. transition probabilities calc. for Morse oscillator 4−48143
HD^+, adiabatic Dunham constants, potential energy curve, internuclear separations 4−66412
H_2O, dielec. const. determ. rel. to press., struct. investig. 4−61089
H_2O, rel. to homogeneous nucleation of vapour 4−82265
H_2O dimer interaction energy ab initio calc. 4−56076
HT + He, quantum mech. scatt. of asymm. mols. 4−75058

intermolecular mechanics continued
He + Ne(Ar)(Kr)(Xe), Ne + Ar system, mutual diffusion coeffs. determ. rel. to conc., pot. parameters calc. 4−48179
He_2, intermolecular energy, perturbative ab initio calc. 4−56075
I_2, long-range interaction consts. determ. using [1, 0] Pade approximant 4−63499
Ir complex, chelatodicarbonyliridium (I), opt. and elec. props. rel. to excitonic superconductivity *(German)* 4−79757
LiCl in H_2O, mol. dynamics study 4−69704
$Li^+(donor)_n$ complexes, CDNO/2 studies of ion solvation, rel. to charge transfer, struct. 4−45940
N_2, molecular crystal, intermol. pot. energy and Gruneisen parameter, lattice Raman spectra 4−56845
NH_3 + Ar collisions, ammonia intermol. pot. determ. from differential cross sections 4−63501
NaCl, liq., long range forces, appl. of mol. dynamics 4−82101
Ne_2, intermol. potential energy function 4−72255
Rb, liquid, density fluctuations, mol.-dynamics calcs. 4−66815
$UF_6 + UF_6$(rare gas atom) interaction potentials, statistical model 4−72254

internal combustion engines
exhaust analyser 4−71132
heat transfer measurement, using thin-film resistance thermometers 4−77042
high temp. materials 4−76521

internal conversion *see gamma-ray internal conversion*

internal fields, crystal *see crystal internal fields*

internal friction
see also damping
alkali metaphosphate glasses, freq. and temp. depend. 4−60553
amplitude dependent, under torsion, modified Granato-Lucke expression 4−76452
analytical derivation from damping data measured with longit. excitations 4−76500
analytical derivation from damping data measured with longit. excitations 4−76501
α-brass, slip band dislocations, influence of athermal frictional stress 4−57748
butadiene-methacrylic acid copolymers neutralized with various salts, ionic cluster obs. 4−53872
2Cr-1Mo pressure vessel steel, before and after neutron irradiation 4−79989
deformable solid, mech. energy dissipation during thermal diffusion processes 4−48707
ferroelectric polydomain crystal, electronic cond. influence 4−79688
ferromagnet, due to charged point defect interactions with domain boundaries *(Russian)* 4−53272
glass, internal friction rel. to water content 4−75573
glass conference, Jena, Germany (Jun 1973) 4−73380
glass fibres, liquation struct. investigation using internal friction and electron microscopy 4−48512
graphite, obs. of anelastic relax. by point defects in neutron irradiated samples 4−56808
l.f., electric meas. 4−42716
measurement, expt. verification of formulae for conversion of measured data to intrinsic values, using Cu 4−48706
pendulum, horizontal torsion, for automatic recording, −195 to 400 degrees C *(German)* 4−54827
piezoelectric resonators, digital meas. technique 4−46577
pinning effects on dislocation motion 4−69818
plastic deformation, internal damping, correction method 4−60552
PMMA, amorphous, fillers effect on temp. transitions *(Russian)* 4−53897
polymer, block type, dynamic mech. props. using resonant vibr. method 4−80132
polymer solution, internal viscosity 4−49323
polystyrene, amorphous, fillers effect on temp. transitions *(Russian)* 4−53897
rocks, internal friction effect 4−70632
spring wire and microribbon materials, imperfect elastic elasticity characts. determ. method 4−62414
steel, amplitude depend., effect of creep, ageing and reducing heat treatment 4−49825
steel, amplitude dependent internal friction, effect of surface treatment 4−82949
steel, pressure vessel type, radiation hardening, role of alloying elements 4−45720
TTF-TCNQ, exam. using vibrating reed technique 4−82215
Udimet 520, effect on microstruct. and tensile characts. 4−45704
Ag, relax. of grain boundaries *(French)* 4−76433
Al, amplitude-time dependent meas., mechanism 4−56807
Al, Bordoni relaxation, neutron irradiated and cold worked samples *(French)* 4−52770
Al, change during creep, model of screw dislocation lateral glide *(Russian)* 4−79987
Al, fatigue and neutron irrad. effects 4−64574
Bi, single cryst., 4.2-298K 4−79097
Bi-Sn alloys, elastic const. behaviour near solid soln. pt. 4−82226
Cu, electron irrad., 15 and 7.5K 4−72487
Cu, explosive loading, effect on Young's modulus, internal friction 4−82934
Cu, expt. verification of formulae for conversion of measured data to intrinsic values 4−48706
Cu, single crysts., substruct. and impurites block-boundary peak *(Russian)* 4−67829
Cu, u.s. treated, grain boundary peak of internal friction *(Russian)* 4−67826
Cu, whiskers, anisotropy of internal friction 4−79252
Cu-Ni(0.005 wt.%) alloy, temp. depend. of Ni diffusion along dislocations in Cu *(Russian)* 4−75641
Fe, effect of Ce and La on grain boundary, Snoek and cold-work peaks *(Chinese)* 4−79979
Fe/Cu composite, fibre reinforced, internal friction changes on cold rolling 4−80088
Fe-Al-N alloys, neutron irradiation effects, atomic structure behaviour 4−76464
Fe-C, l.f. meas. 4−42716

internal friction continued
  Fe-Cr solid solns., b.c.c., Zener relax. rel. to solute diffusion 4−53691
  Fe-N alloys, Snoek relax., lognormal analysis 4−49812
  Fe-Ni and Fe-Ni-C alloys, martensite obs. using internal friction method *(French)* 4−49712
  Fe-Ni-C austenite, anelastic phenomena related to carbon diffusion *(French)* 4−49749
  Fe-Ni-C martensite, carbon-dislocation interactions *(French)* 4−49713
  $Fe_{0.74}P_{0.16}C_{0.05}Al_{0.03}Si_{0.02}$, $Fe_{0.75}P_{0.16}Si_{0.06}Al_{0.03}$. mech. props. rel. to temp. 4−64588
  He, solid on nonuniform time-oscillating deform *(Russian)* 4−75668
  In-Tl alloys martensitic phase tranformation, Bordoni peak formation 4−61351
  $KH_2PO_4:Cr^{3+}$, relax. internal friction, obs. and defect model 4−82222
  $K_2Pt(CN)_4Br_{0.3}.3H_2O$, exam. using vibrating reed technique 4−82215
  LiF, H-centre form. effect, dislocations as sinks 4−44600
  $LiF:Mg^{2+}$ temp. dependence *(Russian)* 4−48705
  Na, liq., freq.-depend. friction const., single particle props. 4−63749
  NaCl crystal, point defect interaction with dislocations, internal friction study 4−44532
  NaF, single crystal, internal friction and charged dislocations 4−82220
  Nb-O alloys, Snoek relax., lognormal analysis 4−49812
  Ni, magnetoelastic damping, domain struct. and boundaries *(Russian)* 4−67412
  Ni-Al(6.38 wt.%) alloy, ageing effect on microstruct. and tensile characts. 4−45704
  Ni-Cr(Ti)(Mo) solid solns., conc. depend. and solubility boundaries *(Russian)* 4−49792
  $Ni_{0.74}P_{0.16}B_{0.07}Al_{0.03}$, mech. props. meas. rel. to temp. 4−64588
  Pb, liq., freq.-depend. friction const., single particle props. 4−63749
  Pb-Au(Cu)(Ag), anelastic relax. peaks investigation 4−66987
  Pb-Au(Cu)(Ag), internal friction peaks obs., relaxation effects 4−66988
  $Pd_{0.81}Si_{0.19}$, mech. props. meas. rel. to temp., relax. process investig. 4−64588
  Re, after torsional deform., liq. N_2 temp. 4−70513
  Si, amplitude depend. with deform., dislocation model 4−56809
  Si:B, interstitial props. from internal friction meas. after implantation 4−66909
  Ti-Mo-Zr-Sn β III alloy, phase transforms., modulus variations *(French)* 4−79915
  Ti-O solid solns., l.f. internal friction, relax. peak obs. *(French)* 4−53710
  Tl, temp. depend., polymorphic transform. temp. *(Russian)* 4−66986
  V, neutron irradiated, oxygen Snoek damping and abnormal peak after annealing 4−81633
  V:O, neutron irrad. effects, interstitial trapping 4−43681
  W, amplitude depend. on temp. and rhenium impurities *(Russian)* 4−80018
  Zr, cold worked, low temp. relax. processes 4−45622
  Zr-H(D) internal friction, 800-11000 Hz 4−70499
  Zr-O alloys, pinning point dislocation interaction energy depend. on dislocation struct. 4−49729

internal friction of liquids *see viscosity of liquids*

internal mechanics, molecular *see molecular internal mechanics*

internal mechanics of atoms *see atomic structure*

internal stresses
  adhesion joints, residual stress distrib. 4−45823
  alloy, residual thermal stresses due to quenching *(French)* 4−53708
  bimetallic specimens with pressed nozzles, tensile deform. influence on fatigue strength *(Russian)* 4−53723
  ceramic, crack extension and arrest in residual localised stress fields assoc. with second phase particles 4−73352
  composite, fibre reinforced metal-matrix type, one-dimens. press. effect *(Russian)* 4−49936
  cylindrical bars, residual macrostresses determ. method *(Russian)* 4−53935
  cylindrical shell, internal press. axially loaded, stress/strain state 4−55261
  cylindrical structures, influence of creep, heat and external forces *(Italian)* 4−43038
  cylindrical vessels, horiz. saddle-supported, stresses, photoelastic investig. 4−59147
  dislocation, polygonal loop parallel to free surface, stress field in isotropic medium, calc. 4−56747
  dislocation generation, role of internal stresses 4−52763
  dislocation pile-ups, intersecting, in nonuniform stress field, equil. dislocation distrib. *(Russian)* 4−60498
  dislocations moving in hydrostatically compressed medium, forces calc. *(Russian)* 4−60497
  elastic behaviour of spherically symmetric conc. fluctuation in finite body 4−61357
  elastic wave diffraction by crack, quasi-sudden brittle fracture 4−55272
  ferrite elements, internal evolution of heat, thermoelastic props., thermophys. props. 4−66956
  ferromagnet, due to wall junction 4−60977
  fluid, nonlinear, polarizable, energy-based formulation of stresses 4−76136
  free surface, stress field of an angular dislocation segment 4−82179
  glass reinforced plastic, stress and strain conc. around circular hole 4−80085
  glass reinforced plastic rings, climatic loading effect on residual stresses and carrying capacity 4−53844
  glass reinforced plastics, matrix interaction with short reinforcing fibres 4−49942
  glass reinforced plastics, wound, residual stress calc. for thickness varying material characts. 4−45775
  glass reinforced polyethylene, residual stresses, axial and radial components 4−45777

internal stresses continued
  hexamethylbenzene, multiple polymorphic transitions, relax. 4−82277
  laminated plates, correspondence principle 4−55240
  layered elastic-viscoplastic body, cylindrical stress wave propagation 4−49986
  linear Hertzian contact, press. modulation influence on internal stress field 4−48701
  metal-H coherent systems, internal stresses in α-α' phase transition 4−73282
  multilayer magnetic films, permalloy, dielec. interlayers *(Russian)* 4−67127
  orthotropic cylindrical shells with low shear stiffness, residual shear stresses determ. *(Russian)* 4−43042
  Permalloy, vacuum condensates, oriented porosity, form of structural elements, and microstress anisotropy *(Russian)* 4−61371
  plate, unbounded, viscoelastic, thermal stesses 4−43054
  polar fluids, frame-dependence of stress and heat flux 4−43222
  polyester-resin/chopped-strand-mat laminate critical crack tip stress intensity factor 4−82962
  polyethylene, cross-linked, stress distrib. and J-F characteristics under d.c. voltages, calc. *(Japanese)* 4−48989
  polyethylene, model for yield, critical resolved shear stress 4−80116
  polymer, loaded, deform. and stresses around submicroscopic cracks 4−80125
  polymer disc with press fitted metal rod, stress relax. 4−49944
  porcelain, hard, influence on dielec. props. 4−49302
  residual stress meas. by centre hole technique 4−42730
  rock hardness, effect of residual tangential stresses during drilling 4−80253
  sintering, stress induced diffusional transport, material continuity requirements 4−67894
  sintering, stress induced diffusional transport, material continuity requirements 4−67895
  steel, 35 NCD 16, C.T. 15 specimen, stress and displacement fields, integral eqn. soln. *(French)* 4−67863
  steel, austenitic stainless, stress relax. and mech. eqn. of state 4−45657
  steel, austenitic stainless, Type 1616, cold work effect on elevated temp. stress components 4−53780
  steel, cavitation damage tests correl. with residual stress meas. 4−45876
  steel, cold-rolled sheet, residual stresses and flatness defects *(German)* 4−45580
  steel, cold-rolled strip, flat and uneven, residual stress meas. *(German)* 4−45581
  steel, electrospark alloying with refractories, strength characts. of layers produced 4−49835
  steel, martensitic transform., internal stress fields and evolution during tempering *(French)* 4−79909
  steel, Ni-Mo-Cr type, temp. and holding time at stress relieving effects on internal stresses and mech. props. *(German)* 4−67812
  steel, precracked, residual stress near crack tip, influence on applied stress under tensile loading *(German)* 4−67888
  steel, structural, twinning and slipping shear stresses eval., grain size depend. 4−53695
  steel, tufftrided, fatigue limit prediction for smoothed specimens *(Japanese)* 4−82893
  steel, vacuum-diffusion Cr plating influence *(Russian)* 4−53720
  steel, X-ray stress meas. method of one exposition *(Czech)* 4−49699
  thick-walled structural elements, internal stresses and brittle fracture under tensile load *(German)* 4−45583
  thin films, capacitance bridge device for meas. 4−42728
  thin-film resistance thermometers 4−77042
  toroidal magnets for CTR, physical and material constraints on performance 4−69337
  triso coated fuel particles, HTR, analytical model for stresses and strain rates 4−63282
  two-phase system, locked screw dislocation effect on pile-up, applic. to fracture 4−49702
  wedge-shaped mass, conc. internal force 4−65669
  wound reinforced plastic products, thick-walled, temp. residual stresses and strains 4−53840
  Al, dislocation structure form. during deform. *(German)* 4−53694
  Al, high temp. deform., dip test applic. to internal stress meas. *(Japanese)* 4−45638
  Al alloy sheet, fatigue strength improvement by edge treatment 4−76456
  Al-Al_3Ni eutectic composites, stress partitioning between fibre and matrix during tensile deform. 4−45767
  Al-Mg alloy, high temp. deform., dip test applic. to internal stress meas. *(Japanese)* 4−45638
  Al-Mg alloys, high temp. steady-state creep, activation parameters 4−64585
  Al-Mg(5.5 at.%) solid soln., effective stress in steady state creep 4−53702
  As_2S_3, amorphous, obs. by i.r. crossed nichols 4−82221
  Cu, cold work effect on elevated temp. stress components 4−53780
  Cu films, electrolytically deposited, ductility, strength, low temp. *(Russian)* 4−67827
  Cu-Al(3 wt.%) single crysts., friction stress on individual dislocations 4−49728
  Cu-Zn-Si alloy, phase transforms., internal stresses *(Russian)* 4−67750
  Fe, Armco, stresses and strain in neck of specimen strained in tension *(Russian)* 4−53744
  Fe, Luder's band propagation 4−82898
  Fe-Co-Cu-V alloys, semi-hard mag. material characts. and prop. changes on heating *(Japanese)* 4−45140
  GaAs, c.w. semiconductor laser, degradation rel. to local defects, internal stresses and local weakness 4−81326
  Ge, amorphous film, during deposition 4−79887
  Ge, film, elec. and optical props., impurity and defect effects 4−79419
  KCl, relax. of deforming stress, mobile dislocation lifetime and density, theory 4−72472
  LiCl, single crysts. and bicrysts., plastic deform. transmission through boundary *(Russian)* 4−52805
  Mg, deformed, helical dislocations obs. by transmission electron microscopy 4−56751

internal stresses continued
MgO, machined crysts., residual stresses 4−49893
Mo, vacuum-melted, annealing temp. and addition effects on struct. and mech. props. *(Russian)* 4−45709
Mo sheet with diffusion coatings, stress conc. effect on mech. props. 4−61458
Nb-H, coherent system, internal stresses in α-α' phase transition 4−73282
Ni-Co alloys, shot peened, fatigue stability and residual stress 4−45658
Ni-Ti alloy, phase transforms., internal stresses *(Russian)* 4−67750
NiO bilayered scales on Ni 4−80047
Pb, dispersion strengthened, recrystallised, with 1 wt.% PbO, room temp. creep 4−80039
Si, deformed single crystals, stresses produced by Lomer dislocation network *(Russian)* 4−52760
Te/Ag and Te/Bi films, superposition, substrate nature influence on stress-relief *(French)* 4−44810
V-Ti-Nb alloy, cold work effect on elevated temp. stress components 4−53780
$Y_{3-x}Eu_xFe_{3.9}Ga_{1.1}O_{12}$ film, liq. phase epitaxial, on $Gd_3Ga_5O_{12}$ substrate, misfit strain 4−57004
Zr, cold-worked hexagonal, X-ray Fourier lineshape analysis 4−61379

internuclear double resonance *see INDOR*

interplanetary magnetic fields
see also interplanetary matter
1972, August 4 shocks, plasma and magnetic field obs. 4−62093
acceleration of solar wind 4−50451
asteroid belt, solar wind magnetic field turbulence 4−80533
azimuthal component rel. to geomagnetic field in polar caps 4−62090
charged particle bunches, coherent propagation in random magnetic fields 4−46138
control of magnetospheric dynamics 4−62089
coronal green emission correl. with polarity pattern, 11 years inversion 4−62021
coronal magnetic structure rel. to 1972, August 2-9 interplanetary proton events 4−62030
cosmic ray fluctuations related to scattering in random inhomogeneous field *(Russian)* 4−80428
cosmic ray interaction with inhomogeneities interpretation of 11 year variation *(Russian)* 4−80427
cosmic ray kinetics, intensity increase, mirror reflecting surface of shock wave *(Russian)* 4−83149
cosmic ray pitch angle scatt., Fokker-Planck coeff. 4−65011
cosmic ray spatial distrib., interplanetary space, solar activity influence *(Russian)* 4−83152
cosmic-ray diffusion theory, effects of nonlinear terms for interplanetary medium 4−76764
direction of field and auroral zone disturbances 4−62091
diurnal anisotropy of cosmic radiation, mechanism 4−50423
heliographic latit. depend., geomagnetic activity index var. 4−80547
Jupiter's bow shock structure, Pioneer X obs. 4−54421
magnetospheric convection, effect of east-west component of interplanetary magnetic field 4−83131
magnetospheric electric field and currents connected with Y-component of interplanetary mag. field 4−58112
magnetotail, access of energetic solar particles 4−61877
Moon, thermal evolution of early cold model, rel. to ancient magnetism 4−50511
N-S asymmetry 4−46203
open magnetosphere rel. to interplanetary field directions 4−50358
Pioneer 9 and 10 obs. during 1972, August 2-17 period 4−62029
power spectrum in 0.7-1.6 AU range 4−70959
reconnection rate and normal component rel. to structure of magnetospheric storms 4−68403
sector boundaries and K-corona relationships 4−83180
sector structure, effect on auroral activity 4−68216
sector structure, geomagnetic effects 4−68402
sector structure, influence on vorticity in troposphere and lower stratosphere 4−64899
sectoral structure, influence on cosmic ray modulation, comparison with 27 day var. *(Russian)* 4−83150
shock waves, solar activity and sudden storm commencements, correlations 4−61711
solar cosmic ray particle propagation characteristics from impulsive flare events 4−61959
solar wind, electron temp. depressions following interplanetary shock waves, magnetic merging 4−83197
solar wind, Sweet's mechanism in D-sheets 4−80546
solar wind sector structure, large-scale inhomogeneities 4−54375
southward field, magnetotail var. 4−61847
southward fields rel. to cause of geomagnetic storms 4−45986
spiral form and adiabatic cooling of solar protons 4−50456
SSC-triggered substorms, preceeding interplanetary and ground magnetic conditions 4−76668
sudden impulsive and sudden commencement events in magnetosphere rel. to interplanetary magnetic field 4−73569
variations at lunar surface, polarized mag. field fluctuations at Apollo 15 site 4−68386
Venus bow shock wave, solar wind encounter, Mariner 10 obs. 4−70938

interplanetary matter
see also comets; cosmic dust; interplanetary magnetic fields
circumsolar dust grains, dynamics 4−65135
convection of low-energy solar protons behind explosive wave front in interplanetary space 4−68301
correlated interplanetary and magnetospheric obs., symposium (Saulgau, W.Germany, 22-25 May 1973) 4−61859
cosmic ray intensity growth before Forbush decrease, anisotropy degree, state of interplanetary space *(Russian)* 4−83154
cosmic ray short repetition cycle, extraterrestrial origin, rel. to interplanetary environment *(Russian)* 4−83151
cosmic ray var. mag. storms, shock wave vel. moderation in interplanetary environment *(Russian)* 4−83155
dust particles in solar elliptic orbits, nongravitational effects on evolution 4−46204
electron concentration var., Mars-2 dispersion interferometry meas. 4−76814

interplanetary matter continued
electron events, relativistic, relation to solar X-ray and radio emissions 4−80512
electrons, from Jupiter's mag. field 4−46179
flare proton and electron propagation anisotropies, comment on paper by R.K. Pyle 4−70960
heavy ion composition anomalies, 0.01-40 MeV per amu 4−62088
Landau damping of solar Type III bursts by interplanetary high energy electrons 4−54457
low-energy particles, Mars-2 and-3 meas. in 0.03-10 keV range 4−76813
MHD wave propagation, transverse Alfven mode 4−65136
particle fluxes from solar events, OV5-6 satellite obs. 4−62031
plasma, determ. of photon rest mass by Alfven wave obs. 4−43407
plasma, excitation by energetic particles, low freq. type III solar radio burst prod. 4−80510
plasma, magnetosonic waves 0-2 Hz due to cyclotron instability 4−50537
plasma and magnetic field obs. of 1972, August 4 shocks 4−62093
proton fluxes upstream from Earth's bow shock, satellite obs. 4−62092
radio scintillation rel. to ionosphere and interplanetary irregularities, wavelength depend. 4−50337
reverse shock, stream-stream interaction, 1968 Feb. 29 event 4−70958
scintillation rel. to apparent angular diam. 4−80545
shock wave propagation, point explosion model 4−68401
shock wave propagation from noncentral point explosion 4−54458
shock waves, proton and α-particle enhancements 4−83196
solar electrons, non-relativistic, propag. and generation of e.m. radiation 4−80511
solar wind velocities from Pioneer data, reliable indicators of interplanetary activity 4−65062
He^+ content of solar wind, upper limits at 1 AU 4−62003

interplanetary medium *see interplanetary matter*

interpolation
see also function approximation
f-factor interpolation schemes for 1DX cross section preparation code for fast reactor analysis 4−81584
radioastronomical synthesis data interpolation, effect of ringlobes 4−62245
stable probability density functions, tables and graphs 4−43025
two-variable splines, synthesis from Mandel'broit-Bang functions *(Russian)* 4−55211

interstellar dust *see cosmic dust*

interstellar magnetic fields
see also interstellar matter
cosmic ray confinement, leaky box model, effect of turbulent magnetic field 4−58156
equilibrium models of cool, dense interstellar gas cloud with locally distorted galactic magnetic field 4−73840
galactic centre, electron density and magnetic field strength 4−68452
galactic turbulence enhanced synchrotron radiation 4−50651
local galactic magnetic field from background polarization surveys 4−58439
local magnetic field structure from radio obs. of pulsars 4−50687
Orion molecular cloud, magnetic field from Zeeman effect in SO lines 4−80660

interstellar matter
see also cosmic dust; H I regions; H II regions; interstellar magnetic fields; nebulae
absorption effects on space density of A-type stars in Cassiopeia direction 4−54540
alignment of dust clouds 4−73862
atoms, physical state from u.v. observations by Copernicus 4−73842
black hole accretion rel. to detection as faint optical stars 4−68434
cloud complexes, formation from magnetic Rayleigh-Taylor instability 4−65219
cloud structure, statistical model 4−46300
clouds, interaction with dust grains ejected from cool stars 4−46337
clouds, nonlinear maser model 4−68454
clouds, statistical props. from interferometric scans 4−80642
clouds near ρ Ophiuchi, velocity structure from optical lines 4−50716
cold, low-density interstellar gas, Na I obs. and detection 4−71059
colliding clouds, partial-coalescence model 4−50722
complex molecules, arguments for formation in planets, palaeovolcanic processes *(French)* 4−46290
cosmic ray N, O enhancement by solar motion in interstellar medium 4−61964
cyanoacetylene, new lines and sources in the Galaxy 4−46296
dense clouds, chemical evolution 4−46297
dense dust cloud genetic relation with ordinary interstellar clouds by gravitational collapse 4−46326
dense interstellar clouds, fractional ionization 4−80658
depletion of intermediate-weight elements 4−50694
differentially rotating discs, Parker instability 4−65051
diffusion of elemnts in interstellar gas, evolutionary model of Galaxy 4−73847
dimethyl ether, radio emission lines from Orion Nebula direction 4−80648
dipyridyl magnesium tetrabenzporphin, spectroscopic simulation of diffuse interstellar lines 4−46293
dust−H I gas association, 21 cm line strength and narrow emission line components 4−46304
dust clouds, galactic absorpt. rel. to galaxy cluster space distrib. 4−83248
dust expansion during stellar formation, effects on underabundance of various elements 4−80666
dust grains, ion implantation effects 4−58449
electron density from pulsar 21 cm line absorption 4−62199
equilibrium models of cool, dense interstellar gas cloud with locally distorted galactic magnetic field 4−73840
ethylene oxide, laboratory microwave spectrum 4−56250
extreme interstellar reddening as explanation of i.r. stars 4−76877
First European Astronomical Meeting, Athens 1972 4−73803
formation of interstellar radicals and molecules, react. mechanism investig. 4−50696

interstellar matter continued
galactic absorption, models of three-dimensional variation *(German)* 4−46279
galactic centre, spectrum in 8-13.5 μ region and interstellar silicate 4−73809
galactic centre region, i.r. polarization search 4−46318
gas, cloud structure and star formation 4−73844
gas, dynamics study, solar wind asymm., dynamic press., retardation area *(Russian)* 4−80470
gas cloud structure, galactic centre region, HI, OH, H_2CO lines, from lunar occultations 4−73807
gas equilibrium states in presence of magnetic and gravitational fields 4−80645
gas in galactic disc, statistical time dependent model for temp. and ionization structure 4−50688
gas phase production of molecules in dust clouds 4−46298
Gould's Belt, local galactic properties, model for H I distrib. 4−73804
grain alignment by beams of particles or light 4−76919
graphite, silicate and Fe particles, extinction and refractive indices 4−71063
Gum Nebula, early-type stars near Vela pulsar, high velocity components 4−76845
HD 92964 and 147889, JHKL i.r. photometry of interstellar extinction 4−76842
high velocity clouds and outer spiral structure of the Galaxy 4−73806
IC 1795, H_2CO and OH distrib. 4−46307
IC 2581 open cluster, ratio of total to selective absorption 4−50671
intercloud HI gas, homogeneity and kinetic temp. 4−73849
ionization mechanisms of intercloud medium 4−71057
isotopic abundance, microwave molecular spectra analysis 4−68456
Khavtassi 3, HI 21-cm-line obs. of dark cloud 4−58447
kinematics of local interstellar H I, indication of separate subsystem 4−73848
linear interstellar polarization meas. in u.v. and i.r., grains 4−58435
M33, gas density and star formation rate from star counts and high resolution radio obs. 4−80622
masers line width theory 4−62197
methylamine, detection in Sagittarius B2 and Orion A 4−76908
methylamine detection by $2_{02}\rightarrow 1_{10}$ A_a-state transition 4−76909
molecular abundances and formation on grain surfaces 4−46338
molecular abundances rel. to origin in stellar atmospheres 4−46308
molecular clouds, Cl bearing molecules 4−62200
molecular clouds, gravitational collapse 4−62196
molecular clouds, X-ray transition radiation 4−58432
molecular distrib. in dust clouds from lab. expts. 4−46299
molecular obs. at millimetre wavelengths 4−68457
molecular obs. of interstellar clouds suggested for studies of cloud evolution 4−46294
molecular rotational line formation 4−54563
molecular source discovery near M17, CO obs. 4−50693
molecules, detection of H_2, HD, CO by Copernicus satellite, u.v. observations 4−73843
molecules, H_2, OH and H_2CO in widely distributed gas and dust clouds, form. processes 4−73845
molecules, origin by catalytic reactions on grain surfaces 4−83253
molecules, probes for physical state of interstellar gas clouds, u.v. radiation and galactic structure 4−73844
molecules, recent developments, review 4−68455
molecules and laboratory data 4−73833
molecules containing sulphur, creation and destruction 4−46284
Na I, Ca II and K I optical absorption lines, interferometric scans 4−80641
neutral globules assoc. with diffuse nebulae, comments 4−54572
OB star ionization of intercloud medium not associated with normal H II regions 4−80643
ρ Ophiuchi complex, new source of intense molecular emission 4−58438
ρ Ophiuchi dust cloud, total to selective absorption ratio 4−73857
optically thick neutral H gas detection by deviation-defect method 4−46341
organic molecule clouds, chemistry rel. to origin of life 4−46292
Orion Nebula, $^{12}C/^{13}C$ ratio from $H^{12}C^{14}N$ and $H^{13}C^{14}N$ line emissions at 80 GHz 4−68458
Orion Nebula direction, possible maser emission near 3.48 mm 4−50692
particles and fields in space, Hungarian Acad. Sci. conf. 4−50430
Perseus 2 cloud, line spectra in 3100-4300 A region 4−62206
plasmas, MHD, waves, shocks in interstellar medium 4−50697
polarization and extinction, review of observation data 4−46313
polarization of radiation from early-type stars, wavelength dependence 4−58433
primordial solar nebula, behaviour of carbon rel. to interstellar and meteoritic organic molecules 4−46153
protostellar molecular clouds, HCN and H_2O excitation 4−71056
pulsar scintillation and pulse shape, interstellar refraction effects 4−54528
Puppis region, absorption below galactic plane 4−46277
166α radio recombination lines from C and possibly heavier elements 4−76915
reddening in Cygnus region and distance to Cygnus X-1 source 4−83245
reddening in LMC, from BV photometry of OB associations 4−76886
relative chemical abundance in dust clouds and unshielded cold clouds 4−46295
Sagittarius B2, acetaldehyde mol. cloud, microwave rot. spectra 4−62198
δ Scorpii interstellar lines in u.v. spectrum 4−73831
silicate extinction, quantitative study 4−80665
SMC transparency from background galaxy counts 4−80629
star formation rate, sensitivity to interstellar heavy element abundance 4−50541
starlight differential polarization as function of distance and galactic longitude 4−46320
supernova remnant evolution, numerical model of shell formation stage 4−62119
supernova remnants, dense knots interaction with interstellar medium 4−76852

interstellar matter continued
supernova remnants, generation of hot network of tunnels in Galaxy 4−58436
upper limits to flux of cosmic rays and X-rays in interstellar clouds 4−70848
Upper Scorpius stars, interstellar circular polarization obs. 4−46316
Vela pulsar, interstellar scattering, 837-8085 MHz 4−71025
W44, SN remnant, H_2CO and OH distrib. 4−46307
wavelength of maximum polarization rel. to interstellar grains 4−58434
B, upper limit in Ophiuchi direction from B II 1362.461 A line obs. 4−58437
Be abundance from Be II resonance lines in O and B stars 4−73835
C clouds, freq. depend. of C recombination line, radio obs. 4−83256
CH and CH^+ from grain mantle evaporation 4−73841
CH and CH^+ in interstellar clouds 4−76910
CH formation by H_2 reactions with CH^+ and H_2 4−50690
CH ground state transition frequencies, radioastronomical determ. 4−83252
CH microwave line ratios for three ground-state transitions 4−65218
CN 3874 Å band, R(2) equivalent line width rel. to 1.32 mm cosmic background radiation 4−73743
CO, 2.6 mm emission in direction of 32 H II regions and 5 SNRs 4−80639
CO, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69503
CS, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69503
D, detection, DCN microwave spectrum, HD u.v. spectrum 4−80652
Fe II interstellar absorption lines in u.v. spectra of four bright stars 4−46218
H I 21 cm self absorption features, formaldehyde and OH obs. 4−73834
H^- photodetachment spectrum rel. to diffuse interstellar lines 4−80651
H_2, cause of anomalous absorption in X-ray astronomy 4−46291
H_2, highly excited, expected radioline intensities 4−54565
H_2 cloud, thermal equil. 4−80653
H_2 formation and destruction rates 4−80640
H_2 rotational excitation rel. to interstellar clouds 4−80649
HCHO in Orion Nebula, association with major ionization fronts 4−83251
HCN, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69502
HCN, rotational excitation by collisions with low energy He atoms 4−78523
HCN formation in dense interstellar clouds, laboratory meas. of some related ion-molecule reactions 4−73839
H_2CN^+, quantum mechanical calcs. rel. to interstellar abundance 4−80644
$H^{13}CO^+$ rotational spectrum rel. to unidentified X-ogen interstellar radio emission line 4−46286
H_2CO 2-cm. emission from Orion molecular cloud 4−50695
H_2CO 3_{12}-3_{13} transition at 28.975 GHz, obs. of Sagittarius A 4−76911
H_2CO 4.8 GHz line emission near NGC 7538 region 4−80656
H_2CO absorption in dark clouds in IC 1795 at 4830 MHz 4−46328
H_2CO formation mechanisms in interstellar clouds 4−76912
HI column density in direction of 43 hot stars and 34 X-ray sources, 21 cm obs. 4−50700
HI in dense interstellar dust clouds, 21-cm. line profiles 4−58446
H_2O, astrophysical masers, pump mechanisms 4−73832
H_2O, vapour, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69501
H_2O emission sources, southern sky, assoc. with H II regions, 22 GHz obs. 4−62203
H_2O masers in Orion A, W49N, W30H and VY Canis Majoris, VLBI obs. 4−73859
H_2O source in Sagittarius B2 22.2 GHz line emission 4−50689
Hα photographic survey of whole Milky Way 4−62205
He, resonance scattering source of nighttime He I 584 A line 4−46289
$HeC^{2+,+}$ molecule-ions, Roothaan-Hartree-Fock calcs. 4−59991
K I lines, interferometric scans 4−46288
KI in dusty clouds from early-type stellar spectra 4−80650
Li, high resolution search in ε Orionis and α Cygni directions 4−73846
MgTBP(χ) laboratory spectra rel. to interstellar microwave lines 4−54564
Mn II interstellar absorption lines in u.v. spectra of four bright stars 4−46218
Na abundance from 3302 A doublet obs. 4−50691
Na I oscillator strengths rel. to interstellar abundance in Ophiuchi 4−80647
Na I/Ca II ratio, velocity dependence 4−80646
Na I/Ca II ratio in clouds rel. to Ca I absorption prediction 4−46287
OCS, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69502
OH absorption, 1667 MHz obs. in southern Milky Way 4−73747
OH emission sources, 1665 MHz obs. in northern sky 4−73748
OH emission sources, 18 cm obs. in southern Milky Way 4−73746
OH formation mechanisms in interstellar clouds 4−76912
OH sources, star-like, unusual strong 1612 MHz emission, optical identification 4−73751
SO, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69504
SiO, isotopes, microwave spectra of mols. of astrophysical interest, data summary 4−69503
SiO masers, i.r. pumping processes 4−73838
SiO vibrationally excited 129 MHz line obs. in Orion Nebula 4−71058
Ti column densities from spectrograms for 23 stars 4−46285

interstitials
b.c.c. lattices, trapping effect in diffusion of interstitial impurity atoms 4−79179
crowdion motion at low temperature, quantum theory based on defecton model 4−52755
crowdion propagation, I-D model, instability 4−69802
diamond:N(B), LCAO calculations 4−48926

interstitials continued
diffusion, classical Brownian motion model 4−79184
diffusion, quantum Brownian motion model 4−79185
diffusion in cubic crystal, investigation using Kubo's formula 4−56917
dislocation line as vacancy (interstitial) sink increased efficiency when oscillates 4−72471
equilibrium concentration, rel. to kinetics of Frenkel defect accumulation at low temp. *(Russian)* 4−72463
fusion reactor cladding, theory of He-induced voids 4−55938
interaction with elliptical dislocation loop in anisotropic medium 4−48637
matter transport, diffusion, elec. cond., review 4−52946
metal, f.c.c., irrad. creep rel. to interstitial loop form. 4−59844
metal, h.c.p., sessile splittings of screw dislocations 4−72470
metal, hydrogen degassing kinetics *(Russian)* 4−73273
quantum diffusion of light interstitials 4−72585
recombination of interstitials and vacancies in irrad. damage cascade 4−66947
solid solutions, concentrated, strengthening coeff. *(Russian)* 4−49761
steel, accelerator simulation of neutron irrad., cluster form. effect on temp. shift 4−66260
steel, precipitated f.c.c. interstitial phases, comp. prediction 4−53686
stress gradients and Kirkendall shifts due to neutron damage 4−70516
(Ag,Na)Cl(Br), solid soln., thermoelec. power and elec. cond. 4−75908
Al, under neutron irradiation, interstitial diffusion mechanism of Au and Cu *(French)* 4−81637
Au, electron bombardment induced defects, substruct. of stage III annealing *(Russian)* 4−48650
Aul, heterodiffusion of A and Cu at infinite dilution, neutron irrad. effect *(French)* 4−44699
$BaF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4−44880
$CaF_2:Ce^{3+}$, dipole orientation and aggregation investigation 4−61101
$CaF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4−44880
δCe, under press., self-diffusion *(French)* 4−72587
Cr-Y(Gd)(Sm), dil., deformed, annealing, struct. changes *(Russian)* 4−67773
Cr_2N, non-stoichiometric, statistical model, bonding 4−76523
Cu, (a/2) $\langle 110 \rangle$ edge dislocation interaction with vacancies and interstitials, computer simulation 4−56732
Cu, elastic consts., effects of irrad. induced self-interstitials and close pairs 4−79072
Cu, f.c.c. lattice, interaction of interstitial atoms with one another and with substitutional impurities 4−69800
Cu, neutron irrad., defect clustering in annealing stage, anomalous X-ray transmission obs. 4−52788
Cu, polycryst., dislocation-dragging effects after quenching and electron irradiation 4−63840
Cu, thermal neutron irradiation, elastic constant changes evidence for split interstitials 4−44569
Fe, b.c.c., carbon and nitrogen interstitial content by mag. aftereffect meas. *(German)* 4−70178
Fe, diffusion of hydrogen, resist. recovery at low temps. 4−76446
Fe, effect of Ce and La on Snoek internal friction peak *(Chinese)* 4−79979
α-Fe, heavy particle irrad. damage cascade, interstitial-vacancy recomb. 4−66947
Fe, interstitial carbon influence on mag. props. 4−79552
Fe alloys, hydrogen effect on deform. behaviour 4−49811
Fe-Al(40 at.%) alloy, recovery of irrad. produced point defects, 40K *(French)* 4−76450
Fe-Al(40 at.%) alloy, recovery of point defects produced by cold working *(French)* 4−80042
Fe-Cr solid solns., b.c.c., Zener relax. rel. to solute diffusion 4−53691
Fe-N alloys, Snoek relax., lognormal analysis 4−49812
Fe-Ni and Fe-Ni-C alloys, martensite obs. using internal friction method *(French)* 4−49712
Fe-Ni-C alloy, dil., magnetostrictive aftereffect due to interstitial redistrib. 4−79563
Fe-Ni-C austenite, anelastic phenomena related to carbon diffusion *(French)* 4−49749
Fe-Ni-C martensite, carbon-dislocation interactions *(French)* 4−49713
Fe-Ti solid solns., Portevin-Le Chatelier phenomenon *(French)* 4−53709
GaAs, lattice defects, annealing effects, etch pit obs. *(Japanese)* 4−75531
GaAs:Se, epitaxial layer, rel. to strain and dislocations 4−82329
GaAs:Se solid solutions, lattice constants meas. and elec. props. investigation 4−45450
GaAs:Te, solid soln., lattice const., elec. props., Te interstitial and vacancy conc. 4−44531
n-Ge, group V doped, low temp. recovery of irrad. defects, annealing investig. 4−63841
p-Ge converted by electron irrad., transformation of simple defects at 200K 4−69801
Ge:Cu, effect on electrical properties 4−44918
Ge:O, effect on electrical properties 4−44918
Hf, electrotransport of C, N and O, degree of purification prediction 4−44703
Hf, interstitial oxygen role, in plastic flow kinetics 77-873 K 4−49784
K halides, Ar interstitial migration, anharmonic lattice statics calcs. 4−60648
KBr:Li, γ-irradiated, hardening and activation volume investigation 4−56769
$K_2H_6Mg_4Mo_4O_{20}$, non-stoichiometry meas. 4−60449
LiF, Li ion displacement by low energy electrons, absorpt. in I band 4−56777
MgO, neutron irradiated, X-ray diffr. profiles, interstitial dislocation loop attribution 4−82205
Mo, resist. recovery, stage III and IV annealing mechanisms 4−79959

interstitials continued
Mo, resist. recovery, stage III and IV annealing mechanisms 4−79960
Nb, role in stage III recovery, effect on mech. props. 4−70517
Nb:H, scattering of slow neutrons, obs. of one phonon excitations, and defecton mechanism of diffusion 4−48803
Nb-O alloys, Snoek relax., lognormal analysis 4−49812
Nb-O alloys, surface segregation of oxygen 4−49730
Ni, diffusion of hydrogen, isotope effects 4−67069
Ni, ferromagnetic after effect, due to interstitials 4−72998
Ni-Cr(Ti)(Mo) solid solns., internal friction, conc. depend. and solubility boundaries *(Russian)* 4−49792
Pd-H system, stability, plastic deform. influence, resist. meas. *(Russian)* 4−53677
PdH, crit. behaviour, lattice gas aspects 4−60611
Rb halides, Kr interstitial migration, anharmonic lattice statics calcs. 4−60648
Re, electron irradiation at 4.5K, resist. meas. 4−66937
p-Si, H^+ and He^+ irrad., ionisation effects 4−66948
Si, Jahn-Teller distorted $\langle 111 \rangle$ C interstitial, e.p.r. 4−61035
Si, rel. to formation of stacking faults and enhanced diffusion during oxidation 4−61306
Si, subthreshold impact mechanisms in radiation defect formation 4−56768
Si:B, interstitial config., elec. props and diffusion after implantation 4−66909
Si:P, B, As, interstitial-induced diffusion enhancement obs. 4−49592
Sn, diffusion mechanism for Sb, Cd, Sn, Zn 4−44707
$SrF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4−44880
SrO, stoichiometry deviations 4−69797
Ta, role in stage III recovery, effect on mech. props. 4−70517
Ta, single crystal, precipitation of H interstitials, nucl. acoustic reson. 4−82624
Ta-N system, modulated structure 4−76429
Ta-O alloys, surface segregation of oxygen 4−49730
α-Ti, dispersed barrier hardening, thermally activated deformation 4−82897
Ti and alloys, oxygen effect on mech. characts. 4−76484
Ti-O solid solns., l.f. internal friction, relax. peak obs. *(French)* 4−53710
α-U_2N_3, nonstoichiometric, X-ray and density studies 4−63276
U_4O_9, phase transitions 4−51888
V, hardening dependence on interstitial conc. after neutron irrad. 4−69833
V, neutron irradiated, oxygen Snoek damping and abnormal peak after annealing 4−81633
V, with interstitial oxygen, neutron irrad., strain ageing 4−80041
V, yield stress, discontinuous temp. depend. induced by dissolved hydrogen from etching 4−45618
V:O, neutron irrad. effects, interstitial trapping 4−43681
V-H(D) systems, isotope effect on H(D) mobility 4−75647
VO_2, metal semiconductor transition, stoichiometry influence 4−60834
W, elastic bulk effect, computer simulation 4−53672
$Ya_yTi_{1-y}D_x$, short- and long-range order in interstitial atom arrangement, neutron diffr. obs. 4−48542
Yb, h.c.p.α, b.c.c.γ, self-diffusion *(French)* 4−72586
ZnO, e.s.r. of lattice defects 4−70215
α-Zr single crysts., tracer diffusion coeffs. and mechanisms 4−52928
Zr-H system, microstructure and mechanical props. 4−79972
Zr-O, neutron diffr. obs. of order disorder transforms. 4−52852
Zr-O alloys, pinning point dislocation interaction energy depend. on dislocation struct. 4−49729

invariance
see also conservation laws
Born reciprocity theory invariants 4−71629
field theories, geometric invariance groups, resulting conservation laws 4−59220
general invariance of Lagrangian structures, differential geometry 4−51249
Korteweg-delbries type eqns., gauge invariance and conservation laws, canonical formalism 4−47415
relativity, covariance, invariance, and the equivalence of frames 4−71394

inverters *see invertors*

invertors
thyristor, half-wave sinusoidal pulse generator *(Russian)* 4−50381

iodine
adsorbed molecules, electronic spectra *(German)* 4−43836
adsorption on W(110), LEED, Auger and work function study 4−48844
atom, $(5p^46s)^4P_{5/2}$ state, Hanle effect, rare-gas collision broadening 4−59929
atom, electronegativity from microwave spectra 4−74953
atom, Pauli violating L- to K-shell transition, anal. 4−43711
atomic I_2, recombination rates investig. rel. to press. by flash photolysis, mechanism investig. 4−50183
chemisorbed on Ag, influence on surface self diffusion 4−75714
fission product, attack on cladding of oxide fuel pins 4−69293
impurities, CdS and ZnSe single cryst., thermal neutron activation 4−73264
in vivo meas. by X-ray fluorescence 4−50835
ion beam, bombardment of Cd, Te, La metal targets, K X-ray production cross section 4−45395
ion collisions, molecular orbital K X-ray spectral yields 4−52114
laser, gas discharge, operating on 1315 nm transition *(Russian)* 4−74496
liquid, temp. coeff. of surface tension 4−82314
molecule, 5017 Å excited fluoresc., main doublet intensity meas. *(French)* 4−48075
molecule, $B^3\pi_{ou}{}^+$ state, laser excited, Zeeman quantum beats in fluorescence 4−56269
molecule, $B \rightleftharpoons X$ transition spectra, rot. and vibr. consts. 4−52136
molecule, cross section for $1 \rightarrow 0$ vibrational transition *(Russian)* 4−52266
molecule, electronically excited, collision-induced predissoc., appl. of classical trajectory calcs., pot. surface crossing 4−78525

iodine continued
molecule, long-range interaction consts. determ. using [1, 0] Pade approximant 4−63499
molecule, monochromatically excited, vib. and rot. inelastic scatt. calcs. 4−56317
molecule, photoionisation in I_2-SF_6 mixture, mass spectrum 4−52239
molecule, u.v. resonance spectrum, ground state dissociation energy 4−78486
molecule in solution, mag. circular dichroism, overlapping $0_u{}^+({}^3\Pi)$ and ${}^1\Pi$ bands 4−67599
photodissociation, polarized light 4−68018
photodissociation laser, discussion 4−55463
photodissociation laser, P, As, and Sb compounds as active media *(Russian)* 4−65906
radical, quenching of surface photoresponse in As_2S_3 4−49036
removal by containment spray systems, PSICO 10 model 4−78172
resonance Raman effect of I_2 in soln., excitation profile 4−78453
resonance Raman spectra, organic solvent solns. 4−52172
sparks, discharge stages obs. with time resolved photography 4−75363
transport agent, growth of semicond. cryst. by chem. transport *(German)* 4−76401
vapour at 300°C, effect on cracking behaviour of stressed Zr alloys 4−69302
Ar laser frequency stabilisation by saturated absorption or dispersion in I_2 4−65908
As_2S_3:I, surface photoresponse, I radical quenching 4−49036
$Ba+I_2=BaI_2{}^*$, chemiluminescence 4−73413
$CdCl_2$:I^-, optical absorption, luminesc., localized exciton effect 4−57581
D + I_2 reaction, classical trajectory calcs. of ang. distrib. 4−50153
D_2 + I, elastic scatt., intermolecular pot. 4−66528
Fe:I, n.m.r. of oriented ^{131}I and ^{132}I, hyperfine field 4−70223
He-I mixtures, iodine ion excitation, population inversion *(Russian)* 4−77662
He-I_2, c.w. laser, positive column discharge 4−43294
He-Ne laser stabilised by saturated absorption in I_2 4−65907
He-Ne laser stabilised by saturated absorption in $^{127}I_2$, reproducibility 4−65909
I + I_2, vibr. relaxation, atom exchange reaction, Monte Carlo classical trajectory method 4−66520
I + I + M and I + wall recombinations, kinetics, mechanisms investig. 4−80184
$I^-+CO_2(SO_2)$ collisions, mass spectroscopic investig. 4−72093
I^-+He, autoionising spectra of I^- 4−43751
I^++Au, mol. orbital X-ray emission spectra 4−69433
$I_{1/2}\rightarrow I_{3/2}$ emission, prod. during CF_3I flash photolysis, energy effects of CF_3. addition 4−80204
I_2, appl. of c.w. dye laser for ultrahigh resolution spectroscopy 4−71193
I_2, discrete-state resonant fluorescence, dissociative-state continuum resonant Raman scatt. 4−72198
I_2, laser induced photodissociation 4−45934
I_2 in organic solvents, reson. Raman diffusion tensor in quadratic approx., analytical expression *(French)* 4−53437
I_2 vibrational analysis of spectrum, bond length and potential energy curves, student experiment 4−58712
I_2-CO_2 system, high temp. diffusion coeffs. determ. by point-source method 4−78562
I_2-X mixtures, $X=O_2$, N_2 or aliphatic hydrocarbons, vapour phase contact charge-transfer spectra of u.v. region 4−43828
I_2+CO_2, fast flux I_2 mass transfer in supercritical solvent 4−64723
$I_2+H_2\rightarrow HI+HI$, classical trajectory study on kinetics, react. probabilities determ. 4−61592
I_2 + K reactive scatt., supersonic K beam 4−73431
$I_3{}^-$ ion, σ-bonds investig., reson. integrals calc. 4−66385
^{125}I, personnel contamination, bioassay program for internal exposure evaluation 4−83342
^{125}I, thyroid content, absolute method critique 4−50840
^{125}I and ^{131}I, different biological effects 4−58609
^{125}I ingestion risk classification and thyroid burden obs. 4−54696
$^{127}I_2$ h.f.s. of R(127) line by laser saturated absorption 4−66427
^{129}I, ^{131}I radioisotopes, review of importance and measurement techniques *(German)* 4−81677
$^{129}I_2$, absorption cell, Ar^+ laser wavelength stabilization 4−47336
^{131}I, fallout, airborne and deposited, over South Africa, and resultant biological uptake 4−58639
$I_2{}^*$ + rare gas atom inelastic collision entropy analysis of vibr. and rot. state distribs. 4−63488
K + I differential elastic scattering, thermal energies 4−59940
K_2+I_2 reactive scattering 4−73430
KBr:I, photoluminesc., radiation defect distrib. *(Russian)* 4−73156

iodine compounds
N-methylphenothiazine-iodine donor-acceptor complexes, elec. cond. anisotropy, −180 to +40°C *(German)* 4−67212
MO SCF calculations, small gaussian basis set developed 4−72124
As-S-I glass, i.r. transmission spectrum, 0.75-25 μm, temp. depend., 77-413K *(Russian)* 4−82703
Cu-Sb-S-I, vitreous, photomodulation absorpt., i.r. region *(Russian)* 4−79736
HIO_2, Brillouin spectra, elastic parameters determ., 20°C *(French)* 4−45280
IBr, far-i.r. spectra assignments 4−64367
IBr + K reactive scatt., supersonic K beam 4−73431
$IBr_2{}^-$, $ICl_2{}^-$ ions, σ-bonds investig., reson. integrals calc. 4−66385
ICN, mol. photodissoc., predissoc. investig., quantum mech. model 4−75021
ICN, photodissociation, impulsive model of vibr. excitation 4−48149
ICN, vacuum u.v. photolysis, energy partitioning in photodissociation and photosensitization 4−61633
β-ICl, far-i.r. spectra assignments 4−64367
ICl, i.r. Raman scatt. parameters 4−56249
ICl, vapour, two step laser excitation of fluorescence 4−66457
ICl, vib. depend. of dipole moment of $A^3\pi_1$ state 4−47970
$IO_3{}^-$, normal coord. analysis, mean vibr. amplitudes 4−52106
Sb_2Se_3-SbI_3 system, p-T-X phase diagrams by thermal and X-ray anal. 4−44654

ion beam effects
alkali metal halide + Ar^+, sputtering of hyperthermal beams 4−70385
amorphous foil, multiple scatt. of MeV charged particles, Monte Carlo simulation 4−67685
amorphous solid, rel. to physical props. 4−75549
bacterial spores inactivation by charged particles 4−80758
beam-plasma system, ion-ion two-stream instability, turbulence generation, expt. 4−66709
cellulose triacetate, particle detector, Kr^{8+} ion damage effects, i.r. spectra obs. *(French)* 4−65525
channelling, inelastic scatt., stopping power, diffusion coeff. 4−72507
channelling, planar at great depth, multiple scatt. 4−52796
channelling and blocking effects on motion through crystals, review 4−56786
channelling of light ions, diffusion coeffs. 4−72508
deep structure generation, by ion beam etching with Ti or Mo masks 4−53625
diamond, implanted, struct. transitions 4−72502
etching method for TEM thin foil prep. *(German, English)* 4−73303
excitation probability in periodic potential of crystal 4−44576
film He^+ backscatt. in self-ion cascades, sputt. yield meas. 4−79070
fusion reactor cladding, theory of He-induced voids 4−55938
fusion reactor materials, He isotope depth profile and migration 4−69318
garnet film, effect on optical absorption, hard bubble suppression 4−67409
general surface contour development by ion erosion, computer simulation 4−61263
gyroscope gas bearings, micro-ion milling 4−51664
heavy ion path, spatial energy distrib. 4−60526
insulator surface destruct. by H^+, D^+ and He^+ at 100 keV 4−79075
ion etching and sputtering, physical fundamentals of glass removal 4−53627
ion plating effects on film adhesion, morphology and coverage 4−53596
ion ring production from intense beams 4−69644
liquid crystal 4−69835
low temperature diffusion, by ion collisions *(Korean)* 4−73265
medium-Z host lattice, location of low-Z impurities using ion-induced X-rays 4−53612
metal, ion-induced Auger electron emission, origin 4−82781
metal, irrad., ordered defect structures 4−44573
metal, irradiated, effect of voids on charged particle range and energy deposition 4−82210
metallographic samples, ion etching 4−64555
micro-ion milling with 1μ periodicity 4−53626
muscovite, defect form. due to high energy Kr, Ar, Ne and O ions *(French)* 4−66946
Nimonic PE16, Ar bombard., effect on wetting behaviour of liquid Na 4−81618
nuclear emulsion, heavy ion tracks, energy dose concept 4−71233
nuclear reactor materials, void nucleation during irrad., mobile helium effect 4−66259
nuclear stopping cross section approx. formula 4−63843
nucleic acid molecule, configuration control by ion bombardment of C films 4−65568
phosphosilicate glass, Si wafer getter, impurity determ. 4−45461
plasma, excitation of ion-plasma oscills. 4−78772
plasma, h.f. heating, ion distrib. function 4−75284
plasma, ion-ion beam instability in cylindrical double plasma device 4−75264
plasma, laminar electrostatic shock waves, ion beam generated 4−44209
plasma heating, nonlinear amplitude oscills. of ion-beam 4−52569
plasma ion injection, electrostatic confinement 4−66762
plasma ion-ion two-stream instability, turbulence 4−72377
plasma non-isothermal, l.f. surface waves *(Bulgarian)* 4−52559
plasma nonlinear wave prod. on ion beam interaction *(Russian)* 4−56486
plastic track detectors, chem. defects *(French)* 4−71234
quartz glass, change in surface struct. 4−67090
radiation damage cascades, time depend. 4−72500
radioresistance of anoxic cells and eff. of PNAP on radn. response of in vitro tumour model 4−50887
scintillation efficiency, track effect theory 4−49412
secondary electron emission, power potential law, universal range curve 4−61264
secondary electron emission comparison for electron positron and ion bombardment 4−45396
secondary ion mass spectrometry analysis, O ion simultaneous implantation and sputtering 4−64465
semiconductor, damage and defects due to ion implantation 4−64502
solid, atom-ion scattering, total cross-section corresponding to Lindhard-Nielsen-Scharff differential cross-section 4−72497
solid, bound electron states in ion wake 4−63844
solid, heavy ion induced elastic collision spikes, energy density and time const. 4−76340
solid, thermoelastic effect, acoustic pulse generation *(Russian)* 4−63848
sputtering, heavy-ion, nonlinear effects 4−49512
steel, annealed 304 stainless, He^+ induced blister formation and erosion rates in fusion reactor 4−55936
steel, cold-worked 316 stainless, comparison of swelling from fast neutron and 5 MeV Ni^{++} irradiation 4−81656
steel, low carbon, absorption of low-energy He^+ ions *(Russian)* 4−69834
steel, stainless, ion bombardment surface structs. development 4−49694
steel, stainless, segregation of alloying elements to free surfaces during irradiation 4−81649
steel, stainless, Type 304, radiation blistering, temp. effect on first-wall erosion 4−63289
steel, stainless, Type 316 and Ti-modified, proton irrad., void form. 4−43666
steel, stainless, Types 304 and 316, 4 MeV Ni^+ irrad., void swelling behaviour 4−43665

ion beam effects continued
steel, stainless, Types 304 and 316, nickel ion bombardment as simulation of fast reactor damage 4−43664
steel stainless, surface deform. in H and He implantation 4−78237
surface cones on bombarded crysts., apex angle prediction 4−79827
target bombardment, plasma excitation of sputtered particles *(French)* 4−53560
void-containing materials, particle range and energy deposition calcs. for 5 MeV Cu^{++} ions 4−82211
wear measurement using thin layer activation by accelerated ions 4−76513
Ag, heavy ion irrad., point defect clusters, weak-beam electron microscopy 4−48656
Ag, sputtering yield depend. on ion mass and cryst. orientation, channelling model 4−73228
Al, ion bombardment induced light emission, influence of reactive gases 4−45345
Al, noncharacteristic X-rays produced by Ne^{+} bombard. 4−76328
Al, role of plasmons in secondary electron emission as result of ion bombard. 4−57660
Al target, X-ray prod. by S ion collision, thickness depend. 4−82780
Au, ang. distribs. of particles which experience blocking during Ar^{+} and N$_2^{+}$ bombard. 4−73230
Au, film, cond. change due to low energy He^{+} bombard. 4−67290
Au, ion plated on Cu, composition profile anal. by AES and SIMS during Xe ion bombard. 4−74174
Au, sputtering, fine struct. due to blocking 4−76355
Au, X-ray emission spectra, L-subshell ionisation cross section by H^{+}, He^{+} impact 4−49495
Au sputt. by Kr and ^{4}He, stress buildup, enhanced surface contamination 4−78246
B, deuteron elastic scatt., charge-changing cross sections of 7 MeV ^{11}B recoils 4−64463
C, atomic displacement cross sections from ENDF/B-III data 4−59843
C, glassy state, Raman spectra, struct. determ. 4−64372
C film production from high-freq. discharges and ion beams, elec. props. investigation 4−49561
C target, X-ray prod. by S ion collision, thickness depend. 4−82780
C + Ne^{+}, K-shell X-ray production by ion impact 4−59961
Cd, cross-sections for K X-ray production following I ion bombardment 4−45395
CdTe, ion implanted layer, electrical activity and radiation damage 4−72498
Co, bubble domain struct., changes prod. by ion implantation, direct obs. 4−76109
Cu, Ar^{+} scatt., spatial distrib. 4−79834
Cu, bombardment induced light emission, influence of reactive gases 4−45345
Cu, film, cond. change due to low energy He^{+} bombard. 4−67290
Cu, heavy ion irrad., point defect clusters, weak-beam electron microscopy 4−48656
Cu, sputtering on He^{+} ion bombardment, optical radiation of sputtered atoms 4−79824
Cu film, low energy He ion penetration 4−63842
Cu target, X-ray prod. by S ion collision, thickness depend. 4−82780
Cu/glass target, co-sputtering, secondary electron emission effects 4−79829
Er hydrides, 20 keV N$_2$ ion sputtering 4−81645
Fe, comparison of O$_2^{+}$ and Ar^{+} 4−82778
Fe, containing voids, energy deposition calcs. for 5 MeV Cu^{++} and 1 MeV protons 4−82210
Fe-Pd alloy, ^{16}O and α-particle excitation, recoil velocity dependence of transient magnetic field 4−45397
Fe-Pt alloy, ^{16}O and α-particle excitation, recoil velocity dependence of transient magnetic field 4−45397
Fe-Rh alloy, ^{16}O and α-particle excitation, recoil velocity dependence of transient magnetic field 4−45397
GaAs, conduction in disordered layers produced by ion implantation 4−57092
GaAs, implanted, lattice expansion, annealing, X-ray obs. 4−76400
GaAs, Sn diffusion acceleration by preliminary ion bombardment 4−75649
GaP, ion-implanted, optical props. and channelling 4−61307
Ge, amorphization during bombardment, electron diffr. obs. 4−48657
Ge, irradiated with 30 keV Ga^{+} ions, electrical characts. 4−67236
Ge target, X-ray prod. by S ion collision, thickness depend. 4−82780
He ion irradiation of accelerator electrode to increase dielectric strength 4−42857
In film, supercond. props., helium ion injection effect *(Russian)* 4−82522
La, cross-sections for K X-ray production following I ion bombardment 4−45395
LiF, scattered energy spectrum, composition determ. 4−75679
MgO, Ne^{+} bombard., u.v. spectroscopic investigation of radiation damage 4−76286
Mo, accelerator and reactor irradiated, high temp. damage structs. 4−43662
Mo, single crystal, Ne^{+} bombardment, photoelec. work function 4−45411
Mo, surface deform. in H and He implantation 4−78237
Mo single crystal, 7.5 MeV Ta ion bombard., 800-1000°C, void swelling 4−81635
Na$_2$O-SiO$_2$, glass, surfaces, partial disintegration, change of conc. profiles 4−72499
Nb, blistering by 1 to 15 keV He ions 4−78238
Nb, chemical effects of O and N ion bombardment, reln. to CTR studies 4−78245
Nb, He diffusion coeff. meas. surface blistering anal. 4−79074
Nb, He doping using ^{3}H decay technique, rel. to fusion reactor materials 4−69319
Nb, implantation of He and Li ions, surface erosion effects 4−81648
Nb, Li implantation, damage and range profiles 4−81647
Nb, superconductor, 25 MeV O ion irrad. effects at low temp. 4−57219
Nb and Nb-Zr (1 wt.%) alloy, void swelling due to ^{58}Ni^{+} at 600 to 1000°C, obs. 4−55939

ion beam effects continued
Nb blistering in 0.5 to 9 keV He and H bombardment 4−78239
Ni-Al alloys, void form. during ion irrad., simulation of neutron damage 4−43668
Ni-O surfaces, X-ray photoelectron spectra using ion bombardment 4−56994
Ni(100), oxidation kinetics, ion bombardment sectioning obs. 4−48869
Pt, light ion irradiated, resistivity meas. rel. to irradiation temp. and vacancy conc. 4−79037
Sc hydrides, 20 keV N$_2$ ion sputtering 4−81645
Si, amorphization during bombardment, electron diffr. obs. 4−48657
Si, change in dislocation struct. produced by 40 keV Ar^{+} ion irradiation 4−56753
Si, energetic ion penetration, ion charge state investig. by X-ray prod. 4−75552
p-Si, H^{+} and He^{+} irrad., ionisation effects 4−66948
Si, high temp. ion irrad., annealing of defects 4−72501
Si, ion bombardment induced defects, interaction, e.s.r. obs. 4−82207
Si, ion implantation with P^{+}, investigation for doses in excess of amorphisation value 4−66949
Si, ion implanted, interstitial and vacancy type dislocation loop identification 4−56743
Si, majority carrier removal during irradiation with heavy charged particles 4−66950
Si, noncharacteristic X-rays produced by Ne^{+} bombard. 4−76328
Si, secondary electron emission, relax. effects in surface layers 4−57659
Si single crystal, ion milling of microsparabolic surfaces 4−44787
Si surface barrier detector, radiation damage effects 4−58923
Si:B, low-temp. photoluminesc., lattice damage due to ion implantation 4−75547
Si:P, 2 MeV He^{+} irradiated, resistivity, conductivity and etching meas. 4−82822
Si:P^{+}, implantation damage distrib., backscatt. anal. 4−73268
Si:Sb,As ion implantation and drive-in diffusion effects 4−49609
SiH$_4$, energetic ion penetration, ion charge state investig. by X-ray prod. 4−75552
SiO$_2$, Ar^{+} bombardment, 5 to 30 KeV sputtering, specific energy losses 4−73226
Ta$_2$O$_5$:P, film, ion beam sputtering, atomic mixing in subsurface layers 4−76352
Te, cross-sections for K X-ray production following I ion bombardment 4−45395
UO$_2$, low energy ion bombardment induced damage 4−44572
UO$_2$, thermal evolution spectrometry of injected low energy inert gas ions 4−51896
V, Ga(Bi)(In)(Cs)(Se)(Kr) ion implanted, radiation damage, channelling and backscatt. obs. 4−72496
V, radiation blistering, temp. effect on first-wall erosion 4−63289
V, surface deform. in H and He implantation 4−78237
W, Cs^{+} scatt., fine struct., group and successive pair collisions 4−53563
W, vacancy cluster interaction with helium 4−60525
W cathode, work function, effect of inert gas ion bombardment 4−79840
Zn, sputtering on He^{+} ion bombardment, optical radiation of sputtered atoms 4−79824

ion beams
see also beam-foil spectra; beam-foil spectroscopy; energy loss of particles; ion beam effects; ion optics; mass spectrometers; particle accelerators; sputtering
acceleration by relativistic electron beams, model *(Russian)* 4−81363
applications, conf., San Francisco, USA (May 1974) 4−45912
atomic surface rows, ang. intensity distrib. of scattered particles 4−73229
autodecomposition, Langmuir electron oscills. *(Russian)* 4−48434
backscattering method for surface and surface layer anal. 4−76348
beam-plasma system, ion Langmuir oscill. excitation 4−78768
BEVALAC compound accelerator, high-energy heavy-ion beams for biomedical purposes 4−46433
charge states, from oscillating electron electrostatic ion source 4−58910
charge-state separator based on offset magnetic quadrupoles, design and operation 4−55019
collimation of beam, effect on first revolution using He ions 4−42865
dechannelling, fast ions at dislocations 4−72504
diagnostics, r.f. ion thrusters performance characts. 4−75320
direct energy conversion, rel. to injection efficiency for fusion reactor plasma 4−74802
duopigatron source, low-energy, with auxiliary gas feed, beam parameters and applications 4−55029
duoplasmatron ion source, emissive props. 4−46787
elastic scattering, analysis of amorphous films on single crystals 4−57014
electrostatic pulsed ion beam spectrometer 4−81022
energy loss, Bragg rule test using ^{4}He ions in solid compounds 4−60527
extraction from Penning discharge plasma surface, ions' preliminary acceleration effects 4−74109
fusion reactor, toroidal, utilizing ion beam reactions, magnetic compression 4−47807
heavy ion channelling, stopping power of solids, calc. for Si 4−56784
heavy-ion-foil collision, lifetime meas. of ion inner shell vacancies 4−78340
high-intensity, lens effect of extraction electrode aperture in e.m. isotope separators 4−55550
intense ion beams for thermonuclear micro-explosions 4−74797
intense pulsed ion beam generation using electrostatic vacuum triode 4−68766
low perveance, extraction from electron bombardment discharge 4−47408
mass spectrometer transmission, optimisation, resolution power, cross deflection of ions *(German)* 4−42919

ion beams continued
- metal, electronic stopping power of low-velocity channelled heavy ions 4−79078
- plasma interaction, collision induced ion beam spatial decay 4−44206
- probe, use in IC failure analysis 4−42954
- pulsed, current meas. using coaxial resonator *(German)* 4−65483
- pulsed, reaction-free intensity meas. *(German)* 4−68738
- reflection from metal surfaces, review 4−49519
- separation, inexpensive bending magnet system for low energy beams 4−58907
- space charge neutralisation by electrons *(Russian)* 4−62880
- surface structure anal. by ion scattering 4−72620
- sweeping, with accurate energy feedback control, for ion implantation applic. 4−43380
- triode ion gun, beam formation anal. 4−55027
- visibility of weak beams on phosphor screen, multiplier device for enhancing 4−42917
- H^+, for Nimrod, low emittance, low halo, for 8 GeV/c scattering 4−58914
- Au, $He^+(N^{3+})$ excitation, failure to observe coherent effects 4−79082
- Be^+ beam currents from an r.f. ion source 4−62503
- $^{12}C^-$, emitted by Middleton sputter source, brightness and emittance 4−74543
- D^+, variation in composition as source parameters are varied *(French)* 4−78379
- H^+, extracted from r.f. discharge, resonance conditions 4−82056
- H^+, variation in composition as source parameters are varied *(French)* 4−78379
- H^+ and He^+ equal-velocity beams, elemental analysis by ion excited X-ray emission 4−74179
- $H_3^+ + D_2 \rightarrow D_2H^+ + H_2$, reaction kinetics, 0.22-5.21 eV, crossed beam study 4−73409
- ^3H multiampere ion source and beam transport system for Intense Neutron Source 4−63305
- He, scatt. from LiF (100) cleaved surface, energy spectra 4−79832
- He^+, resonance line excitation in electron-ion collisions *(Russian)* 4−72056
- ^4He, channelled elastic scatt., analysis of oxide film on Si surface 4−57014
- N ions and protons, multiple scatt. on metal foils 4−57654
- Na^+, thermionic emission from $Na_2O.2SiO_2$ in plasma 4−48412
- PbS (100) surface, energy spectra of scattered helium ions *(Russian)* 4−67695
- $S^- + Be(C)(Al)(Cu)(Ge)$, lifetime meas. of ion inner shell vacancies 4−78340

ion counters *see counters*

ion density
- afterglow plasma, space and time vars. 4−75304
- atmospheric, ground level obs., correl. with atm. phenomena 4−83086
- auroral ions and current sheet acceleration model 4−50349
- auroral plasma, anomalous resistivity rel. to ion density var. 4−50366
- back-diffusion type plasma, control of ion energy distrib. 4−60285
- D-region semi-empirical model, electron density, positive ion density, ionic composition 4−46077
- discharge in overvolted parallel plane gap, Poissons eqn. 4−60349
- disturbed ionosphere, ion and electron kinetics 4−54263
- E-region, low-latitudes, nighttime, ion layer formation by uniform neutral winds 4−70793
- E-region NO^+/O_2^+ diurnal variations 4−54274
- F-region ionisation and geomagnetic activity index correl. 4−83122
- F-region spectral characteristics of ionospheric irregularities 4−50343
- flame plasma diagnostic techniques, review 4−46944
- glow discharge, transitional region, props. 4−52647
- h.v. impulse testing, air gap residual ionisation levels, effects 4−48181
- IBC class II aurora, ion composition meas. 4−70761
- IBC class II aurora, ion composition model 4−70762
- inert gas, plasma afterglow microwave and mass spectroscopic obs., ion densities 4−60321
- ion beam-plasma system in klystron 4−66769
- ionosphere, proton cyclotron freq. phenomena, echoes and spurs 4−58078
- ionospheric ion flow velocities using ion distribution technique 4−70837
- ionospheric N_2^+ density profiles at different solar activity 4−50330
- magnetopause, OGO-5 obs. 4−61863
- magnetoplasma, radial ion density profile, using Langmiur probe 4−66705
- magnetosphere, contoured v.l.f. wave injection experiments 4−68286
- magnetosphere He^+ energetic ion discovery 4−83129
- magnetotail at 60 R_e, plasma and particle populations 4−61874
- planetary nebulae radiometry at 15.5 GHz rel. to interstellar extinction and O^{2+}/H^+ abundances 4−54587
- plasma, concentration due to magnetic field of cathode, sputtering, oscillating electrons *(Russian)* 4−82034
- plasma, electrostatic probe meas. 4−82040
- top side ionogram diffuse resonances, Harris instability 4−70779
- whistler ducting at low latitudes 4−57999
- Ar-Cs plasma, electron temp. determ., line reversal method 4−44391
- $Ar + N_2$ plasma, turbulence, neutral and ion density fluctuation meas. 4−44199
- $N_2 + H_2O$, in hollow cathode discharge, reaction rates and ion distrib. 4−76591
- Ne torch discharge, microparameter diagnostics 4−60364

ion emission
- *see also secondary ion emission; thermionic ion emission*
- laser impact, time and mass resolved energy spectra 4−76341
- Si(111), ion-electron emission coeff., angular depend. obs., 780 to 930°C 4−64466

ion engines
- *see also aerospace propulsion; rockets*
- inert gas, atomic excitation processes, influence of metastable states 4−59948
- r.f. ion thrusters performance characts. 4−75320

ion exchange
- alkali aluminosilicate glass, alkali ion exchange *(German)* 4−76543
- liquid pulsation effect on percent use of ion exchange bed 4−45936
- membranes, polarisation characteristics obs., desalination application 4−73454
- transplutonium elements separation from neutron irrad. ^{241}Am 4−57876
- zeolite, heteroionic, kinetics of ion diffusion at high temp. 4−73447
- zeolite (NaA) ion exchange reaction with $Cd(No_3)_2$ in molten $NaNO_3$, complex formation in cages 4−83034
- Au reclamation from citrate electrolytes by ion exchange liquid extraction *(Russian)* 4−83029
- $Ce(HAsO_4)_2.2H_2O$, ion exchange material, sorpt. props. investig. using alkali metal halide solns. 4−50211
- $Ce(HPO_4)_2.1.33H_2O$, ion exchange material, sorpt. props. investig. using alkali metal halide solns. 4−50211
- Na_2-B_2O_3-SiO_2, ion exchange, iterative deconvolution technique applic. 4−69821
- Na_2O-B_2O_3-SiO_2, sodium borosilicate glasses, ion exchange 4−72481

ion exchanging *see ion exchange*

ion implantation
- *see also semiconductor doping*
- 300 kV system with parallel e.s. scanning 4−53623
- atomic displacements, cascade theory, spatial distrib. 4−56791
- beam sweeping with accurate energy feedback control 4−43380
- cosmic dust grains, ion implantation effects 4−58449
- diamond, implanted, struct. transitions 4−72502
- focused ion beams in microfabrication 4−60530
- furnace-sample chamber for ion beam optimisation 4−70429
- IMPATT, double-drift K_a-band diodes 4−57712
- INS isotope separator progress report 4−71238
- ion ranges in amorphous solids, 20-200 keV *(Polish)* 4−56788
- lateral nonuniform doping concurrent with ion implantation 4−57698
- low temperature diffusion, by ion collisions *(Korean)* 4−73265
- machine, narrow beam, double electrostatic quadrupole doublet as exit lens 4−51663
- magnetic bubble garnet, planar domains revealed by Ferrofluid 4−70177
- metal, ang. distrib. hyperfine interaction technique appl. 4−52798
- m.o.s. capacitor, nonequilib. behaviour in non-uniformly doped devices 4−57169
- multiwafer rotating mechanical scan techniques for high beam currents 4−53624
- particle re-emission during irradiation, surface blistering 4−79074
- passivating glass film formation 4−64513
- projected ranges of implanted ions calc. 4−69842
- Schottky barrier to p-type material, increasing effective height by low energy ion implantation 4−72864
- secondary ion mass spectrometry analysis, O ion simultaneous implantation and sputtering 4−64465
- semiconductor research, macroscopic and microscopic props. 4−64502
- semiconductor-metal contact formation applic., for lowly doped shallow zones 4−82810
- spectrum monitor for E × B velocity filters 4−51136
- steel, 316 stainless, fatigue and microstructure effects of He implantation and thermal ageing at 650°C, obs. 4−55940
- steel, stainless, of He^+ and H^+, meas. of re-emission 4−78236
- steel stainless, surface deform. in H and He implantation 4−78237
- stopping and range of ions in solids, review *(Czech)* 4−52797
- Al_2O_3, high-density damage by low-energy H^+ ions, rel. to use as first-wall material in CTR 4−69316
- Be:Cu, diffusion coeff. rel. to Cu introduction investig., ion backscatt. technique 4−63944
- CdTe, heat treatment effects on props. for doping studies 4−45479
- CdTe, lattice disorder and elec. activity 4−79886
- CdTe, layer formed by Ar, In, ta and Bi ions, elect. activity and radiation damage 4−72498
- Co, bubble domain struct., changes prod. by ion implantation, direct obs. 4−76109
- Cr:N thin film, struct. and elec. props., 15 to 30 keV N ion implantation *(Russian)* 4−72876
- Cu, implantation profile meas. of He and ^2H using proton backscattering 4−78250
- GaAs, conduction in disordered layers produced by ion implantation 4−57092
- GaAs, implanted, lattice expansion, annealing, X-ray obs. 4−76400
- GaAs, implanted layer elec. props. 4−75864
- GaAs, of N, effect on i.r. refl., dispersion parameters 4−76243
- GaAs:Cd, impurity ion capture by vacancies in implanted layers 4−75648
- GaAs:Te, irrad. parameters depend. of elec. props. 4−60790
- GaAs:Te 70 keV, annealing effects, photoluminescence and He ion channelling obs. 4−49610
- GaAs:Zn, effective carrier conc., doping efficiency 4−44939
- $GaAs_{0.62}P_{0.38}$:Zn, light emitting diode fabrication 4−49577
- $GaAs_{1-x}P_x$:N, implanted, (x=0.52), photolum., 2K 4−76296
- GaP, ion-implanted, optical props. and channelling 4−61307
- Ge, nitride, oxide and oxynitride form., i.r. absorption 4−76396
- Ge, of In^+, atomic displacements, cascade theory 4−56791
- Ge, p-n-p transistor production for h.f. appls. 4−57713
- He implantation effects on fatigue props. of Mo based TZM alloy 4−56790
- $Hg_{1-x}Cd_xTe$ formation, HgTe implanted with Cd ions 4−57706
- InAs, of Ge^+, Si^+, donor and acceptor levels, annealing effects 4−75816
- $KLa(MoO_4)_2:Nd^{3+}$ crystals, stimulated emission of radiation 4−67615
- Mo, surface deform. in H and He implantation 4−78237
- Mo of He^+ and H^+, meas. of re-emission 4−78236
- Nb, implantation profile meas. of He and ^2H using proton backscattering 4−78250
- Nb blistering in 0.5 to 9 keV He and H bombardment 4−78239
- Nb of ^6Li, damage and range profiles 4−81647

ion implantation continued
Nb of He, diffusion coeff. meas. surface blistering anal. 4−79074
Nb of He and Li, neutron induced, surface erosion effects 4−81648
Nb:Ar$^+$, He$^+$ backscatt. analysis of ion bombardment damage 4−79076
P in Si, 16 to 60 keV, distrib. of effective ranges *(Polish)* 4−56789
Pd film, of ^{3}He$^+$, n.m.r. study 4−81650
Pd-Cu(Au,Ag)-H(D), high supercond. transition temps., H ion implantation 4−53177
Si, amorphisation influence on ion implanted B distrib. 4−73271
Si, and programmed oxidation *(Polish)* 4−61298
Si, α-particle implantation damage, X-ray and Berg Barrett obs. 4−52793
Si, by ^{12}C$^+$, SiC film production and characterization 4−45473
Si, film on sapphire, P, B doping 4−45437
Si, implanted ion energy levels 4−69993
Si, ion bombardment induced defects, interaction, e.s.r. obs. 4−82207
Si, ion implanted, interstitial and vacancy type dislocation loop identification 4−56743
Si, ion implanted P, range, standard deviation 4−64514
Si, ion-implanted, defect generation, role of sequential annealing, oxidation and diffusion 4−61308
Si, lattice disorder form., Raman spectra 4−57541
Si, metal mask implanted P ions, use in ohmic contacts 4−70425
Si, of P$^+$, B$^+$, Sb$^+$, Ga$^+$, atomic displacements, cascade theory 4−56791
Si, of P$^+$ investigation for doses in excess of amorphisation value 4−66949
Si, of phosphorus, substrate thermal contact influence on evolution of disorder *(French)* 4−75556
Si, p-n junction, P, As and B implanted, annealing props. 4−76394
Si, Schottky barrier, deep trap levels determ. 4−72720
Si junction counters produced by B and Al ion implantation 4−62550
Si p-n junction, radiation damage, IV charac. obs. 4−57164
Si single crystal, electron microscope and X-ray obs. *(Polish)* 4−70416
Si:B, Hg$^+$ implantation damage assessment using SEM 4−82208
Si:B, high-dose implanted, characterization of incomplete activation 4−61312
Si:B, interstitial props. from internal friction meas. after implantation 4−66909
Si:B, isothermal annealing effect on sheet resist. 4−76404
Si:B, lattice location and diffusion of B after implantation, B point defects 4−67740
Si:B, low-temp. photoluminesc., lattice damage due to ion implantation 4−75547
Si:Bi, charge carrier and B conc. profiles comparison 4−64504
Si:Li, implanted, annealing effects on doping profile 4−57718
Si:P, depth distrib. of implanted ions in misaligned cryst. 4−73267
Si:P, doping and radiation damage profiles for [110] axis 4−73268
Si:Sb,As ion implantation and drive-in diffusion effects 4−49609
Si-Ni Schottky barrier, effective height reduction by Sb implantation 4−53142
Si-SiO$_2$ interface, O$^+$ implantation effects, m.o.s. capacitance obs. 4−49082
Si-SiO$_2$ interface states, O$_2$, Si and H$_2$ contribs. 4−60866
Si-SiO$_2$ system, B diffusion under oxidizing conditions after implantation at 80 keV 4−57703
SiO$_2$ film, implantation of Ar$^+$ due to backsputter cleaning prior to metallisation 4−45470
SiO$_2$-Si multilayer substrate, range distribution 4−44579
Ta:N^{4+}, Doppler broadening of positron annihilation photons 4−82196
Ti, implantation profile meas. of He and H, using proton backscatt. 4−78250
V, Ga(Bi)(In)(Cs)(Se)(Kr) ion implanted, radiation damage, channelling and backscatt. obs. 4−72496
V, implantation profile meas. of He and H, using proton backscatt. 4−78250
V, surface deform. in H and He implantation 4−78237
V and V-Cr-Ti alloys, He implantation effects on ductility and void swelling, obs. 4−55941
V of He$^+$ and H$^+$, meas. of re-emission 4−78236
W lattice, rare gas complexes, defect. config. calcs. 4−72482
W using Cs ions, penetration depth determination 4−44580
W:Ar$^+$, He$^+$ Backscatt. analysis of ion bombardment damage 4−79076
Zn:^{111}Cd, in ^{111}Cd quadrupole interaction obs. 4−45212
ZnSe:Al. elec. characts. obs. 4−57085

ion lenses *see lenses*

ion microscopes
see also ion beams; ion microscopy; ion optics
electric field distribution, ion trajectories, analogue investigations 4−65541

ion microscopy
see also field ion microscopy
No entries

ion mobility
see also electrolytic ion mobility; ionic conduction in solids
collective ion acceleration by relativistic electron beam in neutral gas 4−46778
flame gases, positive ion mobilities, electrostatic probe meas. 4−56351
gas mixture, ion mobility depend. on composition 4−66551
gaseous ion diffusion equation, breakdown in uniform elec. field 4−72270
gaseous ions in electric field, moment expansion solution of Boltzmann equation 4−63512
ice, intermol. proton tunnelling effect, model, soln., mechanism for ionic migration 4−48786
inert gas, plasma afterglow microwave and mass spectroscopic obs., ion densities 4−60321
polarisation interaction of ions with atoms and molecules, quasi-classical corrections *(Russian)* 4−52011
polyatomic ions + N$_2$ collisions, collisions, ion mobilities rel. to ionic size investig., models 4−75069
Ar plasma, of Mg, Cd and Zn ions 4−52551
CO$_3^-$, CO$_4^-$, ion mobilities in O$_2$ at 293K 4−60149

ion mobility continued
H$^+$, H$^-$, H$_2^+$, H$_3^+$, in He and H$_2$, calc. from ion-neutral pot. 4−78515
He II ion surrounded by localised roton states 4−48812
^{4}He, liquid, ion mobility singularity at λ-point 4−63957
^{4}He, superfluid, high-field negative-ion persistence currents 4−48816
K$^+$, mobilities in He, Ar, H$_2$ and N$_2$ gases at 293 K, pressure depend. 4−43908
K$^+$, mobility in Ar, quantum phenomena 4−43909
O$^-$, O$_2^-$, O$_3^-$, O$_4^-$, ion mobilities at 293K, time of flight meas. 4−60149
SiO$_2$ films, water-vapour-contaminated, instability obs. 4−49076
SiO$_2$ thermally grown films, surface state distrib. and ion migration obs. 4−49074

ion-molecule reactions
benzene, in photoionisation 4−43878
bibliography of rate data, Jan 1950-Oct 1971 4−43886
classical perturbation theory for ion-dipole scatt. 4−57820
collision chamber for high energy reactions (10^2-10^4 eV) at high resolution 4−46891
ethyl chloride, pure and with H$_2$, mass spectrometer obs., 190-400K, equilib. consts. 4−53969
fragments of molecular ion, interaction pot., mass spectrometric fragmentation 4−48109
ion drift tube, asymptotic approx. for reaction rates 4−67997
mass spectrometer design for ion-mol. reactions 4−51216
methane, ion + mol., thermal energy rate consts., mass spectra and theory 4−53970
monosilane, pulse radiolysis, Si$_2$H$_x$ formation and detection *(German)* 4−57867
polarisation interaction, quasi-classical corrections to cross sections and mobility *(Russian)* 4−52011
propene, ion + mol., thermal energy rate consts., mass spectra and theory 4−53970
proton small-angle scattering from diatomic mols., rot. excitation 4−57831
rate coefficient measurement, steady-state flowing afterglow method 4−73405
two-temperature model 4−61578
$Ar^+ + 2Ar = Ar_2^+ + Ar$, rates at 296K 4−53982
Ar$^+$ + H$_2$(D$_2$)(CO$_2$), charged transfer, collision energetics 4−53984
Ar$^+$ + methane → ArH$^+$ + CH$_3$, cross sections, prod. energy distribs. meas., translational energy threshold investig. 4−61589
$B^+ + D_2 = D + BD^+$, reaction cross section 4−76588
BeH$^+$.H$_2$(D$_2$) isomerisation reaction, pot. barrier investig. 4−68004
Bi$^+$(H$_2$O)$_n$, hydration equilibria, mass spectrum 4−61594
CO$^+$ + CO collisions, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4−72246
CO$_2$ + H$^+$(He$^+$)(Ne$^+$), electronic excitation spectra, 200 eV-25 keV, form. of CO$_2^+$ 4−53978
Cl$^-$ + Cr(CO)$_5^-$, nonreactive ion-molecule collision rate consts., ion cyclotron resonance 4−78516
D$_2$ + Na$^+$, large angle inelastic scatt. 4−57832
D$_2^+$ + D$_2$, thermal energy rate consts., mass spectra and theory 4−53970
F$^+$ + H$_2$(D$_2$) reaction cross section, isotope effect 4−76589
$F^+ + H_2 \rightarrow F + H_2^+$, 14-100 keV, charge exchange cross section 4−60127
$F^+ + N_2 \rightarrow F + N_2^+$, 14-100 keV, charge exchange cross section 4−60127
H$^+$, H$_2^+$ impact on N$_2$, CO$_2$ and H$_2$, 0.3-3.0 keV, electron capture to n=3,4 states 4−63374
$H^+ + D_2 \rightarrow HD^+ + D$, semiclassical ground-first excited state transition anal. 4−67998
H$^+$ + H$_2$ reaction dynamics, mol. beam and trajectory studies 4−53999
H$_2$/He mixtures, and vib. deactivation of H$_2^+$ ions 4−57824
H$_2$ + Ar$^+$, nonadiabatic collisions, charge exchange and chem. react., dynamics investig. 4−53981
H$_2$ + Li$^+$, vib. and rot. excitation, classical dynamics model 4−57829
H$_2$ + Li$^+$ reaction, rot. transitions of H$_2$ at $E_{c.m.}=0.6$ eV, calcs. 4−54000
H$_2$ + N$_2$, H$_2$ + CO, H$_2$ + N$_2$O, H$_2$ + CO$_2$, weakly ionised systems, collision processes 4−80181
$H_3^+ + D_2 \rightarrow D_2H^+ + H_2$, reaction kinetics, 0.22-5.21 eV, crossed beam study 4−73409
HCN formation in dense interstellar clouds, laboratory meas. of some related ion-molecule reactions 4−73839
I$^-$ + CO$_2$(SO$_2$) collisions, mass spectroscopic investig. 4−72093
K$^+$ + H$_2$(D$_2$), elastic scattering, repulsive potentials *(Japanese)* 4−43885
Kr$^+$(^{2}P$_{3/2}$) + H$_2$(D$_2$) = KrH$^+$(KrD$^+$) + H(D), activation energy 4−76584
methane + CH$_2^+$(CH$^+$) reaction, rate constants, product distrib., ion cyclotron resonance technique 4−50147
N$_2$ + H$_2$O, in hollow cathode discharge, reaction rates and ion distrib. 4−76591
$N_2 + H^+ \rightarrow N_2^+$, spectral obs. 4−78447
N$_2^+$ + N$_2$ collisons, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4−72246
$N_2^+ + O \rightarrow O^+ + N_2 \rightarrow NO^+ + N$, energy dependence and branching ratio in ionosphere 4−70780
ND$_3^+$ + ND$_3$, thermal energy rate consts., mass spectra and theory 4−53970
N$_2$D + B$^+$ reaction, cross section vs beam energy curves determ., B$^+$ excited state investig. 4−60105
$NH_3 + H^+ \rightarrow NH_3^{++} + H^-$, ionisation pots., electronic states of NH$_3^{++}$ determ. by charge transfer spectroscopy 4−60106
NO$^+$ + CO$_2$(N$_2$)(O$_2$), atmospheric gas ion cluster formation rate coeffs. 4−67999
NO$^+$ + NO, incident-ion vib. state effects on charge exchange 4−78531
NO$^+$ + NO collisions, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4−72246
NO$^+$ + O$_3$, cluster ion formation 4−80182
N$_2$O and mixtures, fund. collision processes leading to breakdown at h.v. 4−75070

ion-molecule reactions continued
$NO^+(v) + iso\text{-}C_4H_{10} \rightarrow HNO + C_4H_9^+$, vibr. energy depend. of reaction cross section 4-57836
$O^- + 2O_2 \rightarrow O_2 + O_3^-$ at 1-32 torr in an electric field 4-63718
$O^- + CO$, assoc. and direct electron detachment cross sections, 0.5 to 20 eV 4-54003
$O^- + H_2$, assoc. and direct electron detachment cross sections, 0.5 to 20 eV 4-54003
$O^- + O_2$, electron detachment cross sections, 0.5 to 20 eV 4-54003
$O^- + O_2 \rightarrow O + O_2^-$ at 1-32 torr in an electric field 4-63718
$O^- + O_2 \rightarrow e + O + O_2$, at 1-32 torr in an electric field 4-63718
$O^+ + N_2$, crossed beam reaction kinetics 4-50155
$O^+ + N_2$, low energy ion-neutral reaction, NO^+, N_2^+ formation 4-57838
$O_2^- + O_2 \rightarrow e + 2O_2$, at 1-32 torr in an electric field 4-63718
$O_2^+ + H_2 \rightarrow HO_2^+ + H$, photoionisation efficiency curves for HO_2^+ production 4-53991
$O_2^+ + O_2$, incident-ion vib. state effects on charge exchange 4-78531
$O_2^+ + O_2$ collisions, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4-72246
$O_2^+ + O_3$, cluster ion formation 4-80182
$OH^- + C_2H_2 \rightleftharpoons C_2H^- + H_2O$. kinetics, $\Delta H_{,298}{}^0$ determ. 4-83013
PCl_3, mass spectra, ion formation and struct. 4-50148
$POCl_3$, mass spectra, ion formation and struct. 4-50148
$PSCl_3$, mass spectra, ion formation and struct. 4-50148

ion optics
see also ion beams; ion microscopes; mass spectrometers
atom-ion scattering, wave nature of ion beams *(German)* 4-69439
combined field shaping, system with uniform mag. field ⊥ spatially stratified elec. field 4-77586
cylindrical-mirror electrostatic analyzer, fabrication errors effect on focusing 4-58948
cylindrical-mirror electrostatic analyzer, image line characts. 4-58947
double electrostatic quadrupole doublet as exit lens of ion implantation machine 4-51663
field ion microscope, effects of image overlap, obs. of field emitter end morphology 4-52650
image in isotope e.m. separators, fringing field effects 4-43381
ion foreinjection system, factor planning 4-55551
lens effect of extraction electrode aperture in e.m. isotope separators 4-55550
magnetic analyser field shaping calcs. 4-55104
magnetic double monochromator symmetrised systems 4-62501
mass spectrometer ion beam collector system, applics. to isotopic ratio meas. in chem. anal. 4-51233
multistage mass analyzers, design method 4-58949
quadrupole field effects, mass spectrometer simulation by obs. of motion of charged particles 4-51665
toroidal deflection yokes with eddy current compensation 4-62877
trapping in 3-D quadrupole h.f. field *(French)* 4-51666
triode ion gun, beam formation anal. 4-55027

ion pumps
cleaning by submerging in chemical etchant 4-42766
electron beam floating zone furnace, very high vacuum 4-57690
ion-getter pumped system, residual gas kinetics, H_2O vapour chemisorption 4-50999
sputter-ion pumps, review of pumping mechanisms 4-74023

ion recombination
Balmer decrement, effect of inelastic electron-atom collisions 4-80452
D-region effective recombination coeffs. from wave interaction studies 4-46080
dielectric liquid, hydrodynamic stability under ambipolar injection of recombining ions, crit. voltages *(French)* 4-50170
electron scavenging at small concns. 4-75024
hydrocarbon liquids, ion-pair yield in external elec. field, initial distrib. effects 4-66489
ionosphere ionization-neutralization and dynamic characteristics, optimum number of rocket soundings 4-46063
methane, ethane, and deuterated derivs., dissoc.-recombination reacts., rate consts. calc. 4-57816
nebular heavy element recombination line at 8.3 GHz 4-80657
Onsager model in one dimension, appl. to germinate recomb. 4-49068
Onsager theory, external elec. field effects on ion-pair yield 4-66488
Onsager theory, yield in external elec. field, initial distrib. depend. 4-66489
Orion Nebula temp. gradient rel. to radio recomb. lines 4-54578
pyrene solutions in cyclohexane, charge transfer reaction obs. *(Russian)* 4-54043
shock tube technique for study 4-72302
surface reactions by Hinshelwood and Rideal mechanisms *(German)* 4-43879
Ar containing naphthalene or anthracene, pulse radiolysis, light emission from ion recomb. 4-54045
H^+, collision and radiative processes in plasma 4-75221
h_3^+, dissoc. recomb., inclined beam meas. 4-75042
NO_2, dissoc.-recombination reacts., rate consts. calc. by statistical model 4-57816
O, atomic beam in mass spectrometer ion source 4-48112

ion scattering
atom, Glauber Eikonal series, term-wise analysis 4-47898
atom + heavy ion collision, Coulomb K-shell ionisation, cross sections 4-47910
atomic collisions, K-shell excitation, outer shell config. 4-78370
backscattering, light ions, computer-controlled experiment using CAMAC system 4-77165
channelled particles, quantum theory *(Russian)* 4-79087
crystal, estimates of angular and energy distributions of reflected ions 4-64462
crystal, fast charged particle scatt., reciprocity principle *(Russian)* 4-70391
Dirac electron, expt., exotic at. phenomena, high Z-elements, quantum electrodynamics 4-78385
elemental target, MeV heavy ion bombardment, Kα X-ray satellite lines 4-43750
fusion plasma, athermal neutrons and ions, energy loss collisions and reactions 4-52545
kinetic energy spectrometry, computer-aided averaging of energy spectra 4-46894
small angle multiple ion scattering in screened Coulomb region 4-74111
spectrometry depth profile analysis using beam rastering and signal gating 4-77311
steel, surface chem., ion scatt. and Auger electron spectrometry comparison 4-77310
surface analysis with ion scatt. spectrometry and secondary ion mass spectroscopy 4-77315
$Ar + H^+(D^+)$, 3s, 4s electron capture cross section 4-47908
$Ar^+ + Ar$, differential elastic scatt., 20-340 eV 4-74915
$CO^+ + CO$ collisions, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4-72246
$CO_2^+ + H_2^+(He)^+$ collisions, vibr. energy distrib. of CO_2^+ investig. 4-69532
$Cd^+ + He$ collision, Cd $5^2P_{3/2}$, $5^2P_{1/2}$ states lifetime and depolarisation, Hanle effect meas. *(French)* 4-47904
$H^- + He(Ar)(H_2)$, collisionally produced autodetaching states, electron energy spectra 4-56042
$H^+ + CO_2$, 2-7 10^7 cm/sec, vibrational excitation and energy loss spectra 4-63493
$H^+ + H$, coupled-state-impact-parameter method, variational formulation 4-74914
$H^+ + H$, scattering, variational bounds on 1s-charge-exchange amplitude investig. 4-59963
$H^+ + H_2$, vibr. inelastic scatt. calc. 4-47899
$H^+ + N_2$, 2-7 10^7 cm/sec, vibrational excitation and energy loss spectra 4-63493
$H_2 + Li^+$, elastic and rot. inelastic collisions, quantum mechanical close-coupling formalism 4-63486
$H_2^+ + CO_2$ 2-7 10^7 cm/sec, vibrational excitation and energy loss spectra 4-63493
$He + H^+(D^+)$, 3s, 4s electron capture cross section 4-47908
$He^+ + Ar$, inelastic collisions, vac. u.v. spectral obs. 4-74916
$I^- + CO_2(SO_2)$ collisions, mass spectrscopic investig. 4-72093
$K^+ + H_2(D_2)$, elastic scattering, repulsive potentials *(Japanese)* 4-43885
$Kr + H^+(D^+)$, 3s, 4s electron capture cross section 4-47908
$N^+ + CO_2$, 2-7 10^7 cm/sec, vibrational excitation and energy loss spectra 4-63493
$N_2^+ + N_2$ collisons, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4-72246
$NO^+ + NO$ collisions, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4-72246
$O_2^+ + O_2$ collisions, charge transfer cross sections calc., for zero-field reduced mobilities determ. 4-72246
PbS (100) surface, energy spectra of scattered helium ions *(Russian)* 4-67695
Si, heavy ion bombardment, MeV energies, Kα X-ray satellite lines 4-43750
$Xe^+ + Xe$, differential elastic scatt., 20-340 eV 4-74915

ion sources
see also ion emission
atmospheric turbulent diffusion study using artificially produced electric space charge 4-80366
back-diffusion type, of monoenergetic ions 4-51140
CAMAC serial control system with optical coupling 4-46785
corona discharge producing ionized atm. for static elimination 4-47275
cyclotron, superconducting, for 10 MeV/A heavy ion production 4-42860
cyclotron bias control by ion source bias *(German)* 4-46784
deformable relaxation mesh program, for dense space-charge beams 4-42870
duopigatron, low-energy, with auxiliary gas feed, beam parameters and applications 4-55029
duoPIGatron ion source engineering problems 4-55967
duoplasmatron ion source, emissive props. 4-46787
duoplasmatron proton source for preinjector of new Nimrod injector 4-65511
duoplasmatron-type discharge for multiply charged heavy ions 4-78828
dupolasmatron, one dimensional static theory of discharge 4-46786
electrohydrodynamic capillary source of ions and charged droplets 4-55023
electron bombardment ion source, current stabilisation 4-46795
electron-impact source, ion residence time meas. 4-46896
electrostatic energy analyser, calibration for quantitative utilization 4-62507
field desorption mass spectrometry, emitter activation 4-46893
forinjection system, factor planning 4-55551
gas-tight for chem. ionisation mass spectrometers, instrumentation and vacuum aspects 4-55107
heavy-ion confinement sources, computer programs for ray-tracing 4-55026
hollow cathode, use in solids mass spectrometry as surface ionisation source 4-51170
hollow cathode Sidenium Danfysik-911 source, operating experience 4-77164
intense pulsed ion beam generation using electrostatic vacuum triode 4-68766
low perveance ion beam extraction from electron bombardment discharge 4-47408
mass discrimination in mag. sector mass spectrometer, source and voltage scanning effects 4-51171
mass spectrometer source with Au, Al or Nichrome V insert, behaviour of atomic O beam 4-48112
Middleton sputter source, brightness and emittance of $^{12}C^-$ ion beam 4-74543
negative source, produced by Cs sputtering of hollow target cone 4-62504
oscillating electron electrostatic ion source, ionic charge states 4-58910
Penning discharge, ions' preliminary acceleration effect on beam extraction 4-74109
plasma ion source, exit orifice optimal profile determ. 4-63700

ion sources continued
polarised, operating principles of atomic beam and Lamb shift source types 4-80977
pulsed gas shutter to reduce flow from ion source to accelerating tube *(Japanese)* 4-77157
r.f. ion source, Be^+ beam prod. 4-62503
surface ionisation, high-temp. for on-line isotope separation at JINR heavy-ion cyclotron 4-77280
surface ionisation source, ion emission regulator *(Japanese)* 4-65535
triode ion gun, beam formation anal. 4-55027
Au^+, high current source 4-80979
Cs, 10-350 eV atomic beam collision, negative ion production 4-46895
D 200 A neutral beam source test facility 4-59859
D neutral beam injectors for mirror machines 4-59860
D neutral beam R & D at Lawrence Berkeley Lab. 4-59858
H, grounded large area ion source, prod. intense fast atom beam 4-63377
H^-, creation in H discharge plasma, crossed fields 4-52631
^3H multiampere ion source and beam transport system for Intense Neutron Source 4-63305
Li_2O-Al_2O_3-$2SiO_2$, Li ion source for cyclotron external injection 4-80978
Na, thermionic, using nepheline as emitter substance, preparation and props. 4-74107

ion thrustors *see ion engines*

ionic conduction in solids
see also ionic semiconductors; superionic conducting materials
alkali glasses, self-diffusion and elec. cond. empirical relation 4-52936
diffusion of charged particles in solids, difference eqn. solns. 4-64095
electrode charge transfer effects, partial blocking 4-64091
electrolyte, ionic polarons, activation energy of cationic hopping calc. 4-82426
electrolyte material, solid, selection, phase transition behaviour basis 4-67042
electronic conducting materials exhibiting ionic motion 4-53101
epoxy polymer, decaying and steady currents at high fields 4-64097
fast cation transport in solid electrolytes and mixed conductors 4-53130
ferrocyanides, $A_2BFe(CN)_6.xH_2O$, (A=alkali, B=alkaline earth or transition metal), rel. to cryst. struct. 4-48991
glass, and glass melts, temp. depend., free vol. theory *(German)* 4-44910
ice, intermol. proton tunnelling effect, model, soln., mechanism for ionic migration 4-48786
metal-superionic conductor interphase, model 4-54032
metallic systems, ion subsystem dynamics effect on transport coeffs. 4-57069
oxides, high-temp., statistical-mechanical theory of vacancies 4-52935
oxides, stoichiometry deviations and effects on phys. and chem. props. 4-60490
polymer, cond. eqn. including free vol., ionic jump energy and dissociation energy 4-82430
semiconductors, effect of thermally stimulated depolarisation 4-53362
solute inhomogeneity effect, computer anal. 4-56911
unipolar model, transient elec. field, space charge behaviour 4-67219
vacancy supersaturation, elec. cond. and associated processes in ionic crystals 4-72790
vitreous system, decay function of elec. field relax. 4-63942
YF_3, solid electrolyte 4-53102
(Ag,Na)Cl(Br), solid soln., thermoelec. power and elec. cond. 4-75908
Ag halides, ionic transport processes 4-48795
AgI, transport props., electrical conductivity, electronic and ionic transport numbers 4-49049
AgI-TlI system, transport props., electrical conductivity, electronic and ionic transport numbers 4-49049
Ag_3SX, X=Br or I, elec. cond. meas. as function of hydrostatic press., activation vol. determ. 4-44951
β-Al_2O_3, alumina, polycryst., Na ion cond. mechanism *(Japanese)* 4-69936
β-Al_2O_3:Ag(Na), i.r. spectra, super ionic cond. 4-57545
β-Al_2O_3-Na_2O ionic conductivity and electrochem. polarisation obs. 4-52931
$BaF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4-44880
BiF_3 solid electrolyte 4-53102
CaF_2 powders, water effect on sintering and ionic cond. 4-49918
CaF_2 solid electrolyte 4-53102
CaF_2: rare earth, relax. of type-I dipolar complexes investigation using ionic thermocurrent techniques 4-75813
$CaF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4-44880
$Ce_{1-x}Ca_yO_{2-y-x}$, nonstoichiometric, ionic transference number meas. 4-52933
CeF_3 solid electrolytes 4-53102
CeO_2, nonstoichiometric, ionic transference number meas. 4-52933
KBr, filiform cryst., X-ray effect *(Russian)* 4-82422
KBr, single cryst., charge injection development, necessary contact conditions 4-72782
$KBr:Pr^{3+}$, energy parameters determ. 4-49406
KCl, filiform cryst., X-ray effect *(Russian)* 4-82422
KCl, KI, cryst. grown from aq. soln., purity anal. 4-61281
$KCl:Eu^{2+}(Yb^{2+})$, dielec. meas., a.c. bridge and ionic thermocurrent methods 4-67506
$KCl:Pr^{3+}$, energy parameters determ. 4-49406
$K_xMg_{x/2}Ti_{(8-x/2)}O_{16}$ Hollandite structure, dielec. loss and a.c. conductivity obs. 4-52934
LaF_3 solid electrolyte 4-53102
$Li_3Fe(CN)_6$, ^7Li motion, n.m.r. obs. 4-48797
$Li_4Fe(CN)_6$, ^7Li motion, n.m.r. obs. 4-48797
LiH, time-temp. history effects 4-48990
LuF_3 solid electrolyte 4-53102
$NH_4H_2PO_4$, protonic cond. meas. 4-56905

ionic conduction in solids continued
NH_4SO_4 and $NH_4H_2PO_4$, conductivities of doped crystals, charged carrier mobility 4-63941
$(NH_4)_2Zn_3Fe_2(CN)_{12}$, ^1H motion, n.m.r. obs. 4-48797
NaCl, divalent impurity doped, evidence of charged dislocations 4-52767
$NaCl:Cd^{2+}$, solute inhomogeneity effect 4-56911
$NaCl:Pr^{3+}$, energy parameters determ. 4-49406
PbF_2 solid electrolyte 4-53102
$RbCl:Pr^{3+}$, energy parameters determ. 4-49406
$SrF_2:Gd^{3+}$, reorientation kinetics of dipolar complexes 4-44880
Ta_2O_5, defect structure 4-72461
ThO_2, dense polycryst., ionic-electronic cond. transition under reducing conditions 4-64081
ThO_2, ThO_2-$YO_{1.5}$ solid solns., construction mechanisms at high oxygen pressures 4-52929
TlI, transport props., electrical conductivity, electronic and ionic transport numbers 4-49049
ZrO_2, Ca-stabilized, solid electrolytes, partial conductivity at 900° to 1200°C, obs. 4-52932

ionic conductivity in solids *see ionic conduction in solids*

ionic semiconductors
see also ionic conduction in solids
No entries

ionisation
see also autoionisation; electron affinity; electron ionisation; ionisation of atoms; ionisation of gases; ionisation of liquids; ionisation of molecules; ionisation of solids; ionisation potential; photoionisation; surface ionisation
dense interstellar clouds, fractional ionization 4-80658
Herbig-Haro objects, ionization equilibrium and transition radiation 4-65167
H I region ionization by low energy cosmic rays or soft X-rays using interstellar absorption line obs. 4-50701

ionisation chambers
bakeable and demountable chamber for gas pre-breakdown studies 4-58950
beta radiation indicator with integral ionis. chamber *(Slovak)* 4-58922
current calcs. for pulsed e.m. fields 4-77236
dosimetric methods comparison for environmental accuracy 4-58613
dosimetry, fast neutron beam, comparison with proportional counters 4-46485
dosimetry, of degraded X-rays 4-58621
electron impact ioniser, for detection of mol. beams 4-63496
extrapolation chamber construction and use, calibration β ray applicators 4-77159
fast neutron flux meas. beta emitter ^6He detected after $^9Be(n,\alpha)$ reaction 4-69285
field monitoring system, computer compatible, for radiation dose meas. in nuclear reactor vicinity 4-51916
gas-filled, coupled in parallel, statistical losses of impulses *(Bulgarian)* 4-55038
grid, for spectroscopy of α-emitting nuclides in environmental samples *(German)* 4-68791
high energy, effect of adjacent cavity in phantom 4-76982
lattice, α-radiation from biosphere mineral sample *(German)* 4-77169
linearity, working characts. from voltage ampere curve 4-42882
liquid, for dosimetry of electron radiation 4-62517
LMFBR neutron monitoring systems, review of French, British, German, American systems 4-47751
neutrons and gamma radiation absorbed, doses error of separate determination 4-51155
pocket dosimeter, direct-reading, energy depend. w.r.t. X-rays and beta rays 4-77176
pulsed, for wide-range gamma-ray field monitoring 4-78304
radiation measurement, background, near nuclear reactors, applic. 4-46490
synchrocyclotron proton beam spatial profile meas. by ionisation currents 4-80972
window materials, X-ray mass absorption coeff., 8.34-452 Å 4-68773
X-ray fluorescence from extended sources, anal. of exposure meas. 4-74123
Ar, liquid, particle shower detector construction 4-77177
Ar filled, current meas. for pulsed e.m. fields 4-77236
Ar liquid, detection of e.m. and hadronic showers 4-77181
H_2 ionisation chamber, study of small angle hadron-proton elastic scatt. 4-74124
Ne flash tubes, low-pressure, operational characteristics 4-55062

ionisation gauges
Bayard-Alpert, modulated, total press. meas. of u.h.v. *(Japanese)* 4-74030
Bayard-Alpert gauge, protective grid modification 4-42767
hot cathode ionization gauges, W evaporation limit 4-65411
manometer transducer, Orbitron type, ion current characts., 10^{-8} to 10^{-4} Torr *(Bulgarian)* 4-80860
plasma neutral particle meas. 4-48449
sensitivity stabilisation 4-42771
triode type, h.p., characteristics linearization method 4-51006
vacuum deposition rate meas. 4-42772

ionisation of atoms
activities, ionisation energy calc. 4-63346
alkali atom + N_2^* collisions, chemiionisation, N_2 vibr. distrib. investig. 4-74866
alkali atoms + methyl halide collisions, chemiionisation cross sections investig., mol. electron affinities determ. 4-67993
alkali meta ions, spectral line excitation functions in vacuum u.v., reson. transitions *(Russian)* 4-78353
alkali metal + $Cl_2(Br_2)(O_2)$, ionising collisions 4-78527
atom, open-shell, photoelectron angular distrib., anisotropic electron-ion coupling 4-43742
atom + heavy ion collision, Coulomb K-shell ionisation, cross sections 4-47910
atom and heavy ion collision, impact parameter depend. of inner shell ionisation, effect of particle identity 4-52006

ionisation of atoms continued
atom-atom collision, molecular orbital X-ray emission, atomic line broadening anal. 4−56032
atom/solid surface slow collision, reson. ionisation of H-like atoms 4−73221
atom/solid surface slow collision, reson. processes 4−73222
atomic-field pair production, polarisation correlations between incident photon and emitted positron 4−59935
binary-encounter calcs. of cross sections and probabilities for 2s and 2p electron removal 4−74877
charge states, from oscillating electron electrostatic ion source 4−58910
Coulomb ionisation of L sub-shells, heavy charged particle impact 4−52003
electron impact, absolute cross section meas. 4−43748
electron impact ionisation, optical potential approach 4−59953
energy values, comparison of formula, experimental and calculated results *(Esperanto)* 4−43744
heavy ion bombardment, MeV energies, Kα X-ray satellite lines 4−43750
heavy-ion-foil collision, lifetime meas. of ion inner shell vacancies 4−78340
inert gas, multiple photoionisation 4−78565
inert gas, subshell photoionization cross section determ. by u.v. photoelectron spectroscopy 4−74863
inert gas + H^+, outer s-shell ionisation, 125-1200 keV 4−59962
inert gas ion engine, atomic excitation processes, influence of metastable states 4−59948
inner-shell ionization by relativistic electrons, differential cross section 4−47886
ion + atom collisions, level matching enhancements in inner-shell vacancy prod., mol. orbital model 4−74912
Kα satellite intensity from 20 KeV and 2 MeV electron impact, z=23-28 elements 4−63365
K X-ray emission exchange corrections, relativistic Hartree-Fock soln. 4−56012
K-shell ejection, projectile charge depend., high-energy calcs. 4−74876
K-shell ionisation, Z_1^3 dependence obs. to be widespread 4−47906
L_2-subshell Coster-Kronig yields at high Z 4−72044
L and M shell cross-sections for electron impact of Si, P, S, Cl, Ti, Br and Sn 4−63368
L-shell ionisation by heavy ions, binding and Coulomb effects 4−81733
laser produced, and excitation 4−59938
metallic, Na to Ga, variations in energies by Hartree-Fock method *(French)* 4−51944
metals, photoelectron cross section, X-ray attenuation coeff. meas. 4−72068
metals, Xe^+ bombardment of solid targets, optical radn. spectra 4−74838
multiphoton ionisation, effect of light polarisation 4−47864
multiphoton ionisation, high intensity quantum electrodynamic treatment 4−59936
negative ion excited states and energy determ. by electron detachment in elec. field *(Russian)* 4−78354
Penning ionisation, review of theory and experiment 4−72069
Penning reaction, excited metal ion prod. 4−74908
photoelectron spectra, excitation with simultaneous ionisation investig., Green's function methods 4−66314
photoionisation, example of method of imaginary times for periodic fields *(Russian)* 4−47448
photoionisation, inter-shell and inter-subshell effects *(Russian)* 4−69427
photoionisation, X-ray photoeffect, method of phase functions *(Russian)* 4−45400
photoionisation cross section calc. using L^2-basis set 4−47863
radioactive atoms, laser radiation effect on decay processes *(Russian)* 4−77988
rare earth metals, ionisation energies of doubly and triply ionised species by linearisation 4−43737
refractory metals, mass spectra determ. of ionisation pots. 4−52234
relativistic Compton effect on bound electron 4−78351
spectroscopy and collision theory, Hartree-Fock-Roothaan eigenchannel calcs. 4−81712
two-photon ionization, near resonance effects, resolvent operator analysis 4−63342
universal potential calcs. for ionised states by modified WKB 4−78380
X-ray emission during heavy ion-heay atom collisions 4−72074
X-ray ionisation cross-sections, ionisation equilib. eqns. modified by Auger transitions 4−69425
Z=12 to 92, total atomic photoelectric cross-sections for 88 keV to 1.33 MeV gamma-rays 4−81722
^{47}Ag, inner shell ionisation by relativistic electrons, calcs. 4−51988
Al IV, triply ionised, $2p^53s$, 3p, 3d and 4s configs., revised anal. 4−43718
Al^{3+}, in laser-produced plasma, intensity anomalies in extreme vacuum u.v. spectrum 4−72031
Ar, electron impact, energy distrib. of emitted electrons 4−78367
Ar, electron impact simulation of photoelectron ang. distrib. by electron-electron coincidence 4−47885
Ar, excited states formed by α-particle irradiation, near i.r. obs. 4−81736
Ar, high energy electron impact, nulti-ionisation 4−72087
Ar, ionisation rate, freq. discharge tube meas. *(Russian)* 4−75300
Ar, metastable, near-threshold photoionisation, autoionisation effect 4−72063
Ar, multi step ionization relaxation behind shock wave 4−72080
Ar, multistep initial localization behind strong shock waves 4−74856
Ar, photoionisation, channel interaction and threshold behaviour 4−47866
Ar, spectroscopy and collision theory, Hartree-Fock-Roothaan calcs. 4−81712
Ar I transition probabilities meas. using new plasma-oven 4−82041
Ar-like gas, influence of electron-at. cross section uncertainties on shock wave struct. 4−66334
Ar + Ar(HCl)(Cl_2), K-shell X-ray production cross sections and spectra 4−72072
Ar + H^+, 22-300 keV collisions, $L_{2,3}$ Auger emission 4−81734

ionisation of atoms continued
Ar + He*, Penning electron ang. distribs. 4−74880
Ar + He*(Ne*) collisions, ArII excitation 4−66323
Ar(e,2e), config. interaction anal., spectroscopic factor determ. 4−47894
Au, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Au, N + O + shell photoelectric cross section of gamma rays 4−63345
Au^+, high current ion source by electron bombardment 4−80979
^{79}Au, inner shell ionisation by relativistic electrons, calcs. 4−51988
B IV, spectrum and term system 4−72034
Ba, tunable laser pumped ^3D metastable state photoionisation cross section 4−51972
Ba I, series of autoionisation resonances in Schumann u.v. converging on Ba II 6^2P 4−78347
Ba^+, electron ionisation cross section, autoionisation threshold 4−74894
Be, 1s-hole condition, non-empirical calc. *(Russian)* 4−43709
Be isoelectronic sequence, bound-bound radiative transition probabilities 4−72060
Be isoelectronic sequence, C I wavefunction oscillator strength calcs. 4−72033
Bi, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
Bi, L-subshell ionisation, proton bombardment 4−59965
Br,Br^-, collisional excitation, autoionisating and autodetaching states 4−78361
C^-, photodetachment, many-body perturbation theory 4−72062
Ca, double K-shell ionisation, O^{5+}, O^{7+}, bombardment, 24-48 MeV 4−63372
Ca + H(He)(C)(N)(O)(Ne), K-shell ionisation, projectile depend. 4−74873
Cl, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
Cl + H(He)(C)(N)(O)(Ne), K-shell ionisation, projectile depend. 4−74873
Cl^{n+} + Ne, n=5-15, factor 20 increase in atomic X-ray cross-section 4−47905
Cs, multiphoton excitation and ionisation with tuneable dye laser 4−56023
Cs, three photon ionisation by laser light 4−51971
Cs multiphoton ionisation, high intensity quantum electrodynamic treatment 4−59936
Cs + $BF_3(PF_3)$, C_s^+ and F^- formation, fragment product relax. 4−63356
Cu, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
D^- + He(Ar)(H_2)(N_2)(O_2), electron detachment cross section 4−81735
F VII, F VIII, emission lines obs. in grazing-incidence region, ionisation potentials 4−66284
F VII, laser produced plasma, forbidden transitions 4−78330
F^-, photodetachment, many-body perturbation theory 4−72062
$F^+ + Ar \rightarrow Ar^+ + Fe$ 14-100 keV, charge exchange cross-section 4−60127
$F^+ + He \rightarrow F + He^+$, 14-100 keV, charge exchange cross-section 4−60127
F^+ + Ne(N_2)(NH_3), K-vacancy production, inelastic energy loss 4−72098
$F^+ + Ne \rightarrow F + Ne^+$ 14-100 keV, charge exchange cross-section 4−60127
Fe, universal pot. calcs. for ionised states, modified WKB method 4−78380
Fe XIX-XXIII, ions in laser produced plasma, spectral classification 4−59910
Ge, excited in Xe^+ bombardment, optical spectrum 4−74838
H, collisional electron detachment, 22-45 MeV 4−66313
H, electron impact ionisation, Coulomb-projected Born approximation 4−47877
H, electron impact ionisation, optical potential approach 4−59953
H, electron impact ionisation cross section of excited atom, in Born approx. 4−74893
H, electron photoattachment 4−47862
H, ionisation potential calc. in intense laser beams 4−59937
H, ionisation rate and transitions in ultrastrong laser field 4−74835
H, multiphoton ionisation, microwave and r.f. induced in highly excited H atoms 4−69426
H, photoionisation cross-section per atom from H_2 photoionisation 4−63353
H, stripping collisions, 1-10 keV, small-angle ion scatt. 4−81728
H multiphoton ionisation, high intensity quantum electrodynamic treatment 4−59936
H-like ions in plasma, satellite line spectra in 2-12 A range 4−78333
H + e, H^-, H^+ formation, 50-500 eV, coupled equation calc. 4−63369
$H + e \rightarrow H^- + \hbar\omega/2\pi$, rate coeff. calc. electron temp. range 0 to 10000K 4−74896
H + H^+, scattering, variational bounds on 1s-charge-exchange amplitude investig. 4−59963
H + H^+ collision, H^+ electron capture, continuum distorted wave approx. 4−74909
H + He* Penning ionisation, electron energy spectrum, semi-classical uniform approx. 4−56029
H^-, autoionisation states, stabilization method 4−47865
H^-, formation in intense current discharge in crossed fields 4−78846
H^- + He(Ar)(H_2)(N_2)(O_2), electron detachment cross section 4−81735
$H^- + He \rightarrow H + He + e$, 5-120 eV, electron detachment obs., cf with complex potential theory 4−59970
He, autoionisation states, stabilization method 4−47865
He, autoionization resonances, applic. of Fano CI theory 4−63352
He, electron impact ionisation, threshold obs. 4−74890
He, electron scatt., u.v. ang. distrib. and polarisation fraction 4−47889
He, ionisation potential calc. in intense laser beams 4−59937
He, ionisation rate, freq., discharge tube meas. *(Russian)* 4−75300
He, metastable excited states, collisions with H_2O and D_2O mols. 4−43881

ionisation of atoms continued

- He, multiphoton excitation and ionisation, in intense laser beam 4−59931
- He, photoionisation, random phase approx., square-integrable basis functions 4−72064
- He electron impact ionisation, differential cross-section calcs. 4−78366
- He I, laser produced plasma, obs. of forbidden transitions 4−74836
- He II, 304 Å resonance line, Stark profile in plasma source 4−74829
- He photoionisation cross sections for 2^1S, 2^3S, 2^1P and 2^3P states 4−63351
- He-like atoms, Lamb shift contributions to ionisation potentials of ground states investig. 4−81708
- He-like ions in plasma, satellite line spectra in 2-12 A range 4−78333
- He + H_2, electron-loss cross sections for excited He at 8-160 keV 4−74874
- He^+, electron impact ionisation and excitation, cross section meas. 4−59952
- He(2^3S) + He collision, ionisation of He*, diabatic mechanism 4−66322
- He(e,2e)He^+, n = 1, 2 differential cross section ratios, CI versus HF wave functions 4−69437
- He($n^{1,3}$P), photoionization, absolute cross sections 4−51973
- He($n^{1,3}$P), photoionization, cross section calc. for linearly and circularly polarized light 4−66316
- Hg, electron impact cross-sections, electron energy loss 4−74891
- Hg, partial photoionisation cross sections, branching ratios 4−81723
- Hg + He*, Penning electron ang. distribs. 4−74880
- Hr + He*, Penning ion ang. distrib. 4−47911
- I^- + He, autoionising spectra of I^- 4−43751
- I^+ + Au, mol. orbital X-ray emission spectra 4−69433
- K photoionization cross section calc. by polarized orbital method 4−63354
- Kr, electron impact ionisation, 3d inner shell alignment obs. 4−74897
- Kr, electron impact simulation of photoelectron ang. distrib. by electron-electron coincidence 4−47885
- Kr, metastable, near-threshold photoionisation, autoionisation effect 4−72063
- Kr, multiphoton ionisation, freq. depend. 4−78352
- Kr, u.v. spectra, 250 keV electron excited, time depend. 4−47893
- Kr + He*, Penning electron ang. distribs. 4−74880
- Kr + He*(Ne*) collisions, KrII excitation 4−66323
- Kr + Ne^{++}, collisions, electron transfer investig., cross sections determ. 4−61585
- La + He^+, hybrid charge transfer/Penning reaction 4−66343
- Li, $1s^2sp^2p^0$ state, photoionistion cross section rel. to plasma diagnostics *(Russian)* 4−69428
- Li I, interaction energy of photoelectron with nucleus, ionisation potential 4−47821
- Li + $M_2 \rightarrow Li^+$, dynamics of electron transfer collisions, up to 14 eV 4−78372
- Mg, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
- Mg, electron impact ionisation, K Auger spectra 4−52001
- Mn XVIII, Mn XIX, ions in laser produced plasma, spectral classification 4−59910
- Mo, K-absorption edge fine structure using self-ionisation model *(Hungarian)* 4−63347
- ^{95}Mo, ^{96}Mo K-shell internal conversion lines, ‘shaking up’ effects *(Russian)* 4−71817
- N, autoionising states, electron spectroscopy 4−66310
- N, photoionisation, 870-600 Å 4−56020
- N VI, emission lines obs. in grazing-incidence region, ionisation potentials 4−66284
- N^+ + Ne(N_2)(NH_3), K-vacancy production, inelastic energy loss 4−72098
- Na, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
- Na, electron impact ionization, K Auger spectrum 4−52000
- Na I, interaction energy of photoelectron with nucleus, ionisation potential 4−47821
- Na photoionization cross section calc. by polarized orbital method 4−63354
- Na + Na^+ collisions, excitation, charge transfer, three-state description 4−78378
- Na + Ne^+, gas target, asymm. collisions, K-shell vacancy sharing 4−74910
- Na^+ + Ne(N_2)(NH_3), K-vacancy production, inelastic energy loss 4−72098
- Ne, electron impact ionisation of ground state atom in Born approx. 4−74893
- Ne, excited states formed by α-particle irradiation, near i.r. obs. 4−81736
- Ne, high energy electron impact, multi-ionisation 4−72087
- Ne, in O^+ collisions, K-shell fluorescence 4−59928
- Ne, K vacancy production, keV collisions with Na^+, Na^{2+}, Ne^+ and Ne^{2+} 4−47902
- Ne, multiple ionisation in heavy ion + atom collisions, screening effect 4−66344
- Ne, photoionisation, 100-2000 eV, single and multiple electron processes 4−74864
- Ne in 80-320 eV relative motion collisions with Na^+ 4−47903
- Ne + $Cl^{+7,11,13}$, K X-ray spectra, 40 MeV, Cl beam 4−59969
- Ne + Kr^{++}, collisions, electron transfer investig., cross sections determ. 4−61585
- Ne + Ne^+, asymm. collision, K-shell vacancy sharing 4−74910
- Ne + $O^{5,6,7,8+}$, K X-ray emission from Ne ions 4−78373
- Ne^+(Ne^{2+}) + Ne(N_2)(NH_3), K-vacancy production, inelastic energy loss 4−72098
- Ni I and II experimental oscillator strengths 4−74854
- ^{25}Ni, inner shell ionisation by relativistic electrons, calcs. 4−51988
- $^{58}Ni^+$ + Ni, mol. orbital K X-ray emission spectra 4−69432
- O, autoionisation spectra of Rydberg states $3d'^3P_{2,1}{'}_0{}^0$ and $3s''^3P_{2,1}{'}_0{}^0$ and intershell transition $2s2p^5\ P_{2,1,0}{}^0$ 4−66311
- O, photoelectron spectrum, continuum ionisation transition probabilities 4−72065
- O VII, emission lines obs. in grazing-incidence region, ionisation potentials 4−66284
- $O^- + O_2 \rightarrow e + O + O_2$, at 1-32 torr in an electric field 4−63718
- O^+ + Ne(N_2)(NH_3), K-vacancy production, inelastic energy loss 4−72098
- $O_2 + e \rightarrow O + O^-$ at 1-32 torr in an electric field 4−63718
- $O^{n+} + O_2$, (n = 4 to 8), secondary electron emission, 30 MeV 4−63371
- OI, photoionisation, photoelectron ang. distrib., cross section, branching ratio 4−72066
- P VIII to XIII, optical spectra, intrashell transitions 4−47839
- Pb, electron induced inner shell ionisation, anomalous threshold behaviour 4−66330
- Pb, L-subshell ionisation, proton bombardment 4−59965
- Pb, metastable level excitation, population, ionisation mechanism investig. 4−72050
- Pb, N + O + shell photoelectric cross section of gamma rays 4−63345
- ^{210}Po, alpha decay, K- and L-shell autoionisation probabilities 4−63116
- Rb, after RbCl + K mol. beam exchange reaction on Pt-W surface 4−76593
- S, atomic monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
- S, photoelectron angular distrib., anisotropic electron-ion coupling 4−43742
- S^- + Be(C)(Al)(Cu)(Ge), lifetime meas. of ion inner shell vacancies 4−78340
- Si, excited in Xe^+ bombardment, optical spectrum 4−74838
- Si, heavy ion bombardment, MeV energies, Kα X-ray satellite lines 4−43750
- Sm, L-subshell ionisation, proton bombardment 4−59966
- Sn, metastable level excitation, population, ionisation mechanism investig. 4−72050
- ^{50}Sn, inner shell ionisation by relativistic electrons, calcs. 4−51988
- ^{97}Tc K-shell internal conversion lines, ‘shaking up’ effects *(Russian)* 4−71817
- Ti, two-photon ionisation, electron ang. distrib. 4−72067
- Ti IV spectrum, 2000 to 8000 Å, polarisability, ionisation limit 4−51957
- Ti XVII, ions in laser produced plasma, spectral classification 4−59910
- U, N + O + shell photoelectric cross section of gamma rays 4−63345
- U, photoionisation cross section, soft X-ray absorption 4−72061
- V, multiply ionised, excitation of spectra by capacitor discharges 4−59908
- V XVII-XX, ions in laser produced plasma, spectral classification 4−59910
- V_V, quadrupole-ionised, spectrum and energy levels, 450-8500Å 4−47833
- W IV, sliding-spark discharge, spectrum, ionisation levels 4−72039
- $_{74}$W multiple ionisation theory, assignment of new satellite to transiton, L-X-ray emission spectrum 4−78335
- Xe, high energy electron impact, multi-ionisation 4−72087
- Xe, multiphoton ionisation, freq. depend. 4−78352
- Xe + H^+, ionisation cross section, ejected electron energy distrib. 4−72097
- Xe + He*, Penning electron ang. distribs. 4−74880
- Xe + He*(Ne*) collisions, XeII excitation 4−66323
- Y + He^+, hybrid charge transfer/Penning reaction 4−66343
- Zn I, photoionisation of 4s subshell, perturbation theory 4−81724

ionisation of gases

see also atmospheric ionisation; plasma; Townsend discharge

- air, breakdown, negative ion spectra 4−75361
- air, discharge development near atm. press. 4−75362
- air, electron attachment and detachment 4−56559
- air, h.v. impulse testing, air gap residual ionisation levels, effects 4−48181
- air, impulsive corona, atm. ionic content effect 4−75394
- air, ionisation in long uniform field gaps, formative time lag 4−75358
- air laser induced breakdown, 20 psec. pulse, focal length depend. 4−44255
- air-CO_2 mixture, breakdown, negative ion spectra 4−75361
- alkali metal vapours, optically excited, ionising transition processes *(Russian)* 4−43746
- collective ion acceleration by relativistic electron beam in neutral gas 4−46778
- Crab Nebula, gaseous filaments spectra computation and interpret. *(Russian)* 4−73856
- dielectric strength computation, breakdown voltage 4−60342
- discharge initiation by electron beam, ionis. and recomb. coeffs. meas. method 4−78853
- electron beam preionisation of discharge pumped gas lasers 4−43301
- energy-loss of charged particles in thin layers of matter, Monte Carlo calc. 4−46796
- flowing gas, weakly ionised, electron distrib. function in time-depend. elec. field 4−63649
- free energy of ionized gas cloud in state of stable Lyapunov’s equilib. *(Russian)* 4−72274
- freon + N_2 mixture, comparison with pure freon of sparking pots. and swarm coeffs. 4−75410
- h.f. breakdown, nonisothermal discharge in wave field, electrodynamic structure 4−63731
- inert gas, subshell photoionization cross section determ. by u.v. photoelectron spectroscopy 4−74863
- inert gases, electron impact, cross section calc. 4−78363
- interstellar gas statistical time dependent model for temp. and ionization structure 4−50688
- interstellar matter, ionization mechanisms of intercloud medium 4−71057
- ionised-flame detector for hydrocarbon conc. meas. in air *(Croatian)* 4−46500
- laser induced, theory 4−72059
- laser medium, degradation due to ionis. by laser pulse 4−43296
- mass action law for interacting gases and plasmas, statistical derivation 4−71454
- monatomic, shock heated by intense laser beam, nonequilibrium model 4−65927

ionisation of gases continued
- partially ionized ternary gases in magnetic fields, generalized Ohm's law 4−60152
- pre-breakdown phenomena, ionisation chamber apparatus 4−58950
- radiative and collisional, effects on structure of strong normal shock wave in monatomic gas 4−72323
- shock tube technique for study 4−72302
- Ar, calc. of electrode ionizer, 0.2-0.4 atm., 350K 4−69678
- Ar, ionisation behind reflected shock waves 4−63569
- Ar, multistep initial localization behind strong shock waves 4−74856
- Ar + Xe, calc. of electrode ionizer, 0.2-0.4 atm., 350K 4−69678
- CO_2, u.v. preionised laser, parametric study 4−69043
- CO_2-air mixture, electron attachment and detachment 4−56559
- CO_2-He-N_2 mixture, laser-induced breakdown, refraction effect on spot size depend. 4−44253
- H_2O, by He metastable atoms in spark chamber 4−81824
- He, ionisation coefficient meas. by pulse technique 4−75071
- He, laser induced breakdown, inelastic energy loss effects 4−44254
- N_2, by He metastable atoms in spark chamber 4−81824
- N_2, discharge development near atm. press. 4−75362
- N_2, gas-discharge gap, ionis. by fast electrons 4−78852
- N_2, laser induced breakdown, inelastic energy loss effects 4−44254
- N_2, Townsend's ionisation coeffs. determ. 4−56352
- N_2O and mixtures, fund. collision processes leading to breakdown at h.v. 4−75070
- O_2, by He metastable atoms in spark chamber 4−81824
- O_2, discharge development near atm. press. 4−75362
- SF_6, ionisation, electron detachment in discharge gap, time resolved obs. 4−75360
- SF_6, ionisation in long uniform field gaps, formative time lag 4−75358

ionisation of liquids
- anthracene, in cyclohexane and methanol, pulsed laser photolysis, non-linear absorpt., photoionization 4−80199
- carbon tetrabromide, photoionisation investig. of ionisation pots. and fragmentation paths 4−60108
- trans-hexene-2, liq., γ-irrad., ionisation investig., electron range distrib. functions 4−76612
- methanes, chlorinated, photoionisation investig. of ionisation pots. and fragmentation paths 4−60108
- neopentane, liq., γ-irrad., ionisation investig., electron range distrib. functions 4−76612
- polycondensate between L-lysine and 1,3 benzene disulphonyl chloride, dielec. behaviour and conform. 4−82656
- Ar, liq., average energy per ion-pair, electron scatt. 4−56785
- N_2O_4-HNO_3-H_2O solns., ionis. state and London forces by Raman spectrometry *(French)* 4−53451

ionisation of molecules
- acetic acid monomers, ionisation energies 4−52232
- acetylacetones, photoelectron spectra obs. of keto-enol reaction temp. depend. 4−56291
- acetylene $^2\pi_u$ and $^2\pi_g$ ionic states, near Hartree-Fock assessment of reorganisation effects 4−52233
- adiabatic ionisation potential from ionisation efficiency data, threshold laws 4−48113
- aliphatic carbonyl compounds, electron impact of energy 100 eV 4−66500
- benzene, π-electron states, ab initio CI calcs. 4−56118
- bromomethane, negative ion formation by electron attachment and electron capture from excited atom 4−66510
- calculation from expt. data 4−78504
- carbon tetrabromide, photoionisation investig. of ionisation pots. and fragmentation paths 4−60108
- closed-shell system, ionisation potential, many-body Rayleigh-Schrodinger perturbation theory calc. 4−66374
- complex conjugated systems, use of empirical data on fragments in determ. of ionisation potential and electron affinity 4−43877
- cyanomethane, negative ion formation by electron attachment and electron capture from excited atom 4−66510
- π-cyclopentadienylnickel nitrosyl, low energy ionic state obs. 4−60113
- electron impact, metastable decomposition in ion spectra, meas. 4−46656
- ESCA approach to structure and bonding 4−72141
- ethylene, ionisation efficiency curves on electron impact 4−60117
- ethylene halides, resonance photoion spectra meas., interpretation 4−52225
- excited states in water vapour, radial distribution produced by delta rays 4−52279
- field ionisation, fragment ion energy distrib., ionisation pot. and bond energy, mass spectra 4−48108
- formic acid monomers, ionisation energies 4−52232
- hexafluoroglutaric acid, electron attachment and Cs collision ionisation 4−56305
- hydrocarbon chemisorption on Ni, π-d bonding, orbital ionisation energies, photoemission obs. 4−52994
- hydrocarbon liquids, ion-pair yield in external elec. field, initial distrib. effects 4−66489
- interaction potential of molecular ion fragments, mass spectrometric fragmentation 4−48109
- iodomethane, negative ion formation by electron attachment and electron capture from excited atom 4−66510
- ion pair production, external electric field effect 4−75024
- ionisation potential, intramol. electric field effects, mol. orbital calcs. 4−78510
- linear molecule, photoionis. cross sections, excitation energy depend. 4−66492
- maleic anhydride + Cs, collisional ionisation, mass spectra 4−56316
- methane, selective-phase ion cyclotron reson. spectroscopy 4−78503
- methanes, chlorinated, photoionisation investig. of ionisation pots. and fragmentation paths 4−60108
- methyl amines, photoelectron spectra, mol. orbital struct. 4−69530
- methyl halide + alkali atom collisions, chemiionisation cross sections investig., mol. electron affinities determ. 4−67993
- nitromethane, negative ion formation by electron attachment and electron capture from excited atom 4−66510
- Onsager theory, external elec. field effects on ion-pair yield 4−66488
- Onsager theory, yield in external elec. field, initial distrib. depend. 4−66489

ionisation of molecules continued
- photoelectron spectra, excitation with simultaneous ionisation investig., Green's function methods 4−66314
- photoionisation cross section derived using multiple scatt. method 4−72241
- photoionisation cross sections in valence electron approx., applic. to nonlinear mols. 4−52230
- polyatomic molecule, photoionisation cross sections, plane and orthogonalised approx. 4−72235
- radiative and nonradiative processes, review 4−48078
- refractory metal oxides, time-of-flight meas., ionisation pots. 4−52234
- small molecules, photoelectron ang. distribs. orthogonalised plane wave calcs. 4−72237
- small molecules, photoionisation cross sections, plane and orthogonal wave calcs. and obs. 4−72236
- succinic anhydride + Cs, collisional ionisation, mass spectra 4−56316
- TCNQ molecule, electronic and ionic props. 4−52231
- tetrafluorosuccinic acid. electron attachment and Cs collision ionisation 4−56305
- trimethyl compounds of group V elements, ionis. pots. of lone pair orbital electrons, photoelectron spectra interpret. 4−60114
- TTF molecule, electronic and ionic properties 4−52231
- upper atmospheric CO_2 density rel. to $O_2(^1\Delta_g)$ ionization rate 4−54257
- vertical potentials calc. using ΔINDO-FOCI method 4−52238
- vinyltrimethylsilane-He(Ar) discharge, reactive plasma mass spectra, electron impact ionisation 4−46935
- BX_3, $X = I$, Br, Cl, F, prod. of B^+ by electron bombardment, B^+ (^3P state investig.) 4−60105
- $Br_2 + M$, ($M =$ fast alkali metal atom), ionizing collisions 4−78527
- $CO + {}^3He^{2+}$, mol. ionisation and dissoc., secondary ion form. 4−75054
- $CO + He^*$, Penning electron ang. distribs. 4−74880
- CO^+, photoelectron spectra, photoionisation, vibr. intensity distribs. investig. 4−60112
- CO_2, simultaneous ionisation and excitation by electron-impact 4−78521
- COS, ordering of ionic states, 'breakdonw' in Koopmans' theorem investig. 4−72232
- $Cl_2 + M$, ($M =$ fast alkali metal atom), ionizing collisions 4−78527
- D_2, autoionisation final states energy distribs. 4−69527
- D_2O, collisions with metastable excited states of He atoms 4−43881
- $F^+ + H_2 \rightarrow F + H_2^+$ 14-100 keV, charge exchange cross-section 4−60127
- $F^+ + N_2 \rightarrow F + N_2^+$ 14-100 keV, charge exchange cross-section 4−60127
- F_2, ionisation pot., explanation of Koopmans' theorem breakdown 4−48103
- GeF_4, enthalpy of formation of GeF_3^- by electron impact 4−48117
- H^+, H_2^+ electron capture from N_2, Ar, CO_2 and H_2 4−63374
- H_2, dissociative ionisation by electron impact 4−66512
- H_2, HD, dissociative ionisation, field ionisation effects 4−72229
- H_2, photoionisation, nuclear vibr. depend. at relativistic photoeffect energies 4−52240
- H_2 autoionisation final states energy distribs. 4−69527
- H_2 interstellar cloud, thermal equil. 4−80653
- H_2 photoionisation cross section per atom 4−63353
- $H_2 + {}^3He^{2+}$, mol. ionisation and dissoc., secondary ion form. 4−75054
- H_2^+, electron dissociative collisions, theory 4−78522
- H_2^+, two-photon ionisation, quantum defect model 4−52236
- H_2^+, two-photon ionisation, quantum defect method 4−69528
- H_2O, collisions with metastable excited states of He atoms 4−43881
- H_2O, electron impact simulation of photoelectron spectra by electron-electron coincidence 4−43882
- $H_2O + H^+(H_2^+)(H_3^+)(D^+)$, cross section energy depend., 10 to 25 keV *(French)* 4−78508
- HOF, vertical ionisation pot., perturbation corrections to Koopmans' theorem 4−48104
- $He^* + H_2 \rightarrow HeH_2^+ + e$ collision reacts., associative and rearrangement ionisation investig., cross sections determ. 4−72248
- $He^* + H(D) \rightarrow HeH(D)^+ + e$, merging beam reacts. investig., effective cross sections determ. 4−61580
- $He^* + O_2$, chemisorption O_2^+, O^+ and O^- production 4−75022
- $He^* + XY$ ($XY = H_2$, N_2, O_2, CO), Penning ion ang. distribs., pot. barrier effects 4−63489
- I_2, photoionisation in I_2-SF_6 mixture, mass spectrum 4−52239
- Mo oxides, K-absorption edge fine structure using self-ionisation model *(Hungarian)* 4−63347
- N_2, ionisation pot., explanation of Koopmans' theorem breakdown 4−48103
- N_2, K vacancy production, keV collisions with Na^+, Na^{2+}, Ne^+ and Ne^{2+} 4−47902
- $N_2 + H_e^*$, Penning electron ang. distribs. 4−74880
- $N_2 + H(H^+)(D)(D^+)$, 1-25 keV collisions, $N_2^+B^2\Sigma_u^+$ and $N_2C^3\Pi_u$ form. 4−81811
- $n_2 + Ne^+$, asymm. collision, K-shell vacancy sharing 4−74910
- N_2^+, photoelectron spectra, photoionisation, vibr. intensity distribs. investig. 4−60112
- N_2^+, spectra of excitation by $N_2 + H^+$ impact 4−78447
- NH_2, NH, laser photodetachment determ. of electron affinities 4−43872
- $NH_3 + H^+ \rightarrow NH_3^{++} + H^-$, ionisation pots., electronic states of NH_3^{++} determ. by charge transfer spectroscopy 4−60106
- NO, temporary negative ion formation in electron scatt. 4−56303
- N_2O, photoionisation, mass spectroscopic obs., 100-600 Å 4−48115
- $O^- + 2O_2 \rightarrow O_2 + O_3^-$, at 1-32 torr in an electric field 4−63718
- O_2, predissoc. by low-energy electron impact 4−63477
- O_2, slow electron attachment at very high pressures of N_2, ethane and ethylene 4−52273
- O_2, temporary negative ion formation in electron scatt. 4−56303
- O_2, thermal electron attachment in proportional counter with $CO_2 + O_2$ mixture 4−63475
- O_2 electroionization spectrum, identification of new Rydberg states and other structures 4−60120
- $O_2 + e \rightarrow O^+ + O^- + e$, ang. distrib. of O^-, dipole-Born calcs. 4−56309

ionisation of molecules continued
$O_2 + e \rightarrow O^+ + O^- + e$, electron energy depend. of energy and ang. distribs. of O^- 4−56308
$O_2 + M$, (M=fast alkali metal atom), ionizing collisions 4−78527
$O_2 + Ne^+$, asymm. collision, K-shell vacancy sharing 4−74910
$O_2 + O^{n+}$, (n=4-8), secondary electron emission, 30 MeV 4−63371
$O_2^- + O_2 \rightarrow e + 2O_2$, at 1-32 torr in an electric field 4−63718
OH, laser photodetachment determ. of electron affinities 4−43872
OH^-, OD^-, high resolution photodetachment, threshold region 7000-6560 Å 4−43873
OH^-, vertical electron detachment energy and photoionisation cross-section, theory 4−72230
PF_3, electron impact ionisation, ion formation, ion dissoc. energies 4−48127
Pf_2CN, electron impact ionisation, ion formation, ion dissoc. energies 4−48127
S_2, laser photodetachment determ. of electron affinities 4−43872
SH^-, photodetachment, laser induced, ion cyclotron reson. spectra 4−81800
SO_2, laser photodetachment determ. of electron affinities 4−43872
$SiCl_4$, dissociative-electron attachment process obs. 4−78519
ThO, ThO_2, gas, mass spectrometric obs. 4−75025
UO, associative ionisation in U + O collision 4−53993
UO_2, associative ionisation in $U + O_2$ collision 4−53993
Xe_2+ formation, Jesse effect in Ar* + Xe collision 4−69429

ionisation of solids
alkali metal halides, ionicity and photoelectron emission 4−64470
avalanche ionisation by laser pulse, inhomogeneity effect 4−74519
Coster-Kronig transitions in ionisation of surface atoms 4−76346
metal, K-shell ionisation by 1 to 5 MeV α impact, cross section determ. 4−49496
metal surface, ionisation processes during low energy ion sputtering, theory and expt. 4−64464
r.f. glow discharge sputtered ionic species, mass spectrometric analysis 4−51218
Au, X-ray emission spectra, L-subshell ionisation cross section by H^+, He^+ impact 4−49495
Be, surface contaminated by Si, energy depend. of sensitivity of ionisation spectroscopy 4−76354
Fe micrometeorite, shock wave ionisation on impact with W target 4−58281
GaAs, electron impact ionisation, threshold energy calcs. involving band struct. 4−79825
n-GaAs, impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
Ge:As(P)(Sb), impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
NaCl, relative subshell-photoionisation cross sections meas. by X-ray photoelectron spectroscopy 4−76363
NaF, relative subshell-photoionisation cross sections meas. by X-ray photoelectron spectroscopy 4−76363
p-Si, H^+ and He^+ irrad., ionisation effects 4−66948

ionisation potential
see also work function
acetic acid monomers, ionisation energies 4−52232
acetylene, ab initio calcs. 4−56101
aliphatic imines *(French)* 4−60103
alkyl derivatives of water, electron impact spectra 4−52257
allene, and deuterated derivatives, photoelectron spectra, vibrational anal. 4−56295
allyl halides, u.v. photoelectron and absorpt. spectra interpret. 4−66497
amino acids, electronic struct., photoelectron spectra 4−52260
arc discharge, four-pole, investigation of distrib. and migration of atoms *(Russian)* 4−44425
azabenzenes, singlet and triplet state calcs. by modified INDO-CI 4−56144
benzene, π-electron states, ab initio CI calcs. 4−56118
benzene, ab initio calcs. 4−56101
carbon tetrabromide, photoionisation investig. of ionisation pots. and fragmentation paths 4−60108
chloroalkanes, vacuum u.v. absorpt. spectra 4−60058
closed-shell atoms and molecules, direct calc. method 4−56025
closed-shell system, many-body Rayleigh-Schrodinger perturbation theory calc. 4−66374
complex conjugated systems, use of empirical data on fragments in determ. of ionisation potential and electron affinity 4−43877
cyclopropenone, photoelectron, electron impact spectra, interpret. using Gaussian orbital calcs. 4−48129
diatomic molecule, first-row, FSGO open-shell calcs. 4−66379
1,3-dichlorotetrafluoroacetone, photochem., excited state quenching investig., correl. with ionisation pots. 4−75011
difluorobenzenes, Rydberg transitions in u.v. spectra 4−72170
dimethyl sulphide, photoelectron and electronic absorpt. spectra interpret. 4−66496
ethylene, ab initio calcs. 4−56101
ethylene, ionisation efficiency curves on electron impact 4−60117
fluorine substituted diabenzenes, lone pair correlation with extended Huckel method calculations 4−66501
formaldehyde, vert. ionisation pots., perturbation calcs. using double-zeta basis sets 4−78512
formic acid monomers, ionisation energies 4−52232
gas-phase halogen atom recombination, role of charge transfer interactions 4−57861
1,3,5-hexatriene, cis- and trans-, vac. u.v. spectra 4−56205
hydrazines, acyclic, photoelectron spectra, similar lone pair-lone pair dihedral angles 4−66494
Koopman's theorem, perturbation corrections, double-zeta Slater-type-orbital basis 4−78512
Koopmans' defect, calc. using mol. orbital method 4−47934
methanes, chlorinated, photoionisation investig. of ionisation pots. and fragmentation paths 4−60108
molecular onset potential from ionisation efficiency data, threshold laws 4−48113
molecules and radicals, field ionisation, fragment ion energy distrib., mass spectra 4−48108
naphthyl derivatives, charge transfer spectra, σ-π and n-π conjugation rel. to π Si-Si system 4−56124
phenyl derivatives, charge transfer spectra, σ-π and n-π conjugation rel. to π Si-Si system 4−56124

ionisation potential continued
phosphorin, CNDO CI calcs. 4−56114
rare earth metals, ionisation energies of doubly and triply ionised species by linearisation 4−43737
refractory metal oxides, time-of-flight meas. 4−52234
SCF Dirac-Hartree-Fock calcs. for elements Z=1 to 120 4−55994
self-consistent extended Huckel theory, applics. 4−52035
soft X-ray appearance potential spectroscopy, dynamic background subtraction 4−71200
TCNQ molecule, electronic and ionic props. 4−52231
tetrafluoroallene, photoelectron spectra, vibrational anal. 4−56295
thiophen, CNDO CI calcs. 4−56114
thiophosphoryl chloride substitution products, photoelectron spectra meas. 4−66504
third-row element containing molecules, CNDO/2 calcs. 4−56108
1,1,3-trichlorotrifluoroacetone, photochem., excited state quenching investig., correl. with ionisation pots. 4−75011
trimethyl compounds of group V elements, ionis. pots. of lone pair orbital electrons, photoelectron spectra interpret. 4−60114
TTF molecule, electronic and ionic properties 4−52231
urea, electronic struct., photoelectron spectra 4−52260
vertical potentials calc. using ΔINDO-FOCI method 4−52238
Ba, contamination of Fe, appearance potential spectrum obs. 4−57655
Bi compounds, X-ray spectra determ. of inner electron bonding energies *(Russian)* 4−49480
C, lowering of ionisation potential in h.p. plasma *(German)* 4−51974
CH_2, vert. ionisation pots., perturbation calcs. using double-zeta basis sets 4−78512
CaH, u.v. absorpt. spectrum, 2850 Å band struct. 4−60056
Cd compounds, X-ray spectra determ. of inner electron bonding energies *(Russian)* 4−49480
F VII, F VIII, emission lines obs. in grazing incidence region, ionisation potentials 4−66284
F_2, orbital calcs., explanation of Koopmans' theorem breakdown 4−48103
F_2O, vert. ionisation pots., perturbation calcs. using double-zeta basis sets 4−78512
Fe, binding energy determ. from appearance-pot. spectra and X-ray photoemission 4−79277
H, ionisation potential calc. in intense laser beams 4−59937
HCN, electron impact spectra, Rydberg states 4−52258
H_2F, excitation and ionisation energies using core analogies 4−63463
H_2O, mol., X_α-approx. calcs. 4−74940
H_2O, vert. ionisation pots., perturbation calcs. using double-zeta basis sets 4−78512
H_3O, excitation and ionisation energies using core analogies 4−63463
HOF, vertical ionisation pot., perturbation corrections to Koopmans' theorem 4−48104
He, ionisation potential calc. in intense laser beams 4−59937
He-like atoms, Lamb shift contributions to ionisation potentials of ground states investig. 4−81708
Hf IV, spectra, obs. of new lines and ionisation pot. calc. 4−63348
Li I, interaction energy of photoelectron with nucleus, first ionisation pot. 4−47821
N VI, emission lines obs. in grazing incidence region, ionisation potentials 4−66284
N_2, eqn. of motion calc. of electron affinities and vertical ionisation pots. 4−56289
N_2, orbital calcs., explanation of Koopmans' theorem breakdown 4−48103
NH_3, vert. ionisation pots., perturbation calcs. using double-zeta basis sets 4−78512
NH_3^{++} ion, ionisation pots. determ. by double charge transfer spectroscopy, electronic states calc. 4−60106
NH_4, excitation and ionisation energies using core analogies 4−63463
Na I, interaction energy of photoelectron with nucleus, first ionisation pot. 4−47821
Ni, binding energy determ. from appearance-pot. spectra and X-ray photoemission 4−79277
O VII, emission lines obs. in grazing incidence region, ionisation potentials 4−66284
O_2 on Ni chemisorption, soft X-ray appearance potential spectrometer 4−71268
O_3, photoelectron spectra, ionisation pots. determ., orbital assignment 4−48122
SCl_2, photoelectron spectra, SCF calcs., ionisation pots., dipole moments, mol. props. determ. 4−48121
SCl_2, S_2Cl_2 and S_2Br_2, photoelectron and electronic absorpt. spectra interpret. 4−66496
$SO(^3\Sigma^-)$ radical, prod., vac. u.v. photoelectron spectra, ionisation pot. determ., ionic states investig. 4−48119
Sb compounds, X-ray spectra determ. of inner electron bonding energies *(Russian)* 4−49480
SiF_2, HeI photoelectron spectrum and INDO calcs., ionisation pot., electronic struct. 4−48120
ThO, ThO_2, gas, mass spectrometric obs. 4−75025
TiO_2, Auger and appearance pot. spectral changes due to incident electron beam interaction 4−77309
W IV, sliding-spark discharge, spectrum, ionisation levels 4−72039

ionisation time *see ionisation*

ionised gases *see ionisation of gases*

ionogen *see electrolytes*

ionosondes *see ionospheric measuring apparatus*

ionosphere
see also D-region; E-region; F-region; ionospheric electromagnetic wave propagation; ionospheric measurement; ionospheric measuring apparatus; sporadic-E layer
1972, August 1-10 events, h.f. and v.h.f. sounding during storm 4−80381
absorption, solar-terrestrial disturbance, August 1972 *(Japanese)* 4−70786
afternoon trough characteristics from ground-based vertical sounding 4−68231

ionosphere continued
- airglow polarization at 6300 A in artificially heated ionosphere 4−54258
- artificially heated, polarization of airglow 6300 A line of metastable O 4−46068
- auroral regions narrowband radio noise, 2 and 4 MHz obs. by ISIS satellites 4−58095
- auroral zone ionosphere, quiet and disturbed electron density profiles 4−54269
- cylindrical plasma irregularity diffusion, effects of electron-ion collisions 4−58080
- daytime positive ion composition meas. from 73-137 km above Sardinia 4−64953
- density irregularities, large scale field aligned, in heating expts. 4−58091
- disturbance, solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68238
- disturbed conditions Cherenkov radiation emitted in v.l.f. and e.l.f. bands 4−54265
- DP1 and 2 current systems, effect of conductivity on natural oscillations 4−50331
- dynamo, mathematical theory, excited electric fields and currents 4−58079
- dynamo-electric fields 4−70772
- electric field global distrib. at 200 and 540 kHz 4−64946
- electric potential field generated by diurnal atmospheric tide 4−58077
- electron collision frequencies and energy transfer rates 4−81984
- electron concentration, accuracy of rocket meas. 4−46071
- electron content during 1973 June 30 solar eclipse from Faraday rotation obs. 4−61842
- electron content over Ibadan for 1965-8 period 4−64954
- electron densities in lower ionosphere from m.f. pulse sounding 4−70782
- electron density, effect of solar X-ray flare of August 1972 *(Japanese)* 4−70895
- electron density distrib. of quiet ionosphere at middle latitudes, diurnal var. 4−68230
- electron heating, obs. using powerful gyro waves 4−58097
- electron production rates and changes in atmospheric O/N_2 ratio 4−64905
- ELF ion wave Poynting vector, rotation with geomagnetic field 4−50341
- equatorial topside, ionisation ledges from cusp obs. 4−54266
- Faraday rotation, solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68239
- field aligned currents and auroral electrojet 4−83111
- field-aligned current induced by asymmetric dynamo action 4−68237
- Flixborough, Lincolnshire explosion, ionospheric effects 4−76740
- geomagnetic field of external origin obs. at Earth surface 4−68104
- geomagnetic storm, solar-terrestrial disturbance, August 1972 *(Japanese)* 4−70787
- HF radiowave modification effects 4−58085
- high latitude irregularity model from scintillation data 4−70783
- high-latitude, self-consistent electrostatic field mapping 4−70774
- hydromagnetic gradient waves 4−54261
- ion flow and related convective electric fields near auroral arc 4−70776
- ion flow velocities using ion distribution technique 4−70837
- ion-acoustic waves, effect of collisions during geomagnetic disturbances 4−68224
- ionisation sources, of unsounding electron conc., solar eclipse data 4−54374
- ionization-neutralization and dynamic characteristics, optimum number of rocket soundings 4−46063
- ionizing solar u.v. and X-ray radiation, Cosmos 381 obs. 4−68333
- L_2 ionospheric and oceanic dynamo var. 4−61836
- lightning-induced electric fields 4−61839
- low, charged particle cond. meas., rel. to radiowave absorption meas. 4−58076
- low freq. impedance probe for lower hybrid resonance detection 4−54268
- lower boundary, MHD pulse excitation and propagation 4−68226
- magnetic field aligned potential diff. causing downward electron acceleration 4−70777
- magnetic storm, 1968 October 26-31, ionospheric effects, electron density 4−68227
- magnetic storm, 1970 February 24, electric and magnetic field obs. by Injun 5 4−83133
- magnetic substorm, 1968, December 24, magnetic disturbance due to auroral electrons 4−54264
- magnetotelluric sounding in polar regions, ionospheric effects 4−64825
- MHD wave interpretation of gravity waves 4−64952
- MHD waves in viscous anisotropic conducting plasma *(German)* 4−70773
- micropulsation generation by ground-based current loop, effect of conducting Earth 4−45985
- neutral composition changes during ionospheric storm, Esro 4 gas analyzer results 4−64934
- neutral particle density and K.E. effects of typhoons using HF Doppler obs. 4−58081
- nightglow Japan, 1972 Aug 9/10, intensities and ionospheric parameters 4−80373
- parametric instabilities, saturation theory 4−50336
- parametric instability saturation spectrum 4−58089
- periodic electron content disturbances, simultaneous Faraday rotation and angle of arrival obs. 4−50340
- plasma drift determ. by rocket-borne electrostatic flux meter 4−73564
- plasma instabilities, parametric, long wavelength pump frequencies calcs. 4−58090
- plasma instabilities in region ahead of rapidly moving body 4−50328
- plasma resonance, frequency model 4−68229
- plasma wave generation by artificially injected electron beam 4−50334
- plasmasphere, energy degradation and photoelectron transport, Monte Carlo simulation 4−54267

ionosphere continued
- polar, ion-acoustic wave detection by satellite radio beacons 4−50338
- polar, VHF satellite signal amplitude variations, ion-acoustic waves 4−50339
- polar cap magnetic var., role of solar local time coord. system 4−64831
- polar cusp, elec. field and low-energy particle meas. 4−83128
- polar cusp, field aligned current system 4−83109
- polar cusp, magnetic field fluctuations and low energy particle meas. 4−83110
- polar cusp, superthermal electrons at 30-150 eV, Kosmos 261 obs. 4−46061
- polar riometer absorption data for 1972, August period 4−61843
- polar wind flow, two-temp. ion energy distrib. 4−64947
- propagating electron plasma waves, parametric amplification 4−61838
- proton cyclotron freq. phenomena, echoes and spurs 4−58078
- radio emissions in auroral ionosphere, bursts and SVC type 4−54262
- radiowave fading statistics, influence of travelling ionospheric disturbances 4−58075
- reaction rate coeffs. from electron density values 4−50327
- relativistic electron precip. event, 1969, February 2, energy spectra 4−83113
- ring current protons beyond plasmapause low altitude obs. 4−58064
- Roche limit of ionospheric plasma rel. to plasmapause formation 4−58111
- rocket borne dipole antenna, impedance in ionospheric plasma 4−64955
- SAR arc formation by magnetospheric heat conduction, VHF ionospheric scintillation obs. 4−83112
- SC of 1972 August 4 HF Doppler obs. 4−76741
- severe storm acoustic signals observed at ionospheric heights 4−46069
- solar radiation ionization rates for two atmospheric models 4−68228
- Sq currents, rocket meas. over Kagoshima 4−61840
- substorm 3-dim. current system 4−68235
- substorm associated disturbances, morphological study 4−70775
- sudden disturbances rel. to solar X-ray flares of 1972, August 4−80478
- sudden impulse, ionospheric electric field, surface magnetic field meas. 4−61858
- systematic tilts, effect on HF bearing measurements 4−83117
- top side ionogram diffuse resonances, Harris instability 4−70779
- topside, exospheric models, kinetic theory application 4−46074
- total electron content and horizontal gradient from satellite signal recordings at scattered points 4−46062
- total electron content response to magnetic storms, longitudinal effect 4−50342
- travelling disturbances in magnetically conjugate regions 4−68232
- travelling disturbances rel. to current instability of atmospheric gravity waves 4−50311
- travelling ionospheric disturbances, electric field control 4−46066
- vector magnetic field charge region, diurnal var. rel. to field-aligned currents 4−64832
- vertical electron density, comparison of rocket and ground based obs. 4−50329
- warm collisionless multicomponent magnetoplasma, v.l.f. loop antenna impedance 4−46087
- wave disturbances, propagation velocities and speeds, review 4−64951
- wave interaction processes, survey 4−58104
- wave number spectrum of ionospheric irregularities 4−64948
- whistler excitation of Earth-ionosphere waveguide, isotropic model 4−70781
- whistler excitation of Earth-ionosphere waveguide 4−73563
- whistler magnetoguiding, non linear magnetoionic effects 4−58093
- whistler mode wave, non-linear resonant excitation 4−68240
- wind obs., rocket performance with caesium plasma cloud 4−83118
- winds and electric fields from geomagnetic S_q-var. 4−61837
- Ba cloud growth and striation in conducting background 4−61828
- Ba ion cloud, nonlinear motion 4−50335
- Ba releases, wave and particle precipitation stimulation 4−70778
- N and NO concentrations in disturbed ionosphere in 100-200 km range 4−54263
- N_2^+ density profiles at different solar activity 4−50330
- $N_2^+ + O \rightarrow O^+ + N_2 \rightarrow NO^+ + N$, energy dependence and branching ratio 4−70780

ionospheric electromagnetic wave propagation
- *see also atmospherics*
- f_oF_2 enhancement during 1965 June 25 substorm 4−70775
- absorption decreases rel. to geomagnetic field negative sudden impulses 4−46067
- absorption of h.f. waves at oblique incidence prediction method, computer applic. 4−46128
- absorption of m.f. radio waves, wave-like structures in variations 4−64950
- artificially produced scintillations using 137 MHz satellite transmissions 4−46064
- auroral ionosphere, bursts and SVC type radio emissions 4−54262
- auroral zone, resonance phenomena in HF transmission 4−58096
- D-region cross modulation, determ. of electron density and collision freq. by echo method 4−58105
- D-region electron density profile modelling from VLF propagation parameters 4−50345
- D-region electron density profiles, radiowave interaction expt. 4−46076
- d-region mean electron density profile, radiowave propagation meas. *(German)* 4−70791
- D-region modification effects, heating and freq. mixing using high power transmitter 4−58106
- D-region plasma, non linear propagation, numerical soln. 4−58107
- D-region wave interaction processes 4−58104
- disturbances, transient obs. using high intensity RF transmissions 4−58088
- disturbed conditions Cherenkov radiation emitted in v.l.f. and e.l.f. bands 4−54265
- duplicate whistler propag. at latitudes exceeding 30° 4−70771
- E-region, tidal oscill. from 935 MHz incoherent scatter obs. over Saint Santin 4−64958

ionospheric electromagnetic wave propagation continued
E-region fading, evidence for focusing model using diffraction methods 4−46075
earth-ionosphere cavity resonances, line splitting, Q and frequency dependence on azimuthal inhomogeneities 4−80384
echo structure and S/N ratio 4−76745
electron heating, obs. using powerful gyro waves 4−58097
e.l.f. atmospherics, propag. over mixed day-night path 4−83116
enhanced ion line frequency spectrum, incoherent scatter radar obs. 4−58087
equatorial ionosphere spread F, theory 4−61844
equatorial ionospheric absorption during half solar cycle (1964-70) 4−68236
Es-layer at Istanbul, foEs, fbEs and hEs for summer months 4−80386
F_0F_2 and geomagnetic activity index correl. 4−83122
f_0F_2 increase due to upward plasma drift during a solar eclipse 4−83125
F_2-layer critical freq. correlation with tropospheric temp. 4−68234
F-layer, deep amplitude modulation of reflected e.m. pulse *(Russian)* 4−70797
F-layer, reflective properties altered by high power pump irradiation 4−50348
F-layer irregularities from backscatter studies at 19 MHz 4−46081
F-region, parametric mode coupling instability modelling 4−58103
F-region, satellite radio scintillations, use of multisatellite radio transmission system for detection 4−73566
F-region anomalous absorption of 6 MHz radio waves, anal. 4−44188
F-region wavelike disturbances, polarization fading of reflected radiowaves 4−54276
Faraday rotation of radio waves from Syncom 3 and ATS-1 during 1972, August event 4−80382
group path difference from spaced frequency reception 4−50333
heating, relevance to laser fusion expts. 4−58092
heating effect, obs. using partly refl. probing wave 4−58098
HF, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−70789
h.f. bearing meas., effect of systematic ionospheric tilts 4−83117
HF propagation in 3 dimensions, application of ionospheric predictions 4−46072
HF radiowave heating of ionospheric plasma 4−58102
HF radiowave modification effects 4−58085
inhomogeneous magnetoactive ionosphere, Doppler effect 4−70785
ionograms, corrections and error estimates of electron density profiles 4−70841
ionosphere, parametric instabilities, saturation theory 4−50336
LF, in D-region, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68249
l.f. radionavigation signal, long-period fading rel. to geomagnetic activity indices 4−50256
LF/MF/HF, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−70796
Loran-C wave propagation, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68248
m.f. pulse sounding, lower ionosphere electron density determ. 4−70782
modulated waves, self modulation obs. near and far from gyrofreq. 4−58099
modulation and plasma effects, conf. Edinburgh, Scotland (1973) 4−58084
nightglow Japan, 1972 Aug 9/10, intensities and ionospheric parameters 4−80373
non linearity, cross modulation interf., protection ratios for 4−80375
oblique ionospheric sounding, recording equipt. for obtaining diffraction pattern 4−68279
plasma instabilities, parametric, long wavelength pump frequencies calcs. 4−58090
plasma resonance, non linear effects 4−58094
polar E-layer, radio auroral backscatter signals, Doppler shift 4−73565
polar riometer absorption data for 1972, August period 4−61843
polarisation error in direction finding of atmospherics, Earth's mag. field effects, e.l.f. and v.l.f. bands 4−83114
polarisation error in direction finding of atmospherics, inclined electric dipole effects, e.l.f. and v.l.f. bands 4−83115
pulse train propagation, signal intensity calc. 4−59334
radio broadcast reception in ionosphere, sounder-pulse-induced modulations 4−54270
radio scintillation rel. to ionosphere and interplanetary irregularities, wavelength depend. 4−50337
radio wave, effect of magnetic activity on fading 4−70770
radio waves, coalescence of coupling points 4−80379
radiowave absorption rel. to stratospheric heating 4−68233
radiowave adsorption, rel. to charged particle cond. 4−58076
radiowave excitation of parametric instabilities, incoherent scatter spectrum 4−58086
radiowave fading, measurement of angle of rotation of plane of polarisation 4−70784
radiowave fading statistics, influence of travelling ionospheric disturbances 4−58075
radiowave reflection, plasma oscill. generation 4−54271
randomly moving diffractive screens, computer simulation 4−73582
reflected radiowave arrival angle distrib. under vertical and inclined sounding, theory and expt. 4−73581
reflection coefficient matrix for radio waves 4−64949
riometer, D/A minimum detector applic. 4−76761
SAR arc formation by magnetospheric heat conduction, VHF ionospheric scintillation obs. 4−83112
satellite GHz radio signal scintillation, ionospheric irregularity models 4−46070
SC magnetic storms, phase relation between freq. shift and geomagnetic variations in HF Doppler obs. 4−58082
SC of 1972 August 4 HF Doppler obs. 4−76741
self-focusing, thermal instability striations induced in ionosphere by radio waves 4−52555
short dipole antenna impedance in warm magnetoplasma rel. to ionospheric radiation resistance 4−44193
shortwave signals, propagation time calculation error 4−76739
sounding, using coded pulse signals 4−80378

ionospheric electromagnetic wave propagation continued
spread F returns, angular distrib. from artificially modified ionosphere 4−83119
storms of 1972, August 1-10, LF/MF/HF radiowave propagation disturbances 4−76742
topside plasma resonance, oblique echo model 4−80376
topside upper hybrid resonance, oblique echo model 4−80377
transequatorial propagation, F-layer refl. characts. 4−46082
transequatorial reception of 22.3 kHz signal 4−61841
u.l.f. generation by horizontal electric dipole 4−80383
upper hybrid resonance, oblique echo model, ray tracing 4−76738
VHF, transequatorial path, effect of solar terrestrial disturbance, August 1972 *(Japanese)* 4−70788
v.h.f. quasiperiodic scintillations in satellite radio transmissions 4−83123
VHF satellite signal amplitude variations, ion-acoustic waves 4−50339
VLF absorption in auroral oval, anisotropy 4−68225
v.l.f. emissions during geomagnetic storms of 1972, August 4-11 period 4−80380
v.l.f. field on polar propagation paths, short-period pulsations 4−50332
v.l.f. polar studies 4−46073
v.l.f. reflecting heights, zenith angle depend. of D-region ionisation after solar flare SID 4−83124
v.l.f. wave generation near lower hybrid resonance 4−54260
whistler mode, non-linear resonant excitation 4−68240

ionospheric measurement
see also electron density; ion density; ionospheric measuring apparatus
absorption of h.f. waves at oblique incidence prediction method, computer applic. 4−46128
charged particle meas. in lower ionosphere, sheath effects 4−46065
critical frequencies of field F, correl. dependences 4−54259
D-region vertical electron density profile calc. using grid nomograms 4−68278
E_s-q disappearance at magnetic equatorial stations 4−83139
electron density and temperature, using Intercosmos 8 with intermediate semiconductor store *(German)* 4−50407
equatorial F_2-region, simplified calc. method for transequatorial electron flux effects 4−68281
F-region, data reduction and analysis 4−70790
Faraday signal rotation, tracking polarimeter 4−50729
incoherent scatter sounding, review 4−64993
ionograms, corrections and error estimates of electron density profiles 4−70841
lower ionosphere, positive ion mass spectrometer 4−80399
plasma, standards for space research instruments *(French)* 4−54339
plasma drift determ. by rocket-borne electrostatic flux meter 4−73564
reflected radiowave arrival angle distrib. under vertical and inclined sounding, theory and expt. 4−73581
review, post-war history *(Polish)* 4−50405
total electron content determ. from differential Doppler records 4−64997
vertical electron distrib. profiles, unification of computing methods 4−50398
wave scattering, incoherent, fine regular struct., random irregularities electron density profiles *(Russian)* 4−80385
whistler dispersion measurement method *(Japanese)* 4−61935

ionospheric measuring apparatus
ISIS group of satellites plasma struct. *(French)* 4−58144
mass spectrometer, positive ion 4−80399
riometer, D/A minimum detector applic. 4−76761
space shuttle, controlled space and plasma physics experiments 4−68290
standard, space plasma exam. *(French)* 4−54339
tracking polarimeter, Faraday signal rotation meas. 4−50729

ionospheric measuring instruments *see ionospheric measuring apparatus*

ionospheric propagation *see ionospheric electromagnetic wave propagation*

ionotophoresis *see electrophoresis*

ions
see also atoms; electrolytic ions; hydrogen ions
allyl, open-shell and radical ions electronic absorpt. spectra 4−78420
aromatic cations, fast form., in cyclohexane, nanosec. pulse radiolysis obs. 4−80192
atmospheric, ground level obs., correl. with atm. phenomena 4−83086
atomic negative ions, mass spectra 4−66315
benzyl, open-shell and radical ions electronic absorpt. spectra 4−78420
conjugated radicals and radical ions, e.s.r hyperfine structure, pi-electronic SCF MO LCAO CI calc. 4−78493
mass meas. using Langmuir probes in a gas discharge 4−56560
molecular, emission spectra, struct. of ions investig. 4−47965
n.m.r. experiment on carbonium ion stabilization energies, student experiment 4−58714
oxyanions, electronic structure, X-ray emission and photoelectron spectroscopy 4−69464
paramagnetic, in liquating glasses, behaviour 4−53868
C I sequence, dipole and quadrupole integrals for transition probabilities 4−56001
$D_3O^+CH_3C_6H_4SO_3^-$, spectroscopy and normal coordinate treatment of oxonium ion D_3O^+ 4−45286
Fe XI number density in excited states, solar coronal conditions 4−70876
$H_3O^+CH_3C_6H_4SO_3^-$, spectroscopy and normal coordinate treatment of oxonium ion H_3O^+ 4−45286
$HeC^{2+,+}$ molecule-ions, Roothaan-Hartree-Fock calcs. 4−59991
N I sequence, dipole and quadrupole integrals for transition probabilities 4−56001
Na^- in ethylamine, ^{23}Na n.m.r. 4−78498
O I sequence, dipole and quadrupole integrals for transition probabilities 4−56001
O^+ in magnetosphere, 1969-25B satellite obs. in 1, 3 and 9 keV 4−61849

ions continued
  SO_4^{2-}, electronic structure X-ray emission and photoelectron spectroscopy 4−69464
i.r. astronomy *see infrared astronomy*
i.r. detectors *see infrared detectors*
IR drop *see electric potential*
i.r. imaging *see infrared imaging*
i.r. sources *see infrared sources*
irasers *see lasers*
iridium
  band structure model, rel. to photoemission spectra 4−45409
  e.p.r. in Cs_2HfCl_6 and Cs_2ZrCl_6 crysts. 4−53305
  heat capacity data, evaluation of thermodynamic props., summary and critical anal. 4−69918
  impurity in Mg_2SiO_4 crystals grown by Czochralski method 4−76387
  photoelectron spectra, clean and caesiated surfaces, rel. to band struct. 4−45408
  photoemission spectra and band struct., f.c.c. interpolation schemes 4−45407
  review of mech. props. and applics. 4−53636
  tensile testing at high temps. by resist. heating technique 4−83000
  Fe:^{193}Ir, Mossbauer spectra, quadrupole coupling 4−49274
  Fe_3Si:Ir, n.m.r., preferential site occupation 4−70224
  ^{192}Ir interstitial therapy, radioisotope storage containers 4−54694
  K_2PtCl_6:Ir^{4+}, phonon density of states and impurity vib. spectra 4−79126
  $Y_3(Fe,Ir)_5O_{12}$, anisotropy and magnetostriction, ferromag. reson. 4−45127
iridium alloys
  see also iridium compounds
  review of mech. props. and applics. 4−53636
  CeIr, dissoc. energies, mass spectra, multiple bond interpret. 4−60110
  Fe-Ir, Mossbauer obs. of isomer shift, quadrupole splittings and mag. hyperfine splittings 4−45222
  FeIr, ferromag. dilute alloy, nuclear electric quadrupole interaction exam. 4−82633
  $Fe_{49.5}Rh_{44}Ir_{6.5}$, magnetisation and elec. resist., 4.2 to 1300K, 0 to 370 kOe 4−79326
  Ir-Ce system, phase diagram and thermodynamic props. of intermetallic phases *(Russian)* 4−49665
  Ir-Pt, 0.1 to 5 at.% solute concentration, field-ion microscopy 4−57739
  Ir-Pt alloy, Ir activity determ. by transpiration methods 4−67052
  Ir-Rh, 0.1 to 5 at.% solute concentration, field-ion microscopy 4−57739
  Ir-Ru, 0.1 to 5 at.% solute concentration, field-ion microscopy 4−57739
  Ir-W, 0.1 to 5 at.% solute concentration, field-ion microscopy 4−57739
  Ir-Zr, 0.1 to 5 at.% solute concentration, field-ion microscopy 4−57739
  Mn-Ir, γ-phase, antiferromagnet, neutron diffr. study 4−45119
  Mn-Ir, γ-phase, crystallographic and mag. transitions obs. 4−45109
  $Mo_{77}Ir_{23-x}Fe_x$, magnetic and superconducting properties 4−72889
  Ni-Ir, charge screening and mag. props., photoemission obs. 4−64025
  NiIr, ferromag. dilute alloy, nuclear electric quadrupole interaction exam. 4−82633
iridium compounds
  see also iridium alloys
  Cs_2ZrCl_6:$IrCl_6^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72542
  Ir complex, chelatodicarbonyliridium (I), opt. and elec. props. rel. to excitonic superconductivity *(German)* 4−79757
  Ir complex, of pentammine, ^{193}Ir Mossbauer resonance, isomer shift, quadrupole splitting 4−64296
  Ir complex, of pyridine, ^{193}Ir Mossbauer resonance, isomer shift, quadrupole splitting 4−64296
  $Ir(CO)_3Cl$, one-dimens. conductor, stoichiometry, Mossbauer spectrum, mag. susceptibility 4−57433
  $IrCl_6^{2-}$, octahedral, Ham effect in $^2T_{2u}$ excited state charge transfer 4−73127
iron
  in $(NiAl)_{100-c}Fe_c$, isomer shifts, Mossbauer effect 4−79650
  acid corrosion inhibitor action mechanisms, EHT calcs. *(German)* 4−79241
  in $Al_{50}Ni_{50-c}Fe_c$ isomer shifts, Mossbauer effect 4−79650
  andulusite:Fe^{3+}, e.s.r. rel. to microwave maser applic. *(Russian)* 4−53294
  atom, internal partition function, 0-15000K 4−47820
  atom, matrix spectra assignment, $Fe(CO)_5$ in N_2, Ar or methane, 20K 4−43724
  atom, photoelectric cross section of valence level 4−72058
  atom, X-ray spectra, effect of 3-d electrons *(Russian)* 4−47846
  b.c.c., carbon and nitrogen interstitial content by mag. aftereffect meas. *(German)* 4−70178
  b.c.c. paramagnetic, projected surface energy bands 4−79393
  b.c.c. polycrystal, microcrack propag., stat. criteria 4−49852
  binding energy determ. from appearance-pot. spectra and X-ray photoemission 4−79277
  blood, quantitative anal. by X-ray fluorescence radioisotopic-excited 4−77256
  carbonyl type, surface treatment influence on pitting pot. 4−49744
  catalysis of OH and H radical recombination in $H_2/O_2/N_2$ flames investig. 4−61581
  cavitational surface failure *(Russian)* 4−53718
  chemisorption of O, soft X-ray appearance potential spectroscopy obs. 4−75715
  compatibility with UN 4−55920
  conductivity electron polarisation sign determ. using Mossbauer obs. of Fe/Sn layers *(Russian)* 4−79663
  contact resistance in liquid N 4−70061
  coronal Fe IX line identifications in 300-400 A range 4−58235
  corrosion inhibition thin oxide layer formation and props. 4−60697
  creep properties of α-Fe, rapid thermal cycling effects 4−45642
  crystal structure, X-ray scatt. meas., analysis of 3d element scatt. factors 4−63795
  Cygnus Loop, detection of Fe XIV coronal line at 5303A 4−50586
iron continued
  determination in oil ashes using modulated internal standard method 4−68835
  diffusion along Ag-Fe interface *(French)* 4−79178
  diffusion in $CdGeAs_2$, glassy and cryst., temp. depend. and activation energy 4−56913
  diffusion in Mo-Fe system 4−79180
  diffusion in V, spark source mass spectrometric investig. 4−77264
  diffusion of hydrogen, microvoid effects, model 4−79188
  diffusion of hydrogen, microvoid effects, model 4−79189
  diffusion of hydrogen, resist. recovery at low temps. 4−76446
  diffusion of Ti in liquid Fe, temp. range 1550°-1700°C *(Russian)* 4−69928
  diffusion welding through layer of C, mathematical model *(Russian)* 4−70522
  dislocation density, mag. meas. on deformed single crystals at 295K 4−57731
  dislocation motion, in foil cryst. at low temp., elec. microscope obs. 4−52768
  dislocation structure after cyclic loading at 77K *(Russian)* 4−49683
  elastic energy state eqn. rel. to nonspherical deform. tensor *(Russian)* 4−61326
  elastic properties, comprehensive compilation 4−44583
  elastomechanical properties, crystallographic direction, temp. and press. depend. *(German)* 4−67813
  elastomechanical properties, isotropy values for polycrysts. *(German)* 4−61403
  electrical conductivity anomaly at Curie point 4−75841
  electrochemical behaviour in crevices in chloride solns., corrosion rate 4−76466
  electrolysis in KnO_3, $NaClO_3$ solns., kinetics investig. using current efficiency approach *(German)* 4−45911
  electron characteristic energy loss in thin film *(Russian)* 4−48658
  electron irradiation softening effect of single crysts., asymmetry in yield stress 4−80040
  electron momentum distribution, Compton profile calc. 4−44829
  e.p.r. in TiO_2, spin-lattice interaction 4−53293
  e.p.r. of Fe^{2+} in $CaCO_3$ *(Russian)* 4−70213
  e.p.r. of trivalent ions in fluoperovskites of cadmium *(French)* 4−79582
  exchange interactions, ferromag. and antiferromag., 3d transition element diluted Fe 4−76067
  exchange splitting of energy bands, de Haas-van Alphen frequency measurements, 1 to 4.2K 4−44831
  exchange splitting temp. depend., de Haas-van Alphen freq. variation, 1-4.2K 4−48894
  exchange splitting temp. depend., Stoner excitation, de Haas-van Alphen effect 4−48895
  extinction effect on luminescence of ZnS-CdS phosphors *(Russian)* 4−45346
  α-Fe, atomic vibr. amplitude, low temp. 4−75603
  Fermi surface of ferromag. metals, review 4−72681
  ferromagnet, bulk, acoustic reson. and dispersion, magnetoelastic interactions, theory 4−64266
  ferromagnetism and hyperfine fields, origin 4−57250
  Ferrovac-E α-phase polycrysts., crystallite orientation and size effects on strength 4−67857
  fibre reinforced Cu, internal friction changes on cold rolling 4−80088
  film, electrodeposited, durability assessment method 4−50102
  film, initial stages of oxidation, ferromag. reson. 4−57001
  film, ion plating preparation method 4−45420
  film, on Si, dendritic growth below eutectic temp. 4−44811
  film, on SiO_2, photoemission, effect of electrostatic field up to 510000 Vm^{-1} 4−61270
  film, orientational magneto-optical effect meas. 4−57505
  film, strength props. 4−49823
  film electron energy loss spectra and optical consts., 2 to 120 eV 4−69837
  gamma-ray infinite medium buildup factors including bremsstrahlung contribution 4−81701
  grey, strength and deformability during nonuniform omnilateral compression 4−49828
  hollow cathode lamp, spectral atlas *(Russian)* 4−65434
  hyperfine field interpretation at μ^+ 4−44578
  impurity in Mg_2SiO_4 crystals grown by Czochralski method 4−76387
  inelastic behaviour, wide range of yield rates, dislocation form., movement *(Russian)* 4−82217
  integranular fracture obs. by Auger spectroscopy 4−45672
  internal friction, effect of Ce and La on grain boundary, Snoek and cold-work peaks *(Chinese)* 4−79979
  interstellar dusts of silica, Fe and C particles, nucleation props. 4 46333
  interstellar grains, extinction and refractive indices 4−71063
  interstitial carbon influence on mag. props. 4−79552
  ion, universal pot. calcs. by modified WKB method 4−78380
  ion bombardment, O_2^+ and Ar^+ craters 4−82778
  irradiation embrittlement and hardening, neutron *(Japanese)* 4−49767
  laminated Fe-graphite shielding, straight through-going cylindrical channels influence *(Czech)* 4−59887
  laser beam effects in oxidising atm. *(Russian)* 4−53735
  laser beam irradiation, nonlinear thermal effects 4−43343
  lattice relaxation, α phase with Xe vacancy clusters 4−82170
  LEED-AES investigation of oxidation of (100) and (110) faces 4−75720
  liquid, adsorption and surface activity of Se *(Russian)* 4−45487
  liquid, impurity diffusion mechanisms *(Russian)* 4−45485
  liquid, surface energy, temp. depend., 1550-1800°C 4−67093
  liquid, surface energy, temp. depend., 1550-1800°C 4−67094
  liquid, with dissolved Si, oxidation reaction thermodynamics *(Russian)* 4−45910
  Luder's band propagation, internal stress 4−82898
  magnetic anisotropy, nitride precipitation effect, precipitate struct. 4−64228
  magnetic susceptibility, melting effect 4−49157
  magnetoelastic interaction in unmagnetised specimens, high magnetic field production at breakage under tension 4−45156
  magnetovolume effect, atomic treatment 4−45161

iron continued
melt, interaction processes of refractory inclusions, role of electrocontact *(Russian)* 4−45489
meteorites, coarse structured, phosphide growth, anal. 4−62076
meteorites, element distribution, neutron activation *(Russian)* 4−76809
micrometeorite, shock wave ionisation on impact 4−58281
microplastic deformation resistance *(Russian)* 4−49760
microsegregation in electrolytic capacitor grade Al, effect on etchability 4−45546
Mossbauer effect of ^{57}Fe, lattice dynamical anal. 4−61075
Mossbauer with electron spectra technique, 2s and 3s electron spin densities meas. 4−64315
muon$^+$ precession meas. in transverse fields to 1900Oe *(Russian)* 4−66953
muon precession rate study of temp. depend. of π^+ spin relaxation 4−49208
neutron penetration through guides, space and energy distrib. 4−59821
n.m.r. of oriented ^{131}I and ^{132}I, hyperfine field 4−70223
optical constants, meas. on evaporated film, 0.5-6.5 eV 4−73095
ore origin by diagenetic replacement of calcareous oolite 4−64801
ores, British, historical importance, present day production, land restoration 4−61694
oxidation, γ-Fe$_2$O$_3$ nuclei formation on pure Fe surfaces *(German)* 4−75726
oxidation in seawater, behaviour of trace elements *(Russian)* 4−80304
oxidation of Fe(100), photoelec. work function, Auger electron spectroscopy 4−48868
oxide scale, calc. of relative layer thicknesses, two component scale 4−82327
particles, γ-phase, quenched at room temp. 4−61325
particles, mag. props., 4.2-300K 4−60989
phase diagram, fusion curve and γ-δ-l triple pt. 4−49656
phase stability, alloying elements effect, ε-Fe 4−79920
photoneutron spatial distribution, produced by 20 MeV electron bombardment 4−74120
pion$^+$ spin relaxation temp. effect study using μ precession rate 4−49208
plant material, determination by atomic absorption spectrophotometry 4−65583
plastic deformation, thermal activation, stress relax. meas. 4−61417
plastic slip propagated by cleavage cracks, crystallographic parameters *(Russian)* 4−70485
porous compacts, impregnation with molten glass 4−49871
positron annihilation rate calc. for valence and core electrons, mechanism for transition metals 4−48897
powder, fine-grained, diffusion const. and surface states of positrons 4−75939
powder, permanent magnet prod. and effect of technological factors on mag. props. 4−70537
powder, sinterability 4−64597
powder, technical, activated sintering mechanism *(German)* 4−45725
powder compaction, plastic deform. role 4−70529
α-quartz:Fe^{3+}, elec. field effect on e.s.r. spectrum 4−82616
quartz glasses: Fe^{3+}, γ-irrad., e.p.r. *(Russian)* 4−70216
radiation strengthening and impurity-defect interactions 4−45721
recent anoxic sediments, oxidation effect on analysis of Fe in interstitial water 4−50242
recrystallised wire, serrated yielding, Luder's strain and testing system compliance effects 4−53701
residual electrical resistance, current depend. 4−57072
ruby:Fe^{2+}, zero field splittings from spin-lattice relaxation times 4−53307
scale textures during oxidation, electronographic study 4−79227
scaling and universality hypotheses, verification from specific heat data 4−57240
second phase form. at microvoids and gas atom entrap. in fusion reactor wall 4−78244
secondary electron emission from ion bombarded single crysts., diffr. phenomenon *(French)* 4−57652
sediments at bottom of eastern tropical Atlantic, spatial distrib. of Fe, Ni, Co, Mn, Ti, and Cr trace elements *(Russian)* 4−80305
segregation of boron, effect on surface and grain boundary energies 4−79973
self-diffusion, isotope effect, correction factor calc. 4−44706
shear modulus and viscosity, effect of intense neutron irradiation 4−43652
sheet, temp. and loading rate influence on fracture characts. 4−61457
solar Fe II 3969.4 A disc emission line 4−73612
solar flare Fe emission lines in 66-171 Å range, transitions, wavelengths and intensities 4−76784
solidifying ingot, temp. field estimate, quality criteria *(Russian)* 4−76518
solubility of NbN and VN 4−64558
specific heat and elec. resist. meas. near curie point 4−64217
specific heat and thermal cond. near Curie pt. *(Russian)* 4−67372
spin wave effective mass, itinerant ferromagnet with Hund's coupling 4−67343
standard for thermal conductivity comparison 4−67071
steady state flow stress at low temp. and large strains 4−82907
stopping power for 7.2 MeV protons 4−60528
strain hardening, 200-600°C, dopants influence *(Russian)* 4−45708
substrate, stability of amorphous Bi films *(Russian)* 4−67128
thermally activated deformation, atomic processes, stress relaxation tests 4−73327
thermophysical measurements above 1500K, transient (subsecond) technique 4−74017
tracer diffusion in austenitic stainless steel 4−48798
transition metal:^{57}Fe, summary of Mossbauer evidence associated with Kondo effect 4−49278
void nuclei attrition and stabilization, crit. nucleus size, α-phase specimens 4−44571
void-containing, energy deposition calcs. for 5 MeV Cu^{++} and 1 MeV protons 4−82210

iron continued
wear measurement using thin layer activation by accelerated ions 4−76513
whiskers, long period quantum oscillations observed during de Haas-van Alphen studies 4−44832
X-ray absorption, meas., 1.5-3 keV 4−61238
X-ray photoelectron spectrum, core level binding energies and valence band spectrum determ. 4−61272
X-ray photoemission spectra of valence bands 4−45404
X-ray spectra, comparison of K-line shifts with ferrimagnetics containing In^{3+} *(Russian)* 4−49482
Al:^{57}Fe, computer simulation of electric field gradients and Mossbauer spectra 4−53048
Al$_2$SiO$_5$:Fe^{3+} spin lattice relaxation time, pulsed saturation of paramag. reson. line *(Russian)* 4−67436
Au:^{57}Fe, recoilless reson. γ-ray emission or absorption probability, force constant change determ. 4−61084
AuIn$_2$:Fe, thermoelectric power obs. between 2 and 5K and using SQUID device 4−60785
B$_2$O$_3$-CaO glass:Fe^{3+}, heat-treated, ^{57}Fe Mossbauer and X-ray photoelectron spectra meas. 4−73054
Cu:Fe, spin 1/2 Kondo system, spin polarisation 4−72953
CuAlS$_2$:Fe, absorpt. peaks obs. at 1.3, 2.0 eV 4−53476
CuAlS$_2$:Fe^{3+}, near i.r. luminesc. 4−67640
CuGaS$_2$:Fe, absorpt. peaks obs. at 1.2, 1.9 eV 4−53476
CuGaS$_2$:Fe, electronic struct. calcs., absorpt. spectra 4−53042
CuGaS$_2$:Fe^{3+}, near i.r. luminesc. 4−67640
F I isoelectronic sequence, 2s^{2}2p^k-2s2p^{k+1} transitions rel. to solar flare spectra 4−43736
α-Fe, Debye-Waller factors using lattice dynamical models 4−67005
α-Fe, heavy particle irrad. damage cascade, interstitial-vacancy recomb. 4−66947
γ-Fe, precipitate in Cu, Neel temp. and hyperfine spectrum, Mossbauer obs. 4−64301
α-Fe, substructural development during strain cycling 4−82861
α-Fe, X-ray dislocation substructure obs. and strengthening mechanisms, 123 to 196K 4−67841
Fe I, reflected shock region, meas. of gf-values 4−43723
Fe I and II u.v. lines in shock tube, hook method meas. of transition probabilities 4−59906
Fe I fluorescence in T Tauri stars 4−70982
Fe I high resolution meas. of z ^{5}F^0 and y ^{5}F^0 lifetimes 4−74832
Fe I line formation in stellar models of solar-type giants and dwarfs 4−46234
Fe I spectrum line statistics 4−66289
Fe II, 4d-4f transition spectrum anal. 4−74837
Fe II emission region in NGC 1058 supernova 1961v 4−58357
Fe II interstellar absorption lines in u.v. spectra of four bright stars 4−46218
Fe V-Fe VI spectral classification 4−74855
Fe XI number density in excited states, solar coronal conditions 4−70876
Fe XIII and XIV forbidden solar coronal lines, depolarization by proton impact, fine structure cross sections 4−54369
Fe XIV, depolarization cross-sections in proton collision 4−54370
Fe XIX-XXIII, spectral classification, ions in laser produced plasma 4−59910
Fe XIX-XXIV solar flare spectra and S isoelectronic spectra, theory and obs. 4−46155
Fe:^{119}Sn, hyperfine field interactions, temp. depend., Mossbauer spectroscopy, 4.2-972K 4−45213
Fe:^{151}Gd, Mossbauer spectra of ^{151}Eu, lattice location and hyperfine fields 4−73056
Fe:^{193}Ir, Mossbauer spectra, quadrupole coupling 4−49274
Fe:^{207}Pb anomalous temp. behaviour of local mag. field, 87-983K 4−49166
Fe:^{57}Fe, ^{119}Sn, Mossbauer thermometry, millikelvin region 4−57434
α-Fe:^{57}Fe, Mossbauer, recoilless fraction calc., lattice dynamical study 4−79649
Fe:^{60}Co, spin-lattice relaxation obs. by n.m.r. 4−53335
Fe:Br, single crystals, ^{81}Br location, angular distrib. calcs. and channelling technique 4−56766
Fe:C,N, strain ageing, dynamical processes *(Russian)* 4−70483
Fe:Si, single crystal, magnetoelastic resonance *(Russian)* 4−82601
Fe:Ti, strain ageing, dynamical processes *(Russian)* 4−70483
Fe + Si, binary elemental standards for electron microscope microprobe anal. 4−58993
Fe^{+24}, radiative decay of 2^{3}S$_1$ and 2^{3}P$_2$ states, cascading effects 4−78339
Fe^{2+}, in LiNbO$_3$, control of concentration 4−56764
Fe^{2+} aqueous solns., absorpt. spectrum in u.v. region, solvent effects *(Russian)* 4−79758
Fe^{2+} ion in distorted octahedral symm. sites, mag. and nuclear elec. quadrupolar axes 4−67324
Fe^{3+}, hyperfine const., linked cluster many body perturbation theory 4−44856
Fe^{3+}, nuclear quadrupole antishielding factor, many-body perturbation theory 4−47822
Fe^{3+} in hydrated sulphoresin, hyperfine struct. line broadening obs. at 90K by γ resonance spectroscopy 4−57443
Fe^{3+} ions, substitution of Ga^{3+} ions in β-Ga$_2$O$_3$, e.s.r. investig. of kinetics *(German)* 4−57843
^{57}Fe, hyperfine field and coupling const., n.m.r., 4.2-400K 4−45192
^{57}Fe, isolated in methane and CO$_2$ matrices, Mossbauer absorption spectra 4−76205
^{57}Fe, Mossbauer, impurity in RbCaF$_3$, Fe-F bond length est. from Mossbauer isomer shift 4−49268
^{57}Fe, Mossbauer meas. in cubic metals, force const. changes and localised modes 4−49279
^{57}Fe, overlapped Mossbauer spectra, hyperfine field distrib. 4−61072
^{57}Fe thin film deposition, evaporation source 4−46603
^{57}Fe$^+$, Mossbauer spectra, matrix isolation s-electron contact-density ratio determ. 4−72018
GaAs:Fe, compensation mechanism, Hall effect, e.s.r. and a.p.r. obs. 4−48933
GaAs:Fe, mag. susceptibility, temp. depend. 4−49156
GaP:Fe^{3+}, first ENDOR meas. on defect centre in III-V compound *(German)* 4−76193

iron continued
  $LiNbO_3$:Fe, hologram storage, Mn addition, photochromic behaviour 4−42811
  $LiNbO_3$:Fe, optical absorption spectra, correlation with photorefractive sensitivity 4−57586
  MgF_2:Fe^{2+}, near i.r. absorption spectra, multiphonon sideband anal. 4−49407
  MgO:Fe^{2+}, far i.r. absorption, spin-orbit levels 4−57583
  MgO:Fe^{3+}, e.p.r. of ^{17}O superhyperfine struct. 4−45182
  $MnCO_3$:Fe^{2+}, by Mossbauer spectroscopy 4−49277
  Mo-C, cast and recrystallised, effect of alloying with Fe, Ca, Ni, Ir, mechanical props. 4−82948
  NH_4Cl:Fe^{3+}, electronic absorpt. spectra of ion 4−64404
  $NbSe_2$:Fe, anisotropic Kondo resist. 4−64189
  (Pb,La)(Zr,Ti)O_3:Nb,Fe, photochromic effect, transmission spectra 4−76233
  PbTe:Fe, mag. susceptibility, impurity effect, 80-400K *(Russian)* 4−82550
  Si:P,Fe, metallic, conduction e.s.r. 4−64255
  $SrTiO_3$:Fe, relative energy level scheme for impurities 4−44866
  TiO_2:Fe^{3+}, rutile, charge compensation, e.p.r. obs. 4−53303
  UC:Fe, effect of impurity on U diffusion in UC 4−69934
  V_2O_5:Fe^{3+}, substitutional and interstitial impurity positions, e.p.r. obs. 4−79593
  $YAlO_3$:Nd,Fe, e.p.r., optical absorption, impurity meas. 4−77675
  $Y_3Ga_5O_{12}$:Fe^{3+}, absorption spectra up to 40000 cm^{-1} 4−45343
  $Y_3Ga_5O_{12}$:Fe^{3+}, optical absorption, transitions identification 4−79750
  $ZnWO_4$:Fe^{3+}, manifestation of low symmetry effects in e.s.r. 4−57375
  ZrO_2:Fe^{3+}, e.p.r. spectra obs. in Q-band 4−45171

iron alloys
  see also iron compounds; Permalloy; steel
  Alcomax III with dynamic excitation, mag. props. 4−70179
  Alnico magnets, mag. props in rel. to crystal texture of columnar castings 4−53255
  Armco, cold plastic deform. and subsequent heat treatment effects on mech. props. at −196°C *(Russian)* 4−49762
  Armco, crack propagation under shock conditions, growth law 4−49860
  Armco, electrolytic hydrogen charging, 0-300°C *(French)* 4−45587
  Armco, fatigue failure characts. in vacuum 4−61455
  Armco, stresses and strain in neck of specimen strained in tension *(Russian)* 4−53744
  Armco iron, deformation near Curie temp. 4−79978
  austenite transform. and pearlitic hardenability, cooling rate and alloying effect 4−45523
  bimetallic specimens with pressed nozzles, tensile deform. influence on fatigue strength *(Russian)* 4−53723
  cast, Al diffusion coating struct. and comp. 4−76482
  cast, ductile, total elongation during pearlite ⇌ austenite transform. *(Japanese)* 4−61429
  cast, graphite spheroidisation during solidification *(Russian)* 4−45576
  cast, hypereutectic, microdistrib. of rare earth metals 4−82856
  cast, notched, tensile rupture strength *(Japanese)* 4−82894
  cast, spheroidal graphite, fatigue fracture *(Japanese)* 4−82891
  cast, thermal fatigue failure 4−82919
  cast, with small nitrogen additions, grain size influence on hydrogen embrittlement *(French)* 4−49750
  cast grey, graphite inclusions effect on fracture 4−82918
  cast iron, irradiated with continuous laser beam, effect on structure *(Russian)* 4−70447
  cast malleable, phosphorus effect on cold brittleness 4−82917
  cast spheroidal, bainite-ferrite growth kinetics *(German)* 4−67747
  cast white, subject to malleableizing, susceptibility to graphitisation 4−82857
  cathodic polarisation effect on cavitation resistance 4−80191
  cavitational surface failure *(Russian)* 4−53718
  Cu-Fe alloys, Mossbauer effect, Fe precipitates 4−64301
  deformed, dislocations influence on solubility and phase transform. curves *(Russian)* 4−73275
  determination of Tl in Al-, Fe- and Ni-base alloys by at. absorpt. method 4−58975
  elastomechanical properties, isotropy values for polycrysts. *(German)* 4−61403
  electron fractography, impact strength, of AMg5 alloy 4−82922
  grey cast iron, crystallisation kinetics *(German)* 4−73288
  Hastelloy X, base and weld metals, elevated temp. fracture and fracture surfaces *(Japanese)* 4−70503
  high-strength, fabrication using nitrides and silicides 4−70531
  Incoloy 800, irrad. influence on creep/fatigue behaviour at 700°C 4−43678
  Incoloy 901, TEM specimen prep. techniques 4−64554
  Invar, high field mag. susceptibility meas., 4.2 to 150K 4−72954
  Invar, nonmetallic inclusions obs. 4−61389
  Invar, plastic deformation, nuclear gamma resonance *(Russian)* 4−67500
  Invar, r.f. striction of paraprocess, Mossbauer obs. *(Russian)* 4−70244
  Invar, thermal expansion of single crysts., 4.2-300K *(Russian)* 4−48777
  Invar, unidirectional anisotropy below 50K, coexistence of antiferromag. and ferromag. phases *(Russian)* 4−79534
  Invar with Mn admixture, Mossbauer effect and mag. struct *(Russian)* 4−76204
  l 4−72997
  laser beam effects in oxidising atm. *(Russian)* 4−53735
  lattice parameter and density of α-Fe, solute effects 4−45511
  low-strength, hydrogen effect on deform. behaviour 4−49811
  lunar sample magnetic remanence mechanisms in Fe and Fe-Ni alloys 4−54438
  martensite/austenite interface shear stresses generated by hydrostatic press. 4−61332
  metallic glasses, strength and fracture characts., temp. depend. 4−61400
  microinhomogeneous deformation mechanism, 20-850°C, single-phase specimens 4−61464
  Mumetal alloy, Ni-Fe-Cu-Cr, mag. props., Mn content and baking temp. effects 4−72961

iron alloys continued
  γ-Ni-Fe, low temp. phase diagram construction, ferromag. reson. 4−61354
  permeability of hydrogen, volume and boundary components, Cr influence *(Russian)* 4−45600
  phase stability, model parameters 4−67764
  powder forging, fast diffusion alloying using liquid phase 4−67893
  rare earth Fe_2(Fe_3), effective exchange fields, temp. depend. of spontaneous magnetisation 4−79505
  rare earth intermetallics, $R_2(Co_{1-x}Fe_x)_{17}$, (R = Sm, Er), mag. characts. and lattice consts. 4−53260
  rare earth-Fe_2, ferrimag., paramag. moments, Neel model anal. 4−60947
  rare earth-Fe, R_2Fe_{17}, ferromag., ferrimag. and helimag. transitions, negatve thermal expansion 4−72963
  rare earth-Fe alloys, magnetic anisotropy, microscopic theory 4−53252
  silicon iron, mag. props. stabilising domain struct., closing surface *(Russian)* 4−67391
  strength differential effect, effective modulus interpret. 4−53771
  strength differential effect, effective modulus interpret. 4−67874
  surface, chemisorption and oxidation exam. using AES with proton-excited X-ray emission 4−73224
  wear and fatigue resist. improvement by liq. nitriding 4−49850
  Ag-Fe, interface diffusion of ^{59}Fe *(French)* 4−79178
  Al-Fe, dil., Fe diffusion, activation energy, resist. obs. 4−67068
  Au-Fe, dil., press. effects on impurity-impurity interactions, resist. obs., 1.2-30K, 0-60 kbar 4−53214
  Au-Fe, liq. spin susceptibility, theory 4−72951
  Au-Fe, neutron irrad. effects on mag. order, Mossbauer obs. 4−64287
  Au-Fe, thermocouple wire, thermopower in transverse mag. field, Au-Fe/Au-Ag and Au-Fe/Cr-Ni couples 4−82393
  Au-Fe (60%), film, amorphous struct. above room temp. 4−72661
  Au-Fe solid solns., discontinuous precip. controlled by vol. diffusion *(German)* 4−70458
  Au-Fe solid solns., discontinuous lamellar precip. kinetics *(German)* 4−82841
  Au-Fe(15at%), mag. ordering, spin glass behaviour 4−53242
  $Au_{0.6}$-$Pd_{0.4}$:Fe, detection of palladium clusters by form. of Pd-Fe alloys *(Russian)* 4−73313
  Be-Fe-C, impurity interactions, Mossbauer obs. 4−71994
  Ce_2Fe_{17}, helimag. transition, negative thermal expansion 4−72963
  Co-(7 wt.%)Fe, Debye-Waller factors, 20 to 250K from γ-ray resonance spectra 4−52892
  Co-Cr-Fe, high temp. hardness and heat resist. *(Russian)* 4−49794
  Co-Fe, cryst. struct. and phase transform. exam., double h.c.p. phase 4−76416
  Co-Fe, diffusional growth of (Fe,Co)O scales 4−44790
  Co-Fe, oxide scales, metal diffusion props. 4−48866
  Co-Fe, sulphidation props. in H_2/H_2S atm. at 700°C 4−70487
  Co-Fe film, 80-100% Co, mag. and electric properties 4−49090
  Co-Fe-Ni-Al, mag. props., effect of heat treatment and mag. tempering 4−64239
  Co-Fe-Ni-Al-Ti, annealed, titanium effect on β and β_2 phase props. 4−61441
  Co-Fe-Ru in f.c.c. and h.c.p. phases, magnetisation, Mossbauer and cryst. struct. meas. 4−82588
  Co_{1-x}, Fe_xSi, low temp. study, magnetic behaviour of Co and Fe nuclei 4−70237
  CoFeGe(Sb), $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4−73057
  Cr-Fe, magnetic ordering, pressure effects 4−70151
  Cu-Al-Fe aluminium bronze, cavitation at grain and phase boundaries during superplastic flow 4−45652
  Cu-Al(Fe), dilute, mag. susceptibility meas. 4−45102
  Cu-Fe, determ. of local level, photoemission technique employing quantum efficiency 4−48921
  Cu-Fe, dilute, n.m.r. meas., 1.4 to 290K, diamag. deviation of Knight shift 4−82625
  Cu-Fe, Kondo alloy, exchange energy and spin scatt. anisotropy, de Haas-van Alphen meas. 4−49159
  Cu-Fe and Cu-Fe-Co, dil., low temp. thermo-e.m.f. *(Russian)* 4−64066
  Cu-Fe system, interdiffusion coeffs. and phase interface moving rates for reaction-diffusion *(Japanese)* 4−67760
  Cu-Ni-Fe, spinodally decomposed, loss of coherency 4−61359
  CuFe, dilute disordered alloys, virtual bound states 4−79267
  CuFe films, strength props. 4−49823
  $(Cu_{0.83}Pd_{0.17})_{1-c}Fe_c$, dilute, paramag. Curie temp., influence of order-disorder transitions 4−45115
  $DyFe_{3-x}Ni_x$, Mossbauer spectra, cryst. struct. 4−82641
  F-C eutectic growth, solidification behaviour, effect of S impurity investig. 4−64528
  Fe base alloys, with nontransition elements, impurity-charge-screening, Mossbauer obs. 4−64314
  Fe/Fe-Ni binary diffusion couples, nonplanar interphase interfaces 4−67765
  Fe-3% Si, glide band form., shear strain conc. 4−61448
  Fe-Al, ^{27}Al Knight shift and mag. susceptibility, 78-1100K *(Russian)* 4−79618
  Fe-Al, antiphase domain struct. during annealing, electron microscope obs. 4−53678
  Fe-Al, application of X-ray diffuse scattering to the calculation of the equilibrium diagram 4−63896
  Fe-Al, Fe plasma bunches interaction with Al surfaces, alloy form. *(Russian)* 4−53635
  Fe-Al, hydrogen diffusion parameters *(Russian)* 4−53719
  Fe-Al, ordering kinetics 4−49678
  Fe-Al (3.25 wt%), cold rolled, grain growth modes, with and without dopants 4−70511
  Fe-Al_2O_3 dispersion alloy, recrystallisation, grain size effect 4−67810
  Fe-Al-N, neutron irradiation effects, internal friction and torsion tests 4−76464
  Fe-Al(20 at.%), elec. resist., depend. on quenching temp., local ordering *(Russian)* 4−66858
  Fe-Al(40 at.%), recovery of irrad. produced point defects, 40K *(French)* 4−76450

iron alloys continued
- Fe-Al(40 wt.%), recovery of point defects produced by cold working *(French)* 4−80042
- Fe-Be, Mossbauer obs. of splitting and mag. transitions 4−45222
- Fe-C, austenite grain size effect on microcracking of martensite 4−82903
- Fe-C, cold rolling effect on Mossbauer spectra 4−49716
- Fe-C, electron irrad. effect on precip. phenomena, excess point defect obs. *(Japanese)* 4−45551
- Fe-C, eutectoid, metastable carbide precip., h.v. electron microscopy 4−79969
- Fe-C, eutectoid decomp., Zn additions influence *(German)* 4−61356
- Fe-C, heavily compressed, recrystn. nucleation and texture development 4−82869
- Fe-C, l.f. internal friction meas. 4−42716
- Fe-C, orientation relationships determ. from relative orientations of variants of product phases 4−45506
- Fe-C (0.47 wt%), Widmanstatten proeutectoid ferrite, morphology and crystallography 4−82859
- Fe-C melt, wetting of Cr_2O_3 *(Russian)* 4−44753
- Fe-C-B ternary system, phase diagrams, thermodynamic analysis *(Japanese)* 4−45500
- Fe-C-Mn, radiation hardening mechanism 4−45719
- Fe-C-Ni(Si) martensite form. mechanism *(French)* 4−79908
- Fe-C-Si alloy castings, distribution and liquation of N *(Russian)* 4−70448
- Fe-Co, equiatomic, application of moment expansion technique *(French)* 4−53658
- Fe-Co, order state and mech. props., non-stoichiometry and V addition influence *(French)* 4−67801
- Fe-Co film, plasma surface cleaning, obs. using Auger electron spectroscopy 4−56996
- Fe-Co films, vacuum-deposited, atomic ordering, electron diffr. obs. *(Russian)* 4−60429
- Fe-Co-Cu-V, semi-hard mag. material characts. *(Japanese)* 4−45139
- Fe-Co-Cu-V, semi-hard mag. material characts. and prop. changes on heating *(Japanese)* 4−45140
- Fe-Co-Mn, strain gauge factor and elec. props. 4−49837
- Fe-Co-Ni, high-coercivity, phosphorus additions effect on mag. characts. 4−82586
- Fe-Co-Ta semi-permanent magnet alloys, development *(French)* 4−45694
- Fe-Co-V, f.c.c., Mossbauer ^{57}Fe absorption, cluster model 4−64289
- Fe-Co-V, heat treatment influence on microstruct. 4−79940
- Fe-Co-V, mag. and mech. props. correl. with microstruct. 4−80014
- Fe-Co-V, thermal ordered domains and mech. antiphase boundaries 4−49723
- Fe-Co-V (2.5 to 3.0 wt.%) alloy, phase equilib., annealing, microstruct. 4−70441
- Fe-Co(Ni)(Rh)(Pd), moment distribs. and hyperfine fields at solute atoms 4−53224
- Fe-Cr, α-γ transform. thermodynamics 4−82831
- α-Fe-Cr, bulk and intercryst. diffusion of Fe, rel. to $\alpha \leftrightharpoons (\alpha+\gamma)$ transforms. *(French)* 4−49667
- Fe-Cr, superplasticity in ferrite + austenite region *(Japanese)* 4−67848
- Fe-Cr, Young's modulus, conc. depend. 4−67879
- Fe-Cr and Fe-Cr-Co, phase decomp. and 475°C embrittlement *(Japanese)* 4−45501
- Fe-Cr cast irons, abrasive wear resist. 4−76481
- Fe-Cr solid solns., b.c.c., Zener relax. rel. to solute diffusion 4−53691
- Fe-Cr system, Cr activity meas. 4−45516
- Fe-Cr-Mn system, ferrite/austenite equil., optimisation of thermodynamic parameters 4−61327
- Fe-Cr-Mo, microstruct. and corrosion resist. 4−64544
- Fe-Cr-Mo, pitting resistant, development 4−61410
- Fe-Cr-Ni, high-purity, stress corrosion, additive effects *(French)* 4−45693
- Fe-Cr-Ni, stress corrosion cracking 4−45616
- Fe-Cr-Ni, TRIP phenomenon of predeformed austenite *(Japanese)* 4−82888
- Fe-Cr-Ni (16 wt.%, 12 wt.%), transformation cycling 4−82900
- Fe-Cr-Ni-C-Mo, influence of thermal treatments on ferrite contents *(Italian)* 4−45532
- Fe-Cu, Mossbauer investig. of solubility of Fe in Cu rel. to temp. *(German)* 4−57730
- Fe-Cu, tempering behaviour after quenching from liq. state *(German)* 4−53706
- Fe-Cu alloy, prep. by vacuum deposition, ageing process, solubility limits *(Japanese)* 4−45626
- Fe-Cu(1 wt.%), age-hardening, grain size and precip. hardening contribs. to mech. props. 4−61423
- Fe-Cu(1.4 at.%), precip. of Cu, field ion microscopy 4−45559
- Fe-Cu(1.4 at.%), precip. of Cu, atom probe analyses 4−45560
- Fe-Fe_2Zr eutectic, unidirectional solidification rate effect on microstruct. and UTS *(Russian)* 4−49684
- Fe-FeSi, eutectic film microscopic obs. of solidification temp. 4−72653
- Fe-FeSi, ferromag. material, Barkhausen noise power spectrum, surface effect 4−72993
- Fe-Ge, quenched from liq. state, struct. obs. *(Russian)* 4−79902
- Fe-Ir, Mossbauer obs. of splitting and mag. transitions 4−45222
- Fe-Mg, cast, pearlite decomp. and ferrite form. on heating *(Russian)* 4−45707
- Fe-Mn, low-C, stacking fault density and ε-phase stability determ. *(Russian)* 4−61373
- Fe-Mn, mag. hyperfine fields at ^{55}Mn, ^{57}Fe nuclei, mol. field calcs. 4−76066
- γ-Fe-Mn, mag. transform. *(Russian)* 4−67362
- Fe-Mn, oxide scales, metal diffusion props. 4−48866
- γ-Fe-Mn, proton diffraction patterns obs., shadow effect 4−56651
- Fe-Mn, shape and energy of FeKα_1 and MnKα_1 X-ray emission lines, reln. with composition 4−57643
- Fe-Mn (16 wt.%) alloy, transformation plasticity and strain memory effect *(German)* 4−49652
- Fe-Mn alloys, phase transform., shock loading induced, stability 4−64540

iron alloys continued
- Fe-Mn and Fe-Mn-Ni, surface segregation behaviour of Mn and Ni 4−53669
- Fe-Mn Invars, Neel temp., third alloy component influence *(Russian)* 4−76074
- Fe-Mn system, thermochem. and phase equil. 4−61349
- Fe-Mn-C system, solid phase thermodynamics 4−45508
- Fe-Mn-X, epsilon iron stability, alloying elements effect 4−79920
- Fe-Mo, solid soln. softening and strain-rate sensitivity 4−80006
- Fe-Mo, Young's modulus, conc. depend. 4−67879
- Fe-Mo(Ta)(W)(V)-S ternary alloy systems, friction and wear props. 4−67843
- Fe-Mo(Ta)(W)(V)-S(Se) ternary alloy systems, chalcogenide form. obs. 4−67758
- Fe-Mo(3.2 at.%), hyperfine fields, Mossbauer obs. 4−64199
- Fe-Nb, Mossbauer obs. of splitting and mag. transitions 4−45222
- Fe-Nb-N, homogeneous precipitation of NbN in α-Fe during isothermal treatment 4−79955
- Fe-Ni, 36NChTyu, mechanical props., rel. to γ' and η precipitation *(Russian)* 4−61374
- Fe-Ni, elastic properties, comprehensive compilation 4−44583
- Fe-Ni, electrodeposition, with small amounts of Mn, composition, hardness and microstructure obs. 4−82842
- Fe-Ni, f.c.c., thermo-e.m.f., 4.2-1000K *(Russian)* 4−60779
- Fe-Ni, high field susceptibility meas. up to 300 kOe, rigid band model 4−76060
- Fe-Ni, Invar, validity of Stoner-Wohlfarth model 4−57319
- Fe-Ni, Invar type, magnetovolumetric effects *(Russian)* 4−61005
- Fe-Ni, L and M X-ray emission spectra, Invar anomaly 4−79814
- Fe-Ni, local mag. moments and effective magnetomechanical ratio 4−53275
- Fe-Ni, macro- and micro-morphology, habit planes and orientations of martensite crys. 4−76432
- Fe-Ni, magnetovolume effects, press. depend. of Curie temp. and mag. contrib. to thermal expansion 4−76046
- Fe-Ni, martensitic embryo expts. using high mag. fields 4−79913
- Fe-Ni, meteorite formation, low-temp., simulation experiments 4−62070
- Fe-Ni, oxygen content influence on mag. props. 4−72960
- Fe-Ni, positron annihilation ang. correl. rel. to Young's modulus, shear modulus and compressibility 4−79280
- γ-Fe-Ni, proton diffraction patterns obs., shadow effect 4−56651
- Fe-Ni, soft magnetic materials, conference, Torino Italy (1973) 4−72929
- Fe-Ni, spontaneous Hall field *(Russian)* 4−57081
- Fe-Ni, superplasticity in ferrite + austenite region *(Japanese)* 4−67848
- Fe-Ni, two-phase, interphase boundary influence on superplastic deform. 4−82913
- Fe-Ni, with directional order, uniaxial anisotropy consts., equil. values, temp. and conc. depend. *(Russian)* 4−60968
- Fe-Ni alloy, Curie temp. depend. on composition, cluster components method 4−57284
- Fe-Ni alloys, differing purity, rolling textures 4−64548
- Fe-Ni and Fe-Cr-Ni, carbon thermodynamics 4−49660
- Fe-Ni and Fe-Mn-Ni, surface segregation behaviour of Mn and Ni 4−53669
- Fe-Ni and Fe-Ni-C alloys, martensite obs. using internal friction method *(French)* 4−49712
- Fe-Ni antiferromagnetism, small particles 4−70184
- Fe-Ni Invars, influence of magnetoelasticity on Debye temp. 4−79562
- Fe-Ni single crysts., ferromag. reson., conc. and temp. depend., order-disorder transform. behaviour *(Russian)* 4−67459
- Fe-Ni system, thermodynamic activity meas., 1509K 4−49653
- Fe-Ni-Al, tensile fracture rel. to microstruct. 4−45571
- Fe-Ni-C, austenite stability and martensite burst 4−53663
- Fe-Ni-C, influence of martensite formed during deform. on mech. behaviour 4−80005
- Fe-Ni-C, magnetostrictive aftereffect due to interstitial redistrib. 4−79563
- Fe-Ni-C, martensite fractography *(French)* 4−45696
- Fe-Ni-C, prior deform. effect on martensite-austenite transform. 4−49668
- Fe-Ni-C, strain rate influence on martensitic transform. *(Russian)* 4−64526
- Fe-Ni-C, stress-assisted and strain-induced martensites 4−79901
- Fe-Ni-C, thin plate martensite, form. temp. and growth behaviour *(Japanese)* 4−61348
- Fe-Ni-C austenite, anelastic phenomena related to carbon diffusion *(French)* 4−49749
- Fe-Ni-C hydrogen charged, premature fracture in martensite *(French)* 4−80023
- Fe-Ni-C martensite, carbon-dislocation interactions *(French)* 4−49713
- Fe-Ni-C martensite, elastic consts. 4−45645
- Fe-Ni-C martensite, thermally activated deform. *(Russian)* 4−73320
- Fe-Ni-C(Mn), Invar type, crit. conc. region. ^{57}Fe Mossbauer effect 4−64300
- Fe-Ni-Co-Mo, field ion microscopy of aged martensite 4−61395
- Fe-Ni-Co-Ta, precip. in austenite influence on martensite morphology 4−49726
- Fe-Ni-Cr, 36 NKhTYu alloy, precip. of γ' and η phases, tensile strength *(Russian)* 4−73318
- Fe-Ni-Cr, deformed, precip. of excess phases 4−61387
- Fe-Ni-Cr, high field susceptibility meas. up to 300 kOe, rigid band model 4−76060
- Fe-Ni-Cr system, Cr activity meas. 4−45516
- Fe-Ni-Mn, martensitic, microstruct. changes during ageing, TEM obs. *(Japanese)* 4−67787
- Fe-Ni-Mn, Mossbauer effect, isomeric shifts, hyperfine field *(Russian)* 4−67493
- Fe-Ni-P system, ternary diffusion in α and γ phases 4−45524
- Fe-Ni-Sn, electropolishing soln. development 4−67118
- Fe-Ni-Ti, ageing and martensitic transforms. *(Russian)* 4−49641
- Fe-Ni-Ti, discontinuous decomp., phase hardening and austenite recrystn. influence *(Russian)* 4−73276
- Fe-Ni-Ti, form. of finely dispersed γ-martensite *(Russian)* 4−67749

iron alloys continued
Fe-Ni-Ti, isothermal shear induced $\alpha \rightarrow \gamma$ transform. analysis *(Russian)* 4−49642
Fe-Ni(30 wt.%), martensitic transformation, orientation relationship *(German)* 4−70473
Fe-Ni(30-50%), Curie temp., conc. depend. 4−67366
Fe-Ni(50 wt.%), single crysts., form. of deform. textures, rolling *(Russian)* 4−67778
Fe-Ni(50 wt.%), textured, softening kinetics *(Russian)* 4−76463
Fe-Ni(8wt%) alloy, controlled solidification 4−70440
Fe-Ni(8wt.%) alloy, controlled solidification 4−67754
Fe-O, Snoek relax., lognormal analysis 4−49812
Fe-P, Fe-P-Ti, mechanical properties between 77 and 773K 4−73329
Fe-P solid solns., reversible temper brittleness and phase transform. in adsorption layers at boundaries *(Russian)* 4−73315
Fe-Pd, ion impact, recoil velocity dependence of transient magnetic field 4−45397
Fe-Pt, 25-29 at% Pt, ordered and disordered, Young's modulus meas., temp. depend. 4−76469
Fe-Pt, substruct. of austenite formed by partial reverse martensitic transform. 4−45510
Fe-Re, solid soln. softening and strain-rate sensitivity 4−80006
Fe-Rh, ion impact, recoil velocity dependence of transient magnetic field 4−45397
Fe-Ru, Mossbauer obs. of splitting and mag. transitions 4−45222
Fe-Si, cube-on-cube texture form., hot rolling influence *(Russian)* 4−76439
Fe-Si, equilibrium diagram construction using X-ray diffuse scatt. data 4−76425
Fe-Si, improved etching technique for obs. of dislocation sites 4−75717
Fe-Si, microstruct. determ. by electron microscope exam. of iron rich alloy *(German)* 4−57727
Fe-Si, ordered and disordered, lattice consts., degree of order *(German)* 4−49634
Fe-Si, plastic deform. in extension, Cr plating influence *(Russian)* 4−53721
Fe-Si, SEM obs. of mag. domains, image contrast 4−57317
Fe-Si, silicon influence on oxidation props. 4−79981
Fe-Si, soft magnetic alloys, recent developments in Japan 4−72930
Fe-Si, soft magnetic materials, conference, Torino Italy (1973) 4−72929
Fe-Si, static mag. characteristics, elastic stress effect *(Japanese)* 4−57343
Fe-Si, total power loss, domain wall spacing meas. 4−72992
Fe-Si (3 wt.%), mag. anisotropy consts., torque magnetometer obs. *(Russian)* 4−67388
Fe-Si (3 wt.%) high and low mobilities *(Russian)* 4−70452
Fe-Si alloy, deformed single crystal dislocation wall struct. *(Russian)* 4−73294
Fe-Si bicrystals, crack growth resist. at boundary *(Russian)* 4−53717
Fe-Si single cryst., individual Bloch wall movement at very low velocity 4−57311
Fe-Si solid solns. sp. ht. and thermal cond. near Curie pt. *(Russian)* 4−67372
Fe-Si-O ternary phase diagram, thermodynamics of heterogeneous phase equil. 4−45519
Fe-Si-Ti, precip. hardened, strength and ductility characts. 4−49802
Fe-Si(100) single crystal, domain structure induced by bending 4−67397
Fe-Si(3 wt.%), recrystn. texture, scatter of deform. texture, rolling reduction *(Russian)* 4−67775
Fe-Si(3%), grain oriented, domain struct. rel. to mag., metallurgical props., review 4−79538
Fe-Si(3%), grain oriented strips, Barkhausen noise after plastic deform. 4−72994
Fe-Si(3%), vel. of screw dislocations as func. of stress, obs. of glide band form. 4−53681
Fe-Sn, dil. alloy, hyperfine field interaction 4−57250
Fe-Sn, form. of metastable solid soln. by supercooling *(Russian)* 4−79905
Fe-Sn, solubility limits of Sn in α and γ phases *(French)* 4−79907
α-Fe-Sn solid soln., mutual diffusion coeffs. determ. *(French)* 4−44695
Fe-Sn system, diffusion couple method for binary equil. diagram determ. *(French)* 4−49672
Fe-Te, Mossbauer obs. of splitting and mag. transitions 4−45222
Fe-Ti, nitrided, struct. changes during annealing 4−53680
Fe-Ti solid solns., Portevin-Le Chatelier phenomenon *(French)* 4−53709
Fe-Ti-Ni, superplastic, substruct. depend. of strain rate sensitivity 4−67873
Fe-transition metal, dil., moment distrib. and hyperfine fields determ. 4−64198
Fe-W, Young's modulus, conc. depend. 4−67879
Fe-W(0.02 at.%), grain boundary hardening phenomenon 4−61378
Fe-Zn, ferritic, cellular precip. kinetics, small Mn additions influence 4−53696
Fe-Zn system, cpd. Γ_1 formation and cryst. parameters 4−82840
Fe_3-Ge, quenched and annealed, ordering, Mossbauer study 4−49270
$Fe_{0.5}Au_{0.5}$ alloy, mag. hyperfine field at Au nuclei, Mossbauer spectra 4−49266
FeCo, ordered, 550°C transition, sp. ht. and resist. obs. *(Japanese)* 4−45498
FeCo, ordered and disordered, slip deform., effects of strain, temp. and atomic order 4−82912
FeCr, single crystals, Bridgman method of growth, techniques for alignment and cutting 4−53601
FeGe, ferromagnetic, cubic, microwave reson. line shape investigation 4−67454
Fe_6Ge_5, cryst. struct. determ. *(French)* 4−75477
Fe_6Ge_5 cryst. struct. determ. *(French)* 4−75477
FeIr, ferromag. dilute alloy, nuclear electric quadrupole interaction exam. 4−82633
Fe_xMn_{1-x}, itinerant-electron antiferromagnetism, theory 4−76048
FeMnGe, $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4−73057
$Fe_{3-x}Mn_xSi$ alloys, structural and mag. props. 4−76091

iron alloys continued
FeNi, film, spin wave resonance obs. at 9.3 GHz 4−57302
$Fe_{0.63}Ni_{0.37}$ antiferromagnetic, structure at liquid He temp. 4−49182
$Fe_{65}Ni_{35}$, Invar alloy, mag. and magnetoelastic props., thermodynamic discussion 4−76132
γ-$Fe_{50}(Ni_xMn_{1-x})_{50}$, mag. phase diag. determ. by Mossbauer technique 4−53238
$Fe_{0.74}P_{0.16}C_{0.05}Al_{0.03}Si_{0.02}$, $Fe_{0.75}P_{0.16}Si_{0.06}Al_{0.03}$, Young's modulus, internal friction meas. rel. to temp. 4−64588
$Fe(Pd_xPt_{1-x})$ alloy, mag. props., ferrimag.-ferromag. transition, Curie and Neel temps. 4−57273
FePt, ion impact, recoil velocity dependence of transient magnetic field 4−45397
$Fe_{0.9}Pt_{0.1}$, Mossbauer study of ^{195}Pt, internal fields and isomer shifts *(German)* 4−53348
Fe_3Pt, ordered alloy, mag. form factor, local moments 4−72978
Fe_3Pt Invar, influence of magnetoelasticity on Debye temp. 4−79562
$Fe_{72}Pt_{28}$, disordered, elastic constants meas., temp. depend. 4−76468
FeRh, FeRhPd(Ir), magnetisation and elec.resist., 4.2K to 1300K, 0 to 370 kOe 4−79326
$Fe_{1-x}Ti_{1+x}$, obs. of Konda effect and superparamag. effect. 4−48959
$Fe_{1-x}Ti_{1+x}$ near stoichiometric composition, superparamagnetism obs. 4−76119
Fe_3Zn_{10}, γ-brass type, cryst. struct. investig. 4−56647
Ge-Fe, liq., mag. props., conc.-temp. depend., 900-1700°C *(Russian)* 4−45091
Ho-Fe amorphous films, differences in T_c of amorphous, cryst. states, mechanism 4−76128
InSb-FeSb eutectic alloys, directional solidification, struct. changes *(Japanese)* 4−45499
Lu_2Fe_{17}, helimag. transition, negative thermal expansion 4−72963
Mn-Ni-Fe antiferromag. Elinvar-type alloy characts. 4−79567
Mo-Fe, dil., anomalous resist., 1.5K-room temp. 4−45093
Mo-Fe, interdiffusion and layer growth 4−79180
Mo-Fe system, phase diagram, 800-1300°C, determ. using diffusion couples 4−64531
$Mo_{77}Ir_{23-x}Fe_x$, magnetic and superconducting properties 4−72889
$NbFe_2$, Mossbauer obs. of Laves phase 4−45219
Ni-^{57}Fe dil. system, force constant ratio calcs. 4−82247
Ni-Cr-Fe, corrosion behaviour in nuclear once-through steam generator service 4−81660
Ni-Fe, diffusion model for oxidation, 1000°C 4−44789
Ni-Fe, films formed electrolytically in mag. fields, mag. props. *(German)* 4−67410
Ni-Fe, oblique incidence evaporated film, resistivity anisotropy 4−64142
Ni-Fe, oxide scales, metal diffusion for props. 4−48866
Ni-Fe, soft magnetic alloys, recent developments in Japan 4−72930
Ni-Fe, sp. ht. meas. in temp. range 1.2-8K 4−49180
Ni-Fe, strong and weak ferromagnetism 4−72966
Ni-Fe, thin films, obs. of segment domain walls with alternately directed magnetisation 4−53259
Ni-Fe based, glassy state, ductility, tensile strength 4−61427
Ni-Fe based glassy alloys, form. and thermal props. 4−61346
Ni-Fe Invar single crystals, mag. domain structs. 4−45145
Ni-Fe-Cr, tertiary fluorescence effect in elec. probe microanalysis, contrib. of Cr 4−71280
Ni-Fe-Nb system, Hardperm high permeability alloys, mag. props. 4−67399
Ni-Fe-V-C, strengthening effect of matrix-dot precip. 4−45684
Ni-Fe(10 wt.%) films, domain boundary starting field, isotropic stresses influence *(Russian)* 4−61003
Ni-Fe(17%), domain wall motion, electron microscope obs., test of theories 4−67402
Ni-Fe(30 at.%), low vacancy conc. obs. using mag. anisotropy method *(French)* 4−53670
NiAl-Fe,, dil., mag. impurity states, mag. props. and n.m.r. obs. 4−64188
$Ni_3(Fe,V)$, vanadium effects on mag. and mech. props. *(Russian)* 4−64235
$Ni_{1-x}Fe_x$, mag. form factors, asphericity 4−76065
$Ni_{1-x}Fe_x$-C, (x=0-0.65), C impurity effects on props., transition from strong to weak ferromag., band struct. 4−45111
Ni_3Fe, ferromag. reson. linewidth and relax. freq., Mo and Cu additions influence *(Russian)* 4−76164
Ni_3Fe, ordering mechanism, FIM obs. 4−70444
$Ni_3(Fe_{0.76}Al_{0.24})$, antiphase domain thickness distrib., calc. from X-ray data *(French)* 4−76442
NiFeCo film, domain wall motion, coercive force and easy axis bias effects 4−57335
Pd-Fe, dil., mag. ordering *(Russian)* 4−70168
Pd-Fe, dil., sp.ht. and magnetization, effect of strong spin correl. 4−64201
Pd-Fe, dilute, exchange field distrib., effect on magnetisation 4−45143
Pd-Fe, high press. effect on Curie temp., Mossbauer spectra 4−67371
$(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, low field susceptibility, temp. depend., in region of ordering temp. 4−64190
$(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, Mossbauer effect obs. of ferromag. phase transitions 4−64216
Pt-Fe, diffusion, evaporation, thermodynamic properties 4−70470
Pt-Fe, high press. effect on Curie temp., Mossbauer spectra 4−67371
Rh-Fe, low temp. resistivity, 40 ppm to 2.2 at.% Fe 4−72744
Sm-Ce-Co-Fe-Cu, permanent magnet props., cryst. structures 4−79541
$Sm_2(Co, Fe)_{17}$, permanent magnet characts. 4−60980
$SmFe_2$, magnetoelasticity, temp. and mag. field depend., u.s. pulse meas. 4−49206
$Th(Co_xFe_{1-x})_5$, intermetallic compounds, cryst. and mag. struct. 4−70167
Ti-Al-Fe and Ti-Al-Cr-Fe, heat treatment and mech. props. 4−73331
Ti-Fe, amorphous phase and metastable solid soln. form. *(Russian)* 4−45536
Ti-Fe-Ga, X-ray diffraction and microscopical analysis, phase equilibria *(Russian)* 4−76414

iron alloys continued
Ti-Fe(0.2 at%), obs. of resist. min. and Kondo like behavior, model using non mag. localised impurity states 4−48960
TiFe, $M_{2,3}$(3p) X-ray emission band obs. 4−73213
Tm_2Fe_{17}, helimag. transition, negative thermal expansion 4−72963
Tm_2Fe_{17}, mag. struct., neutron diffr. study 4−72977
UFe_2, standard Gibbs energies determ. by solid electrolyte e.m.f. method 4−51878
UFe_2, standard Gibbs energies of form. from solid-state e.m.f. meas. 4−54093
(V-Cr)Fe, resist. min., obs. of negative temp. coeff. 4−60768
Y-Fe, Mossbauer effect, temp. depend. of hyperfine field 4−61076
YFe_3, thermal variation of Mossbauer parameters between 78K and T_c 4−82646
$Y_xLa_{1-x}(Co_yFe_{1-y})_5$, cryst. struct. and mag. props., neutron diffraction obs. 4−70166
Zr-Cr-Fe, β-quenched, effect of microstructure and lattice strain on corrosion resistance and mechanical props. 4−64594
Zr-Cr-Fe, in-reactor oxidation, oxide electrical characteristics 4−70495
Zr-Cr-Fe, irrad. effects on work hardening and ductility 4−66261
Zr-Fe, amorphous phase and metastable solid soln. form. *(Russian)* 4−45536
$Zr_{0.4}Cu_{0.6-x}Fe_x$, amorphous, spin fluctuations and spin-spin interactions, susceptibility and resist. obs. 4−64185

iron compounds
see also ferrites; iron alloys
andalusite:Fe^{3+}, symmetry conditions of energy levels *(Russian)* 4−48924
bis(arene) and related complexes, high energy photoelectron spectroscopy 4−66503
elastomechanical properties, isotropy values for polycrysts. *(German)* 4−61403
ferric oxide, in $PbZrO_3$, dielec. props 4−67512
ferric-hemin, ^{57m}Fe isomer shift calc. 4−53185
ferrous acetate, cryst. struct. *(Spanish)* 4−52750
garnet, film, epitaxial, optical absorption and reflectivity obs. 4−49388
halides, u.v. absorption, transition assignment 4−49372
halides, X-ray photoemission spectra of valence electrons 4−49521
oxalates, dihydrated, stacking fault struct. *(French)* 4−56757
oxide, Mossbauer effect of $^{57}CoCl_2$ deposited on surface 4−45221
oxide layer formation and props. 4−60697
phosphoferrite, synthetic single crystals, colour and structure 4−79156
porphyrin complexes, relative sizes of high and low spin states 4−69399
pyrite, force field calcs. 4−82233
pyrite deposit, Joma, Norway, self potentials 4−64824
wustite, fracture properties enhancement by precipitation 4−70548
wustite, reduction, iron-phase growth by interfacial reaction and pore diffusion mechanism 4−80186
wustite, sintering, effect of nonstoichiometry 4−67905
wustite, solid-state coulometric titration 4−58991
γ-Al_2O_3:Fe_2O_3, solid soln., e.p.r. spectra obs. 4−61028
α-Al_2O_3-Fe_2O_3, Mossbauer spectrum, temp. depend. of chemical shift and quadrupole splitting 4−57444
Ba-Fe-S system, infinitely adaptive structures $Ba_{1+x}Fe_2S_4$ 4−75618
$Bi_{40}Fe_2O_{63}$ crystal, top seeding technique, growth from soln. in Bi_2O_3 4−67715
$(CH_3NH_3)_2FeCl_4$, birefringence, X-ray and neutron diffr. meas. on structural phase transitions 4−67014
CaO-MgO-Fe_2O_3-SiO_2 system, compatibility relationships of magnesiowustite phase in air 4−64615
$Co_{1-x}Fe_x{}^{2+}Fe_2{}^{3+}O_4$, image furnace growth, electrical resistivity, low temps. 4−82808
$Co_xFe_yO_2$, oxide scales on binary alloys, metal diffusion props. 4−48866
$(Co_xFe_{1-x})_2P$, orthorhombic, magnetocryst. anisotropy 4−82578
CoO-Fe_2O_3-B_2O_3 system glass-ceramics, mag. characteriz. 4−79545
$CsFeBr_3$, structure and magnetic properties 4−72956
$(Fe, Al)_2O_3$ cryst. precip. from borate melts, lattice parameters and Neel temp. *(Japanese)* 4−70410
Fe complex, cyclobutadiene iron carbonyl, vib. averaging effects on n.m.r.-derived geometry 4−78396
Fe complex, cyclobutadiene-iron carbonyl, vibr. spectra 4−69490
Fe complex, iron tricarbonyl butadiene, photoelectron spectra, SCF MO calcs. 4−78425
Fe complex, iron(III)bisdithiocarbamates, mag. interactions 4−53222
Fe complex, octamethyltetrabenzporphyriniron(II), magnetic moment, spin electronic groundstate, Mossbauer effect 4−49267
Fe complex, phthalocyanineiron (II), Mossbauer spectra in mag. field, mol. symmetry investig. 4−64302
Fe complex, population analysis in terms of atomic and symmetry orbitals 4−43771
Fe complex, $t_{2g}{}^n$ config., Mossbauer expts. 4−53350
Fe complexes, MO calc. of electronic structures, Mossbauer isomer shift and quadrupole splitting 4−56094
Fe III complex, aqueous, rate consts. for positronium annihilation 4−57875
Fe-As, mag. state and struct. transitions, Mossbauer obs. 4−57446
Fe-Mg-O system, phase relations, low temperature, magnesiowustite 4−70239
Fe-Sb, mag. state and struct. transitions, Mossbauer obs. 4−57446
Fe-Si(Ge), electron structure, X-ray spectral investigation 4−67673
Fe-Ti-O, system, solid state cell determ., oxygen activities, ilmenite, rutile, high temperatures 4−63895
Fe-Ti-O system, thermodynamic study 4−75617
Fe^{3+} complex, e.s.r. spectra in soln., dynamic freq. shift 4−45175
Fe^{3+} oxides, wavelength modulated reflectivity spectra 4−61175
Fe_xAs_y, e.s.r. and static mag. susceptibility obs. 4−57359
$FeAs_{2-x}Se_x$, marcasite struct., metallic paramag., prep. and characterisation 4−49154
FeB, charge and spin density, neutron diffr. obs. 4−60962
FeB, energy bands, K-spectra 4−53546
FeB, mag. susceptibility and elec. resist., temp. depend. 4−60940
Fe_2B tetragonal single crysts., plastic props., 20-800°C 4−82956
$FeBO_3$, antiferromag. reson., temp. depend., 4.2-350K *(Russian)* 4−70220

iron compounds continued
$FeBO_3$, cylindrical domain struct., magneto-optical props., absorpt. spectra obs. 4−57576
$FeBO_3$, equatorial Kerr effect, visible and near u.v. region 4−53465
$FeBO_3$, Faraday effect anomalous increase with onset of magnetization inhomogeneity 4−49329
$FeBO_3$, mag. birefringence, obs. in visible spectrum 4−57575
$FeBO_3$, mag. domain props., Faraday effect obs. 4−64238
$FeBO_3$, mag. field effect on coherent scatt. of X-rays 4−73002
$FeBO_3$, Raman scatt. by two-magnon excitations 4−64373
Fe_3BO_6, pure and doped, spin configs. and reorientation anal. 4−76094
$Fe_3B_7O_{13}Br$, $Fe_3B_7O_{13}Cl$, improper ferroelectric, optical absorpt. edge in transition region 4−45257
$Fe_3B_7O_{13}Br$, magnetoelec., Mossbauer hyperfine spectra meas. 4−82640
$Fe_3B_7O_{13}I$, paramag. torque meas. and crystallographic domain distribs. 4−60941
$FeBr_2$, magnetic susceptibilities, parallel and perpendicular, anomalous behaviour below T_n *(French)* 4−53217
$FeBr_4{}^-$ complex, in molten tetra-n-butylphosphonium bromide, absorpt. spectrum, ligand-field transitions 4−61171
Fe_3C, atomic magnetic moment change at Curie temp., X-ray photoelectron spectra obs. 4−49172
$FeCO_3$, ferromagnetoelastic domains 4−73084
$Fe(CO)_4$, ^{13}C chem. shift tensor rel. to π-back bonding 4−81789
$Fe(CO)_5$, u.v. photolysis in N_2, Ar, methane, matrix isolated Fe atoms, 20K 4−43724
$Fe(CO)_5$, vapour press., +13 to −19°C 4−60606
$Fe(CO)_5$-epoxy resin, s.h.f. absorbers *(Russian)* 4−53364
$Fe_2(CO)_9$, Mossbauer effect correl. with Raman data 4−64295
$Fe(CO)_{5-x}(PF_3)_x$, x=0-4, ^{13}C n.m.r. and i.r. obs. 4−56281
$FeCl_2$, acoustic phonon dispersion curves obs. by inelastic neutron scatt. 4−67002
$FeCl_2$, adsorption of NO, triple point of first monomolecular layer 4−60688
$FeCl_2$, Faraday rot., metamagnetic phase transition, hysteresis effect 4−64360
$FeCl_2$, ferromag., selfconsistently renormalized spin wave approximation 4−45124
$FeCl_2$, magnetic susceptibilities, parallel and perpendicular, anomalous behaviour below T_n *(French)* 4−53217
$FeCl_2$, magnon temp. renormalization and magnon-phonon coupling 4−57297
$FeCl_2$-graphite compounds, Mossbauer spectra and mag. susceptibility obs. 4−61071
$FeCl_2$-$nH_2O(D_2O)$, Mossbauer studies, isotope effects investig. 4−82642
$FeCl_3$, antiferromag., spin structure and phases, Mossbauer obs., 1.47-300K 4−45217
$FeCl_3$, effect on growth of {101} faces of $NH_4H_2PO_4$ from aq. soln. 4−75467
$FeCl_3$, hexahydrate HCl solns. and melts, Raman spectra species anal. 4−53417
$FeCl_3$, two dimensional, intercalation in graphite, magnetic properties 4−64306
$FeCl_3$ frozen hydrolysed soln., Mossbauer effect, polymerization study *(German)* 4−79648
$FeCl_4$ anions, Hartree-Fock-Slater model calcs. 4−56128
$Fe(ClO_4)_2.6H_2O$, anomalous mag. behaviour at low temp. 4−60952
$FeCl_2.2H_2O$, phase transitions in external mag. field, Mossbauer spectrum 4−64291
$FeCl_3.4H_2O(4D_2O)$, crystalline, molten and glassy state, Raman spectra 4−45294
$FeCr_2S_{4-y}$, paramag. Curie point, comp. depend. 4−60945
FeF_2, antiferromag., circular and mag. circular dichroism meas. 4−57567
FeF_2, electronic Ramon transitions, rel. to mag. susceptibility 4−53433
FeF_2, flux growth under reducing conditions 4−57684
FeF_2, heat capacity near antiferromag. transition 4−64218
FeF_2, Heisenberg antiferromagnet, two-magnon Raman scatt. using model Hamiltonian 4−45290
FeF_2, magnon and phonon interactions, external mag. field effects, theory 4−57296
FeF_2, optical mode gammas, press. derivatives of elastic and dielectric consts., rigid ion model 4−75592
FeF_3, cylindrical domain struct., magneto-optical props., absorpt. spectra obs. 4−57576
$FeGeO_3$, evidence for spin-reorientation type phase transition 4−57282
$FeGeO_3$, magnetoelec. new materials 4−82539
Fe_2GeO_4, elastic parameters from u.s. meas. 4−45967
Fe_2GeO_4, electronic Raman transitions, rel. to mag. suceptibility 4−53433
FeI_2, adsorption of methane and krypton, interaction energies determ. *(French)* 4−44778
FeI_2, mag. struct., phase transitions in high field 4−64220
FeI_2, magnetic susceptibilities, parallel and perpendicular, anomalous behaviour below T_n *(French)* 4−53217
Fe(II) complex, dithiocyanatobis(4,7-dimethyl-1,10-phenanthroline)iron(II), cooperative high-spin to a low-spin transition 4−70238
Fe(II) complex, Fe(II)$dipy_2X_2$, high spin, $^5E \leftarrow {}^5T_2$ transition, splitting, geometry investig., MO studies *(German)* 4−69496
Fe(II) complex, Fe(II)$phen_2X_2$, high spin, $^5E \leftarrow {}^5T_2$ transition, splitting, geometry investig., MO studies *(German)* 4−69496
Fe(II) complex, Mossbauer spectra, thermally induced highspin ($^5T_2$) to low spin ($^1A_1$) transition 4−67491
Fe(III) complex, $Fe(dtc)_2Cl$, paramag. anisotropy, zero-field splitting 4−67351
Fe(III) complex, halogeno bis (N,N' diethyldithiocarbamato) Fe(III), proton contact shift, p.m.r., halide electronegativity depend. 4−48092
Fe(III) complex, magnetic behaviour with different ligands 4−79493
Fe(III) complexes, thiosemicarbazone type, paramag., λ type phase transition *(Russian)* 4−76052
Fe(III) complexes with thiosemicarbazones, equil. between low-spin and high-spin states 4−57360

iron compounds continued
  Fe(II) complex, tris-(1,10-phenanthroline)iron(II) ion, rot. strengths of electron transfer transitions 4−56202
  Fe(IIe) complexes, tri(1,2-diimine)iron(II) chelates, π-back bonding 4−69467
  $(Fe_{1-x}Me_x)_3C$, Me=Cr, Ni, Mossbauer absorption spectra and magnetisation meas. 4−79544
  $Fe_xMn_yO_z$, oxide scales on binary alloys, metal diffusion props. 4−48866
  $Fe_yMn_{1-y}O_{1+x}$, miscibility gap, elec. cond. and optical absorpt. evidence 4−53092
  $FeMo_2S_4$, mag. props., elec. props., rel. to struct. *(French)* 4−67352
  $Fe_{16}N_2$, precipitation in Fe, effect on mag. anisotropy 4−64228
  $Fe(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
  $Fe(NH_4)_2(SO_4)_26H_2O$, mag. properties of Fe^{2+} ions at low temp. 4−45090
  $Fe(NH_4)_2(SO_4)_2.6H_2O$, mag. and nuclear elec. quadrupolar axes of Fe^{2+} ions 4−67324
  $Fe(NO_3)_3.9H_2O$, quenching of spin-spin relax. by appl. of mag. field 4−67495
  FeO, binding energies, appearance potential spectroscopy meas. 4−64454
  FeO, FeO-Zn(Mg)O solid solutions, chemisorption of O_2, e.p.r. obs. 4−48851
  FeO, wustite and wustite-Fe_2O_3-Fe, grain size depend. of fracture parameters 4−73347
  FeO-Fe_2O_3-TiO_2 system, aggregated and isolated faults, electron microscope obs. 4−56759
  FeO-P_2O_5 glasses, semicond., a.c. cond. 4−72766
  FeO_4^{2-}, electronic structure by HFS-DVM method 4−66403
  $Fe_{1-x}O$, wustite, cation self-diffusion and isotope effect 4−48796
  Fe_2O_3, 2s and 3s electron spin densities meas., Mossbauer with electron spectra technique 4−64315
  α-Fe_2O_3, binding energies, appearance potential spectroscopy meas. 4−64454
  α-Fe_2O_3, electrical conductivity and thermo-e.m.f. in gas mixtures, O_2, CO_2, SO_2 4−70016
  α-Fe_2O_3, gas phase cryst. growth, theoretical analysis and exptl. confirmation 4−64496
  Fe_2O_3, gas phase cryst. growth using Cl_2 transport 4−73244
  Fe_2O_3, haematite, antiferromagnetic birefringence of polarised Mossbauer gamma quanta *(Russian)* 4−82648
  α-Fe_2O_3, haematite, form. from amorphous iron hydroxide, Mossbauer obs. 4−61069
  α-Fe_2O_3, haematite, interference of nucl. transitions in pure nucl. diffr. of 14.4 keV γ-rays *(Russian)* 4−67503
  α-Fe_2O_3, hematite, phase states in mag. field 4−76087
  Fe_2O_3, hematite, second order mag. field induced transition, thermodynamic theory 4−60961
  Fe_2O_3, hydrous, ageing and roasting, effect on adsorption rate of CO-O_2 4−70581
  α-Fe_2O_3, mag. field effect on coherent scatt. of X-rays 4−73002
  γ-Fe_2O_3, oxide nuclei formation on pure Fe surfaces *(German)* 4−75726
  Fe_2O_3, polycryst., creep rate data, interdependent transition 4−80065
  Fe_2O_3, pore growth during initial sintering stages 4−53818
  α-Fe_2O_3, prep. of heat-resistant acicular cryst. from $FeCO_3$ in NH_4HCO_3 4−45738
  Fe_2O_3, refractive index, absorption coeff., i.r. region 4−53439
  α-Fe_2O_3:Sn, Mossbauer obs., ^{57}Fe, ^{119}Sn, hyperfine interactions, lattice dynamics *(Russian)* 4−67499
  Fe_2O_3/Al_2O_3, solid solution, e.p.r. anal. *(German)* 4−45183
  Fe_2O_3-Bi_2O_3-Na_2O-H_2O, crystallisation 4−44651
  Fe_2O_3-Eu_2O_3-Sr, phase relns., ternary Sr_2EuFeO_5 existence 4−67023
  Fe_3O_4, binding energies, appearance potential spectroscopy meas. 4−64454
  Fe_3O_4, charge ordering, variational procedure 4−48923
  Fe_3O_4, d.c. and a.c. conductivities, 4.2 to 300K 4−44923
  Fe_3O_4, film on Fe, oxygen content, X-ray emission obs. 4−72660
  Fe_3O_4, Green function theory of short- and long range order, Verwey ordering 4−57043
  Fe_3O_4, mag. after-effects 4−70180
  Fe_3O_4, magnetite, comparison of etch patterns with natural trigons in diamond 4−56999
  Fe_3O_4, magnetite, momentum and spin density by positron annihilation meas. 4−75773
  Fe_3O_4, magnetite, small particle size effects on kinetic and mag. props. *(Russian)* 4−79556
  Fe_3O_4, magnetite, space group, neutron scatt. obs. 4−44522
  Fe_3O_4, magnetite, temp. depend. light scatt. obs. of Verwey transition, optical phonons 4−75802
  Fe_3O_4, magnetite, Verwey ordering as cooperative Jahn-Teller transition 4−82374
  Fe_3O_4, polycryst. thin film, optical absorption coeff. at room temp. 4−57570
  Fe_3O_4 elec. cond. in Cullen and Callen model 4−75932
  Fe_3O_{4+x}, magnetite, thermal spectrum of disaccommodation after low temp. neutron irrad. *(French)* 4−79537
  Fe_xO $(0.99 \leqslant x \leqslant 1)$, antiferromag. semicond., critical resist. 4−79519
  Fe_xO-MnO system, elec. cond., 900-1150°C, and struct. props. 4−49888
  $FeOCl(C_5H_5N)_{1/3}$, intercalated compound, electrical properties 4−72762
  $Fe(OH)_2$, in seawater, admixed trace elements determ. by atomic absorption spectroscopy *(Russian)* 4−77279
  $Fe(OH)_2$, in seawater, behaviour of trace elements *(Russian)* 4−80304
  α-FeOOH, Egyptian goethic, iron form identification and phys. props. by Mossbauer spectroscopy 4−83057
  FeOOH, Mossbauer effect, review *(Russian)* 4−53344
  α-FeOOH formation, role of seeding sol 4−50040
  FeO(OH) gel as catalyst for ortho-para conversion of liquid H_2 4−73414
  FeO(S), solubility of H using $H_2/H_2O(H_2S)$ gas mixtures 4−48762
  $Fe_2O_3-Bi_2O$ system, presentation of a partial phase diagram 4−67715

iron compounds continued
  FeP, helimagnetism investigation 4−64221
  Fe_3P, mag. struct., magnetis., Mossbauer and neutron diffr. obs. 4−45120
  FeS, sulphur Kβ emission spectra and electronic struct. 4−79809
  $FeS_{1+\delta}$, Neel and ferrimag. Curie temps., press. effects 4−67367
  FeS_2, elastomech. props., crystallographic direction, temp. and press. depend. *(German)* 4−67813
  FeS_2, natural cryst., evidence of n-type semicond. 4−72769
  FeS_2, resonant Raman scatt. from A_g phonon 4−45310
  FeS_2-CoS_2, pyrite struct., ferro-, antiferro-and paramag. props., metal and insulator phases 4−76057
  $Fe_{1-\delta}S$, Monte Carlo analysis of diffusion 4−44704
  Fe_2S, earth core, eutectic composition rel. to thermal regime 4−68091
  $Fe(SCN)^{2+}$, formation rate const., first order, from spectrophotometric data 4−46752
  $FeSO_4$ 0.4N soln., G values for heavily filtered 30 to 50 kV_p X-rays 4−51156
  $Fe_2(SO_4)_3$, crystal structure of rhombohedral form *(French)* 4−63800
  $FeSO_4.H_2O$, deuterated, Mossbauer study, quadrupole splitting, isomer shift 4−57431
  $FeSO_4.7H_2O$, cryst. growth, activation energies of forward and reverse reactions 4−82125
  Fe_xSb_y, e.s.r. and static mag. susceptibility obs. 4−57359
  $FeSb_2O_4$, magnetoelec. new materials, recent advances at Weizmann Institute of Science 4−82539
  Fe_7Se_8, ferrimagnetic behaviour, Mossbauer obs., 78-460K 4−45216
  Fe_7Se_8, mag. props. from Mossbauer studies 4−45218
  Fe_xSe_y, elec. props., 100-700K 4−60833
  Fe_xSe_y, thermal cond., 100-450K 4−60653
  FeSi, elastic consts., lattice dynamics 4−60534
  FeSi, $FeSi_{2.33}$, amorphous film, struct. anal. *(Russian)* 4−57006
  FeSi:V(Mn)(Co)(Ru)(Rh)(Os)(Ir), n.m.r., impurity preferential site occupation 4−70224
  $FeSi_2$, amorphous, DTA and phase transitions obs. 4−78925
  Fe_2Si, high temp. form, investigation of cryst. struct. *(German)* 4−66876
  $FeSiF_6.6H_2O:Ni^{2+}$, e.p.r. spectrum of Ni ions, spin Hamiltonian treatment 4−67437
  γ-Fe_2SiO_4, pressure intensification 4−53830
  $Fe_{3-x}Sn_xO_4$, mol. field coeffs. determ. from paramag. meas. *(French)* 4−64184
  $FeTa_2O_6$, neutron diffr., mag. struct. *(German)* 4−45118
  Fe_2Te_3, magnetisation and Mossbauer effect, 2 to 300K 4−45225
  Fe_2Te_3, magnetisation and supercond. Mossbauer and Meissner effects 4−82639
  Fe_2TeO_6, magnetoelec. new materials, recent advances at Weizmann Institute of Science 4−82539
  $FeTiO_3$, ilmenite, obs. of Mossbauer spectra in natural and synthetic samples 4−57440
  Fe_2TiO_4, giant magnetostriction, elastic consts., and anisotropy const., theory 4−45159
  $FeVO_4$ in V_2O_5-Fe_2O_3 system, phase comp. investigation 4−44675
  FeV_2O_4-Fe_3O_4, cation distrib., Mossbauer obs. 4−67496
  $FeWO_6$, new type cryst. struct. and relationships *(French)* 4−56679
  $Fe_4[M(CN_6)]_3$ where M=Fe, Ru or Os, bonding nature and semiconductivity 4−72447
  Fe complexes of phthalocyanine and tetrazaporphin, extended Huckel calculations 4−52049
  Fe(ii) complex, dithiocyanatobis(4,7-dimethyl-1,10-phenanthroline) Fe(II), $^5T_2 \rightleftharpoons {}^1A_1$ cooperative transition, hyperfine interactions 4−64294
  $Fe(pyridine)_2Cl_2$, sign of elec. field gradient tensor, nature of low temp. phase transition 4−79647
  $K_4Fe(CN)_6.3H_2O$, far i.r. spectrum *(French)* 4−53436
  $KFe(CrO_4)_2.H_2O$, cryst. struct. determ. *(French)* 4−78957
  $LiFe_5O_8$, processing and properties, effects of sintering, temp., and stoichiometry 4−70549
  $Mg_{1.12}Fe_{0.88}Si_2O_6$, nature of filling of positions by isomorphous elements 4−48587
  $Na_2O.3B_2O_3:Fe_2O_3$ glass, u.v. absorpt. temp. depend. *(Russian)* 4−45344
  NiFe ferrite, diffusion of ^{63}Ni, 1160-1320°C *(French)* 4−44709
  $Ni_xFe_yO_z$, oxide scales on binary alloys, metal diffusion props. 4−48866
  $NiFe_2Se_4$, thermal expansion, two anomalies *(Russian)* 4−67054
  $PbSiO_3:Fe_2O_3$ glass, u.v. absorpt. temp. depend. *(Russian)* 4−45344
  SiO_2-Fe_2O_3-K_2O glasses, Fe-leucite formation rel. to high thermal expansion *(Japanese)* 4−70558
  V_2O_5-Fe_2O_3 system, phase comp. investigation 4−44675
  YIG, impurity distribution obs. by mass spectrography 4−64498
  YIG single crystal preparation and properties 4−76388
  ZnI_2-$FeCl_2$ aqueous soln., liquid cladding for face-pumped Nd:glass laser 4−46697

irradiation effects *see radiation effects*

isentropic flow *see entropy*

Ising lattices
  see also Ising model
  chain motions, applic. of time-dependent Ising model 4−43898
  continuous system, rigorous props. in high activity region 4−47228
  diazabicyclo-[2,2,2]octane, plastic phase transition, Ising theory 4−69881
  four cell approximation, renormalization group equations, critical surface determination 4−81246
  linear chain kinetics and u.s. absorpt. of polypeptide solns. *(French)* 4−52298
  magnet, one-dimensional, with arbitrary finite range interactions, ground-state orderings 4−71431
  many-spin interaction transformation 4−55386
  one-dimensional system with arbitrary finite range interactions, ground-state orderings 4−71431
  phase transition in two sublattice system, Wilson method *(Russian)* 4−65834
  position function, Ising system with spatial degrees of freedom 4−81247

Ising lattices continued
  random chain, one-dimensional exact calcs. of correlation functions susceptibility 4−55385
  random exchange chains and random xy interaction effects 4−59307
  square lattice, critical surface renormalisation transforms 4−81248
  triangular, internal energy and heat capacity calcs. for three different coupling consts. 4−43184
  two-dimensional, correl. function *(Russian)* 4−81249
  two-dimensional, impurity effects on phase transition temp. *(Russian)* 4−76045

Ising model
  see also Ising lattices
  alloy, binary, quenched, time evolution, computer simulation of 2-dimens. model system 4−79956
  anisotropic, f.c.c. lattice, scaling of order parameter 4−72937
  anisotropic compressible, tricritical scaling laws 4−43181
  antiferromagnet, metamagnetic transition, mol. field approx. 4−45081
  binary lattice gas derivation, proof of ferromagnetic transition 4−67332
  biopolymers, order-disorder transitions, theory 4−66532
  block-spin interactions, large magnetic field region, nearest neighbour model 4−45077
  bound for arbitrary spin, using generalised mean field approx. 4−67327
  β-brass, long-range order, nearest-neighbour Ising model 4−64225
  Brout's theory extension, RPA for orientational phase transition and X-ray crit. scatt. 4−63878
  Cayley trees soln. for Ising problem, thermodynamic limit 4−57241
  classical spins, critical behaviour in transverse field 4−72943
  correlation function in mol. field approx. and sum rule 4−49142
  critical behaviour, random defects effect 4−49141
  critical index η, calc. using field-theory methods 4−68961
  critical phenomena, use of Chisholm approximants 4−55382
  critical point exponents of Ising model systems with pure three body interactions 4−45080
  critical spin-spin correl. function in mag. field 4−57233
  crossover rel. to lattice anisotropy parameter, renormalisation group verification 4−57238
  decorated Ising system, phase diagram 4−45082
  dynamics, general soln. for all dimens. 4−72941
  eight-vertex model, generalized codes for high mag. field and low temp. expansions 4−72936
  e.s.r. spectrum calc. for Ising model with nearest neighbour antiferromag. coupling 4−79578
  ferrimagnetic, spontaneous magnetisation and susceptibility 4−45078
  ferromagnet, applic. of iterative procedure in cluster-variation calcs. 4−52851
  ferromagnet, comparison of long-range exchange interaction and short-range direct interaction models 4−70129
  ferromagnet, dil., singularities 4−70128
  ferromagnet, dilute, tricritical behaviour 4−53191
  ferromagnet, kinetic, metastable states and nucleation investigation 4−53195
  ferromagnet, linear models, solved in thermodynamic limit in mag. field 4−64177
  ferromagnet, three-dimensional, specific heat above Curie temp., star cluster expansion 4−72934
  ferromagnet, two dimensional, phase separation 4−70131
  ferromagnet in mag. field, variational approximation 4−76041
  ferromagnet spin correlations, time dependent function 4−70127
  ferromagnetic, infinite susceptibility without spontaneous magnetisation 4−60933
  ferromagnetic alloy, dilute ferromagnet, transition temps. upper bound 4−76038
  four-spin interactions, generalized codes for high mag. field and low temp. expansions 4−72936
  free energy, inequalities and estimates using perturbation theory with variational parameter 4−68984
  free energy for 2-D model in mag. field using equivalent 16-vertex model 4−79481
  free-energy per spin in high density limit 4−47226
  general spin systems, proof of FKG inequalities 4−67333
  Heisenberg-Ising ring, $\Delta \geqslant 1$, finite temp. excitations and thermodynamics 4−67338
  Ising spin fluid, one-dimensional, collapse 4−70130
  layered structure, thermodynamics calc. 4−79483
  linear, e.p.r. line intensities *(Russian)* 4−79571
  linear quadrupole model, exact soln. determ. by Green's function method 4−74427
  magnetic surface order existence 4−64175
  magnetisation process, Ising model crit. field, with first, second-neighbour interactions 4−67331
  magnets, amorphous and high temp. cryst., magnetisation, sp. ht. 4−70153
  nonlinear field theory, self-consistent Curie-Weiss soln. and spontaneous magnetization 4−51471
  one-dimensional random mixture of Ising spins, theory 4−72942
  parametric models, equation of state at order ε^3 4−82544
  perovskite stressed crystal, displacive transitions, polycritical points, floplike transitions 4−70155
  phase transformation theory, solid solutions, extension of cluster approximation *(Russian)* 4−82546
  phase transition, continuous order 4−79482
  phase transition, pure dipole interaction 4−61123
  phase transition of Cayley tree, nonlinear recursion eqn. for partition function 4−82543
  phase transitions, 3 spin-state generalised form 4−43180
  random phase approximation in many-body theory 4−74426
  renormalised crossover exponent for anisotropic cubic systems 4−81245
  S=1, with biquadratic interactions, low temperature series 4−76036
  spectral moments, approximation, Green's function decoupling comparison 4−67344
  spin flip, 2-D, crit. slowing down 4−77567
  spin system with single ferromagnetic band, corollary to GHS inequality 4−79480
  spin-1, upper bounds on crit. temp. and mag. field 4−49147

Ising model continued
  spin-relaxation function in kinetic Ising model, rigorous inequality determ. 4−57239
  spin-spin correlations on hypercubical lattices 4−72944
  square, zeros of partition function in complex temp. plane 4−43182
  stochastic, transport coefficients from computer expts. 4−53194
  subcritical exponent, scaling corrections calcs. 4−71457
  surface effects on magnetic phase transitions 4−53193
  susceptibility, derivation of high temperature series expansions 4−76037
  susceptibility of spin-S Ising model, high-temp. series 4−57242
  symmetric eight-vertex model on honeycomb lattice phase transition temp. and order of transition 4−59304
  ternary mixtures, Ising model for tricritical points 4−82259
  thermodynamics, third law violation 4−72940
  three dimensional, Green's temp. func. expansion of ladder approx. 4−49143
  three-spin interactions in triangular lattice, eigenvalue equation 4−60930
  three-spin interactions in triangular lattice, free energy and correl. length 4−60931
  transfer matrix and d-dimensional fermion model 4−45083
  two-dimensional, one-spin-flip, inequalities for crit. slowing down exponents 4−67339
  two-dimensional, susceptibility amplitudes calc. 4−72946
  two-dimensional one-spin-flip, first-order or discontinuous phase transition simulation 4−67341
  zero-field free energy, weights determ. for high temp. star cluster expansion 4−72935
  $CoCl_2.2H_2O$, linear Ising system, far i.r. laser spectroscopy meas. 4−57540
  Er_2O_3, 3-D, and critical sp. ht. 4−79516
  H_2O_2 lattice, high field expansions 4−67328
  $HoAsO_4$, magnetic interaction, Ising interaction, two sublattice structure proposed, exchange interaction estimated 4−82564
  $HoPO_4$, magnetoelec. susceptibility meas. simple two sublattice Ising antiferromag. model 4−72955
  K_2CoF_4, two dimensional Ising antiferromag., critical behaviour 4−53231
  K_2MnF_4, critical fluctuations in antiferromag. modes 4−57278
  $Ni_xCd_{1-x}(NH_3)_2.Ni(CN)_4.2C_6H_6$, by sp. ht. meas. 4−76076
  Rb_2CoF_4, two dimensional Ising antiferromag., critical behaviour 4−53231
  $Tb(OH)_3$, mag. and thermal props., Ising-like behaviour 4−45100

isobaric analog states *see isobaric analogue states*

isobaric analogue states
  see also nuclear excitation
  A=90 region, structure of states by (p,p'γ) ang. correlation 4−81493
  gamma decay of analogue resonances *(Russian)* 4−69223
  isospin effects on proton decay of highly excited states 4−59674
  multiplet mass equation, production and mass meas. of $^{20}Mg^8C$ 4−47625
  tests of theory, conditions for tests *(Russian)* 4−78028
  ^{14}B, analogue of lowest T=2 state in ^{14}C, particle-hole model, ground state struct. 4−81456
  ^{208}Bi 5^- analog resonance decay, Coulomb excitation, direct inelastic effects 4−78027
  ^8C, prod. in $^{12}C(\alpha, {}^8He){}^8C$, mass meas. test of isobaric multiplet mass equation 4−47625
  ^{13}C, ^{13}N, analogue pairs identification in $^{10}B(^6Li,{}^3He)$, and $^{10}B(^6Li,t)$ reactions 4−55734
  ^{56}Co populated in $^{56}Fe(p,n)$ at 22.8 MeV transitions to antianalogue state 4−66197
  ^{61}Cu, $g_{9/2}$, high resolution proton spectra 4−47630
  ^{71}Ga states anal. from $^{70}Zn(p, p){}^{70}Zn$ at 3.6 to 6.4 MeV 4−59750
  ^{39}K, widths of 7.74 MeV state from $^{38}Ar(p,p)$ and (p,γ) reactions 4−55739
  ^{20}Mg, prod., in $^{24}Mg(\alpha, {}^8He){}^{20}Mg$ mass meas., test of isobaric multiplet mass equation 4−47625
  ^{51}Mn populated in $^{50}Cr(p, \gamma)$ at 1 MeV, gamma decay of $p_{3/2}$ analogue state 4−47697
  Mo isotopes, anomalous behaviour of (p,n) analogue reaction 4−78059
  ^{15}N, identification of T=3/2 analogues of states in ^{15}C, $^{14}C(p,p){}^{14}C$ reaction 4−77959
  ^{16}N levels populated in $^{16}O(t,{}^3He)$ at 23.5 MeV 4−71923
  Pb region, coupling between IAS and giant dipole resonance 4−47653
  ^{a}Pd, A=104, 106, 108, 110; isobaric-analogue resonances, tests of theory *(Russian)* 4−78028
  ^{125}Sb, $7/2^-$ isobaric analogue resonance decay, in $^{124}Sn(p,p')$ scatt. 4−71885
  ^{41}Sc, isobaric analog. resonances anal. in $^{40}Ca(p,p)$ reaction 4−69243
  Sn isotopes, p decay of states excited in (p,n) reaction 4−63165
  ^{93}Tc $1/2^+$ analog state obs. in $^{92}Mo(p, p)$ reaction at 5.3 MeV 4−59764
  ^{96}Tc, $5/2^+$ state populated in $^{96}Mo(p,n)$ reaction 4−71771
  ^{209}Tl, isobaric analogues as resonances in $^{208}Pb(n,p){}^{208}Tl$ isospin forbidden reaction 4−51810
  $^{90}Zr(p, p_0){}^{90}Zr$, coupled channel anal. of 4.71 MeV analogue resonance 4−51831

isobars *see atmospheric pressure and density*

isomer shift
  ferric-hemin, ^{57m}Fe isomer shift calc. 4−53185
  metal oxides, Mossbauer study by surface deposition of $^{57}CoCl_2$ source 4−45221
  Mossbauer effect impurity atom experiments, review 4−57430
  Mossbauer line broadening due to nonuniform isomer shift, suppression *(Russian)* 4−79664
  muonic, nuclear props., muonic atoms study, comparison with other methods *(Russian)* 4−81451
  rare earth compounds, alloys, 4f series, Mossbauer effect meas. 4−82643
  rare earth iron garnets, Mossbauer spectra 4−79658
  ruthenocene iodide, Mossbauer spectra, struct. 4−57432
  $Al_{50}Ni_{50-c}Fe_c$, of Fe, Mossbauer resonance 4−79650

isomer shift continued
Co_2MnSn ferromagnetic alloy, Mossbauer study, isomer shift at 14 kbar pressure *(Russian)* 4—82647
$Cu_2Te_{0.68}S_{0.32}$, heat treatment and Mossbauer effect, conductivity 4—67494
Dy_5Si_3Y, (Y=C,B), Mossbauer obs. 4—63810
$Er_3Fe_5O_{12}$, room temp. Mossbauer parameters 4—61068
EuH_2, Mossbauer studies, mag. and solid state props. 4—73055
$Eu(NH_3)_6$, Mossbauer spectra, 1.2-77 K, Debye model 4—53353
Eu_3S_4, Mossbauer effect obs. at low temp. 4—70240
Fe base alloys, with nontransition elements, impurity-charge-screening, Mossbauer obs. 4—64314
Fe:^{119}Sn, impurity effects, isomer shift and hyperfine field temp. depend., Mossbauer spectroscopy, 4.2-972K 4—45213
Fe-Be(Nb)(Ru)(Te)(Ir), Mossbauer studies 4—45222
Fe-Ni-Mn, Mossbauer effect, comp. depend. *(Russian)* 4—67493
$FeCl_2$-graphite compounds, Mossbauer spectra and mag. susceptibility obs. 4—61071
$FeCl_2$-$nH_2O(D_2O)$, Mossbauer studies, isotope effects investig. 4—82642
$FeCl_3$ frozen hydrolysed soln., Mossbauer effect, polymerization study β-FeOOH presence *(German)* 4—79648
$FeCl_4$ anions, Hartree-Fock-Slater model calcs. 4—56128
Fe(IIe) complexes, tri(1,2-diimine)iron(II) chelates, π-back bonding 4—69467
FeOOH, Mossbauer effect, review *(Russian)* 4—53344
$FeSO_4.H_2O$, deuterated, Mossbauer study, quadrupole splitting, isomer shift 4—57431
Fe_7Se_8, ferrimagnetic behaviour, Mossbauer obs., 78-460K 4—45216
Fe_7Se_8, Mossbauer spectra 4—45218
$FeTiO_3$, ilmenite, obs. of Mossbauer spectra in natural and synthetic samples 4—57440
FeV_2O_4-Fe_3O_4, cation distrib. and Mossbauer obs. 4—67496
^{57}Fe, calibration const., cluster calc. 4—49275
^{57}Fe, calibration using chem. induced change in nuclear decay rate 4—64312
^{57}Fe isolated in methane and CO_2 matrices, Mossbauer spectra obs. 4—76205
$^{57}Fe^+$, Mossbauer spectra, matrix isolation s-electron contact-density ratio determ. 4—72018
$Gd_3Fe_{5-x}Al_xO_{12}$, room temp. Mossbauer parameters 4—61068
GdPd alloy, Mossbauer effect using ^{155}Eu source in Pd and 86.5 keV transition in ^{155}Gd 4—45220
Ir complex, of pentammine, ^{193}Ir Mossbauer resonance, isomer shift, quadrupole splitting 4—64296
Ir complex, of pyridine, ^{193}Ir Mossbauer resonance, isomer shift, quadrupole splitting 4—64296
Ni alloys, ^{119}Sn impurity, Mossbauer reson. line shift, temp. depend. *(Russian)* 4—67504
$(NiAl)_{100-c}Fe_c$, of Fe, Mossbauer resonance 4—79650
$(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, alloys, Mossbauer effect obs. of ferromag. phase transitions 4—64216
PdGd alloy, Mossbauer effect using ^{155}Eu source in Pd and 86.5 keV transition in ^{155}Gd 4—45220
PdGd alloy Mossbauer effect 86.5 keV transition in ^{155}Gd 4—45220
porous phthalocyanine, Mossbauer spectrum, quadrupole splitting, isomer shift 4—53354
Pt compounds, Mossbauer study *(German)* 4—53348
$RbCaF_3$, ^{57}Fe impurity, Fe-F bond length est. from Mossbauer isomer shift 4—49268
$RbFeBr_3$, Mossbauer spectrum 4—64293
Sn, Sn_2 and higher polymers, matrix isolated, Mossbauer obs. 4—61078
Sn(II) complexes of ethylenediamintetracetic acid, ^{119}Sn Mossbauer parameters, temp. depend., 78-226K 4—61073
Sn(II) oxide series, matrix isolated, Mossbauer obs. 4—61077
$(UO_2)Rb(NO_3)_3$, ^{234}U isomer shift meas. 4—57439
Yb intermetallics with diamagnetic alloyed elements, Yb valency determ. *(French)* 4—61074
YbH_2, Mossbauer studies, mag. and solid state props. 4—73055
isomerisation *see isomerism*
isomerism
see also nuclear isomerism
1-acetyl-2-(p-methoxy benzyl)-3-pyrroline, rot. barrier 4—56070
N-acetyl-alanine-N-methylamide, L and DL compounds, cryst., mol. structs., isomerism, stereochem. determ. 4—56700
acetylacetones, photoelectron spectra obs. of keto-enol reaction temp. depend. 4—56291
acrylic acid, rot. isomerism, microwave spectra 4—43857
alkyl isoselenocyanates, vibr. spectra, rot. isomerism 4—56246
1,6-anhydro-3,4-O-isopropylidene-β-D-talopyranose cryst. struct. determ., lattice, mol. parameters determ., conformation investig. 4—56692
aspartate-amino transferase, electronic-conformational interactions investig. rel. to enzymatic activity 4—52307
2,2'-bithiophene, proton mag. reson. investig. in nematic solvent, conform. investig. 4—66487
9-α-bromopropionylanthracene, photolysis, rel. to temp. investig., intersystem crossing, internal rot. mechanism 4—76613
n-butane, Raman spectra, rot. isomerism 4—52018
2,3-butanedione, structure and composition determ. by gaseous electron diffraction 4—43763
1-butanethiol, liq., solid, i.r. and Raman spectra, vibr. analysis, rot. isomerism 4—49340
butene-2, electron mobiliites, cis-trans effect 4—82417
n-butyryl bromide, solid and liq., vibr. spectra and rot. isomerism 4—66431
n:butyryl chloride, solid and liq., vibr. spectra and rot. isomerism 4—66431
p-chloraniline, cryst., $-NH_2$ conformation determ. by Zeeman effects on ^{35}Cl, ^{14}N n.q.r. 4—49260
β-chloropropionyl chloride, liq., rotation, Raman, i.r. spectra 4—78455
β-chloropropionyl chloride, solid and liq., vibr. spectra and rot. isomerism 4—66431
cyclodecane, conformation and struc. parameters 4—43765
cyclopentane, conformations, bond parameters calc. by floating spherical Gaussian orbital model 4—52016
cysteamin, rot. isomerism, Raman spectrum 4—66359

isomerism continued
cytosines, total energies by CNDO/2 method, tautomeric stability and conformation 4—52026
D,L-dicarbomethoxy-3a,7-methano-3aH-decahydrocyclopentacyclooctene-2,10-dione, cryst., mol. struct., parameter determ., conformational anal. 4—56710
1,4-dichloro-Butene-2, rotational isomerism obs. *(Italian)* 4—78392
1,2-dichloropropane, dielectric relax. between 20 and 70C by Surber's method, isomeric effects 4—57469
1,2,7,8-diepoxyoctane, electron diffr. exam. of struct. 4—76935
3,3'-diethyloxadicarbocyanine iodide, picosecond flash photolysis, transition kinetics and photoisomerism 4—68017
5,6-dihydro-2-thiouridine, cryst., mol. struct., parameters determ., hydrogen bonding investig., conformational anal. 4—56709
dimethoxymethane, conform. struct. investig. using CNDO/2 calcs. and dielec. props. *(French)* 4—56058
n-dimethylaminobenzalanilines, photoisomerisation, spectral and luminesc. study *(Russian)* 4—61634
diphenylpolyenes, NV_1 transitions calc. using HMO-SCF, perturbation methods *(French)* 4—43795
1,3-dithians, conformational equilibria thermodynamics, p.m.r. obs. 4—48082
2,2'-dithienyl ketyl, alkali metal complexes counter ion size effect on conformational stability 4—63382
duroquinol cation radical, e.s.r. spectra, activation parameter for restricted rot. of OH group investig. 4—66478
energy level sums, approximations for hindered internal rotors 4—52073
1,2-ethanedithiol, dielectric relax. between 20 and 70C by Surber's method, isomeric effects 4—57469
ethyl fluoride, internal rot., FH, FF spin coupling consts. rel. to temp. investig. 4—66486
ethyl N-substituted carbamates, in d-chloroform or d-DMSO solvents, n.m.r. studies, isomerism, substituent effects 4—69516
ethyl nitrate, microwave obs. of rot. isomerism, Stark dipole moment determ. 4—52187
ethylamines, polychlorinated, conform. anal. using extended Huckel method, rot. barriers determ. *(French)* 4—56057
ethylcarbene→propylene(cyclopropane) isomerisation reactions, minimum energy path calc. by MINDO/2 4—73406
ethynlbenzene, cis-trans isomerism, fluorescence of single vibr. levels 4—75006
1-fluoro-2-trifluoroethane, internal rot., FH, FF spin coupling consts. rel. to temp. investig. 4—66486
1-fluoro-2-trifluoroethanol, internal rot., FH, FF spin coupling consts. rel. to temp. investig. 4—66486
2-fluoroethanol, structure and composition determ. by electron diffraction 4—43762
formaldoxime, syn-anti isomerization, semi-empirical calcs. *(French)* 4—52024
formycin hydrobromide monohydrate, cryst., mol. struct., parameters determ., configuration, conformation investig. 4—56705
2-furanaldehyde, rot. isomerism using ab initio calcs. *(Italian)* 4—72121
halotoluene derivatives, rot. isomerism, p.m.r. obs. 4—48089
1,3,5-hexatriene, cis- and trans-, vac. u.v. spectra 4—56205
hydronaphthyl radicals, photochromic, luminesc. props., photolysis, radiolysis of rigid naphthalene solns. 4—80200
isoleucine, cryst. struct., configuration and conformation of stereoisomers investig. 4—79003
3-ketopiperidine, rotational strength anal. 4—43766
methanol, bond-function anal. of rot. barriers 4—59986
methanol, valence force field, i.t. spectra rotamers and conformation, deuterated derivs. 4—66438
methoxyacetonitrile, vibr. spectra, internal rot. barriers and conform. 4—66441
methyl isocyanide, hot tritium substitution, unimolecular isomerism, rot., vibr. energy loss 4—54077
methyl propionate, i.r. vibr. spectra, conformational behaviour 4—56206
2-methylbutane, Raman spectra, rot. isomerism 4—52018
methylcyclohexanone, rotational strength anal. 4—43766
molecule, photoisomerism, radiative and nonradiative processes, review 4—48078
monofluoropropenes, calc. barriers to internal rotation 4—43764
multilinked catenanes, asymptotic estimation of number of topological isomers 4—47921
nitroethylene, ab initio SCF calcs. 4—63402
4-oxo-1,3-dioxans, alkyl-substituted, conformational assignment, p.m.r. determ. 4—48081
peptides, in soln., conformational anal. using n.m.r. techniques 4—52222
phenols, p-substituted, MO calcs., i.r. meas. of torsional barriers, applic. to macromol. conform. prediction 4—52021
4-phenyl-2,4,6-triazatricyclo[5,2,2,$0^{2,6}$]undecane-3,5-dione, cryst., mol. struct., conformation determ. 4—66891
polyester, POLA, rot. isomeric state approx. for unperturbed dimens. 4—52302
polymer conformational structure, symposium, Prague, 28 Aug-7 Sep 1972 4—52305
polymethine dye molecules, excited, radioationless deactivation processes incl. cis-trans isomerization *(Russian)* 4—43861
polypeptides, proteins, native conform. determ. wing domains of short range interactions investig. 4—52306
polypeptides, synthetic, conformational anal. using n.m.r. techniques, applics. 4—52308
polystyrene/polyisoprene-1,4-cis, block copolymers, conform. in dil. soln. investig., using viscosity meas. *(French)* 4—43893
porphyrin free base, D isotope effect on radiationless decay of lowest triplet state 4—56273
potassium D-gluconate monohydrate, A and B forms., cryst., mol. struct. determ., conformational anal. 4—56695
1,2-propanedithiol, dielectric relax. between 20 and 70C by Surber's method, isomeric effects 4—57469
propargyl methyl ether, vibr. spectra, internal rot. barriers and conform. 4—66441
propene, calc. barriers to internal rotation 4—43764
propyl alcohol, search for chemical isomerism effects in muonic X-ray spectra 4—52110
PVC, thermomech. props. and pot. energy differences 4—49988

isomerism continued
- pyridine, Dewar structures, CNDO/2 calcs. 4−63392
- 2,6-pyridinedicarboxaldehyde, n.m.r. conformational study 4−72120
- retinal, effect of geometry on excited state electron structure 4−47919
- stilbene, direct trans→cis photoisomerisation mechanism 4−72119
- styrene, cis-trans isomerism, fluorescence of single vibr. levels 4−75006
- styrylnaphthalenes, direct and anthraquinone sensitised cis-trans photoisomerism 4−57870
- succinonitrile, plastic phase isomeric reaction *(French)* 4−52705
- tetracyanoethylene charge transfer complexes, rigidity influence on fluoresc. 4−82742
- thienothiophenes, isomeric, reactivity in electrophilic substitution reactions, quantum chem. analysis 4−50143
- threonine, cryst. struct., configurations and conformation of stereoisomers investig. 4−79003
- 3-trifluoro-2-fluoro-1-difluoroethene, internal rot., FH, FF spin coupling consts. rel. to temp. investig. 4−66486
- 2,2,2-trifluoroethyl vinyl ether, i.r. spectra and conform. 4−60074
- $BeH^+.H_2(D_2)$ isomerisation reaction, pot. barrier investig. 4−68004
- $(-)_{589}-(Co(C_{11}H_{30}N_6))$ $(Co(CN)_6)$ cryst., mol. struct. configuration, $3H_2O$, conformation determ. 4−56664
- Co(III) complex $(+)_{589}$-$[Co(R\text{-}pn)_3][Co(Cn)_6].2H_2O$, cryst. struct., complex cation conformation investig. 4−75485
- $Fe(CO)_{5-x}(PF_3)_x$, x=0-4, ^{13}C n.m.r. and i.r. obs. 4−56281
- KBH_4, hindered rot. of BH_4^- 4−52706
- N_5H_5, cryst., mol. struct. determ., conform. investig. *(French)* 4−78963
- $NaBH_4$, hindered rot. of BH_4^- 4−52706
- Os(III) complexes, meridional isomers of MCl_3L_3 type, bonding study 4−43834
- p-phenyl vinyl ethers, comformational anal., electronic struct. determ., INDO studies 4−69444
- Ru(III) complexes, meridional isomers of MCl_3L_3 type, bonding study 4−43834

isomorphism
- isomorph replacement, artificial, using phasing model *(Spanish)* 4−44504
- rare earth compounds, alloys, 4f series, Mossbauer effect meas. 4−82643
- substitution by isomorphous elements, nature of filling of positions 4−48587
- $Mg_{1.12}Fe_{0.88}Si_2O_6$, nature of filling of positions by isomorphous elements 4−48587
- MnB_4O_7, cryst. struct., magnetism and thermal extinction depend. 4−44521
- NaF:U, autoradiographic investigation of impurity distrib. 4−44558
- Pb complex oxides, perovskite struct., isomorphism substitutions 4−75633

isotope detection
- *see also mass spectra; radioactivity*
- alpha radioactive isotope conc. in air meas. using two electrofilters *(Polish)* 4−58140
- hailstorm, Aug. 1971 in Clermont-Ferrand region of France, isotopic content *(French)* 4−68195
- trace components in air, anal. using mass filter system, nonconc. principle and detection limit *(Japanese)* 4−46501
- $^{11}B/^{10}B$ isotope ratio determ. by surface ionisation method *(Japanese)* 4−65585
- ^{12}C, ^{13}C stable isotopes, detection using (p,γ) reaction, ^{13}C enrichment determ. 4−46933
- $^{13}C^{16}O$, isotopic anal. by i.r. overtone spectroscopy 4−74165

isotope effects
- *see also isotope shifts*
- aromatic complexes, external deuterium isotope effect, spectroscopic obs. 4−45353
- aromatic hydrocarbon triplet excited states, quenching by O_2, deuterium effects 4−56318
- aromatic molecules, deuterium isotope effect on $T_1 \rightarrow S_0$ radiative transitions 4−56272
- aromatic molecules with nonbonding electrons, position-depend. isotope effects in $T_1 \rightarrow S_0$ radiationless transitions 4−78489
- atomic collisions, three body, isotope dependence of close coupling calc. 4−81727
- p-benzoquinone, in isotopic mixed cryst., e.p.r. ODMR studies of lowest nπ* triplet state 4−53502
- n-decane-d_{22}:n-decane, γ-irrad., alkyl radical form., energy transfer investig., isotope effect, e.s.r. studies 4−76609
- defect-induced resonance modes, zero-freq. limit, isotope effects and amplitude patterns 4−79128
- dibenzo[f,h]quinoxaline(1,4-diazatriphenylene), position-depend. isotope effects in $T_1 \rightarrow S_0$ radiationless transitions 4−78489
- p-dichlorobenzene, phase selection by isotopic substitution 4−66842
- dimethylsulphoxide, perprotonated and perdeuterated, Dy^{3+} fluoresc. in soln., quenching, isotope effects 4−52197
- ethanol, protiated and deuterated glasses, γ-irrad., photobleaching of trapped electrons, kinetics 4−70612
- ethyl cyanide, mol. struct., quad. coupling tensor, dipole moment determ. 4−78470
- ethylene, deuterated isotopes, electron impact dissoc., isotope effects 4−52268
- ethylene, ground-state ave. and equilib. structs. 4−78395
- exchange reactions, H-, D-, in atom-mol. collisions, kinetic isotope effects calc. *(German)* 4−45909
- fluoroethyl radicals, $CH_2{}^{18}FCH_2$ and $CD_2{}^{18}FCD_2$, chem. activated, deactivating collisions, isotope effects investig. 4−78533
- formaldehyde, and deuterate, predissociation model, Franck-Condon weighted summation 4−48116
- formaldehyde, ground-state ave. and equilib. structs. 4−78395
- formic acid, ^{13}C kinetic isotope effects, variations in react. co-ordinate eigenvalue 4−53980
- formic acid, ^{13}C relaxation times calc., isotope effect investig. 4−53328
- formic acid, decomposition, kinetic isotope effect in react. kinetics calcs. 4−61586
- hydrides, stable diatomic, thermodynamic quantities and isotope effects on partition functions 4−72110

isotope effects continued
- hydrogen bonded complexes, relative strengths of H and D bonds 4−72140
- hydrogen bonds, anomalous isotope effect investig., mech. and elec. anharmonicity mechanism 4−66384
- hydroxyurea, X-irrad., radical pair decay, H-D isotope effects 4−53976
- kinetic, in chem. reacts., computed using at. force constants, applic. to mechanism investig. 4−45902
- kinetic isotope effect calcs. involving hydrogen isotopes, anharmonicity correction 4−54006
- magnesium diethyl phosphate, γ-irrad., $CH_3CHOP(O)_2OC_2H_3^-$ radical obs. 4−45168
- methane, ^{13}C enriched, $3\nu_3$ band lines meas., comparison with ^{12}C $3\nu_3$ band lines 4−52200
- methane, deuterated, isotope effects on second virial coeffs. investig. 4−60140
- methane ion, dissoc. mass spectra, collision with inert gases, isotope effects, 2-25 eV *(French)* 4−48110
- methane or deuterated analogue + T, hot atom reaction, bond energy effects, classical trajectory calcs. 4−54074
- methanol, protiated and deuterated glasses, γ-irrad., photobleaching of trapped electrons, kinetics 4−70612
- methyl bromide, Fourier transformed i.r. spectra of $2\nu_5$ band, assignment 4−56228
- methyl bromide, Fourier transformed i.r. spectra of ν_4 band, assignment 4−56227
- methylcyanide, perprotonated and perdeuterated, Dy^{3+} fluoresc. in soln., quenching, isotope effects 4−52197
- 1,3,4-oxadiazole, ^{14}N n.q.r. obs. 4−79632
- porphyrin free base, D isotope effect on radiationless decay of lowest triplet state 4−56273
- propionamide and N, N-deuterated propionamide, i.r. spectra, vibr. assignment 4−66430
- protium-deuterium kinetic isotope effects, Arrhenius pre-exponential factor, quantum mech. tunnelling 4−55315
- quinoxaline(1,4-diazanaphthalene), position-depend. isotope effects in $T_1 \rightarrow S_0$ radiationless transitions 4−78489
- self-diffusion, correction factor calc. 4−44706
- superconducting isotope effect calc., strong coupling theory 4−82511
- trimethylene sulphide, i.r. spectra, ring puckering and D isotopic substitution 4−52164
- tritium-deuterium relative kinetic isotope effects, quantum mechanical tunnelling 4−55316
- uracil, H-bonded cryst., i.r. spectrum, deuteration fine struct. changes 4−61141
- Ag, electromigration and permeation of H_2 and D_2 4−82287
- $Al_2O{:}{}^{18}O$, matrix-isolated, i.r. spectra, isotope effects, diffusion anal., dimerisation investig. 4−69487
- $Ar^+ + H_2(D_2)(CO_2)$, charged transfer, collision energetics 4−53984
- Br_2, rot. analysis, Franck-Condon factors and long range pot. in $^3B_{0u+}$ state 4−60038
- $Br^{16}O_3^-$, $Br^{18}O_3^-$, normal coord. analysis, mean vibr. amplitudes 4−52106
- $^{79}Br^{35}Cl$, $^{81}Br^{35}Cl$, $B^3\Pi(0^+) \leftarrow X^1\Sigma^+$ band system, rot. vibr. anal. 4−47995
- ^{82}Br, reacts. with cyclohexane, carbon tetrachloride, isomeric transition isotope effect 4−50181
- $Ca(OH)_2$, $Ca(OD)_2{:}Mn^{2+}$, isotope effects in e.p.r. 4−64258
- $Cl + H_2(D_2)$ reactive collision, exact quantum mech. anal. 4−45908
- $^{35}ClO_3^-$, $^{37}ClO_3^-$, normal coord. analysis, mean vibr. amplitudes 4−52106
- Cs + deuterated methane collisions, isotope effect in $6^2P_{1/2} \rightleftharpoons 6^2P_{3/2}$ mixing in Cs 4−51977
- $Cs_3MnCl_5{:}MnCl_4^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72541
- $Cs_2ZrCl_6{:}IrCl_6^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72542
- ^{131}Cs, ^{137}Cs, obs. of simultaneous self diffusion in CsI, 470-600°C 4−48801
- D_2, electrolytic prep. from D_2O, high isotopic purity 4−81031
- $F + CH_2D_2$, intramolecular kinetic isotope effect 4−53974
- $F + H_2(D_2) + C_3F_6$, kinetic, isotope effects, 303-475K, nuclear recoil techniques 4−73443
- $F^+ + H_2(D_2)$ reaction cross section, isotope effect 4−76589
- $FeCl_2$-$nH_2O(D_2O)$, Mossbauer studies, isotope effects investig. 4−82642
- $Fe_{1-x}O$, wustite, cation self-diffusion and isotope effect 4−48796
- $GaAs{:}{}^{n,m,n+m}Si$, (n=28,30), i.r. absorpt. 4−57514
- GeX, (X=S,Se,Te), matrix isolated i.r. spectra, isotope struct. 4−52165
- $H(D) + Cl_2$, isotopic collinear reactive system, quantum mech. treatment 4−53989
- $H_2(D_2) + Cl = HCl(D) + H(D)$, collinear reaction, kinetic isotope effects, exact quantum mech. calc. 4−53977
- H_2O and D_2O, effect of pressure on liquid structure 4−48497
- $H_2{}^{17}O$, absolute viscosity, density meas. rel. to temp., isotope effect investig. 4−52926
- H_2O_3 and D_2O_3, i.r. and Raman spectra, vibr. anal. and mol. struct. 4−52150
- H_2O_4 and D_2O_4, i.r. and Raman spectra, vibr. anal. and mol. struct. 4−52150
- HOF, DOF, mol. vibr., isotope effects, normal co-ord. anal. 4−74964
- HXD type molecule, two-dimens. free-bound Franck-Condon factors, appl. to intramolecular isotope effect in predissoc. 4−66451
- $He^+ + {}^{14}N_2({}^{15}N_2) \rightarrow N_2^+ + He$, thermal energy charge exchange react., mol. isotope effect investig. 4−47900
- $KCl{:}Li^+$, lattice resonant modes, negative isotope effect 4−44630
- $^{5,6}Li$ II, hollow cathode discharge, h.f.s. and isotope and Lamb shifts 4−78331
- $^{6,7}Li^{79,81}Br$, molecular Zeeman spectra 4−52182
- $NO_2 + H(D)$ reactive scattering, isotope effect on angular distrib. investig., mechanism 4−80174
- $^{14}N_2^+$, $^{15}N_2^+$, isotope effect in decay of $C^2\Sigma_u^+$ state investig., predissoc./fluoresc. mechanism 4−48107
- NaBr, temp. depend. of diffusion coeff. of ^{22}Na and isotopic effect 4−56920
- Ni, on diffusion of hydrogen 4−67069

isotope effects continued

- No, $^{15}N/^{14}N$ isotopic liq./vap. fractionation factor investig. rel. to temp., dimerisation 4−50221
- ONOF, matrix isolated i.r. spectra 4−56219
- PbX, (X=S,Se), matrix isolated i.r. spectra 4−52165
- Pd:H(D) system, supercond., isotope effect 4−70090
- PdH(D), PdAgD, supercond. mech., electron-phonon coupling, isotope effects 4−53175
- SO, microwave spectra, rot. const. of $^{3}\Sigma$ ground state, isotope depend. 4−56258
- S_2O, microwave spectra investig., isotope effects, struct. rot. consts. determ. 4−74996
- SeO_2, isotopes, 3130 Å absorpt. system, vibr. anal. 4−56195
- SnX, (X=S,Se) matrix isolated i.r. spectra, isotope struct. 4−52165
- V-H(D) systems, isotope effect on H(D) mobility 4−75647
- $VOBr_3$, force field, isotopic vibr. freq. splitting, Coriolis coupling const., thermodynamic functions *(German)* 4−52107
- $VOCl_3$, force field, isotopic vibr. freq. splitting, Coriolis coupling const., thermodynamic functions *(German)* 4−52107
- $VOClBr_2$, force field, isotopic vibr. freq. splitting, Coriolis coupling const., thermodynamic functions *(German)* 4−52107
- $VOCl_2Br$, force field, isotopic vibr. freq. splitting, Coriolis coupling const., thermodynamic functions *(German)* 4−52107

isotope exchanges

- biopolymers, H-D exchange, rapid transfer apparatus for obs. of i.r. absorption spectrum 4−58808
- between magma and groundwater, implications in differentiation history of magma 4−80256
- trans-3-methyl-3-thioniabicyclo[4.3.0] nonane iodide, base-catalyzed H-D exchange, stereochemistry 4−43759
- Ca-^{45}Ca isotope exchange, between calcite crysts. and $CaCO_3$ soln., influence of Mg^{2+} ions 4−50207
- $HX + HD = DX + H_2$, X=D or Cl, shifts in vibr. consts. calc., Born-Oppenheimer approx. method 4−74958
- $HX + HD = DX + H_2$, X=Li, B, N, F, Cl, D, corrections to Born-Oppenheimer approx., electronic effects 4−74957
- $HX^+ + HD = DX^+ + H_2$, X=Be or C, corrections to Born-Oppenheimer approx., electronic effects 4−74957
- $LiH + HD = LiD + H_2$, shifts in vibr. consts. calc., Born-Oppenheimer approx. method 4−74958
- ^{7}Li-^{6}Li, vibr. spectra, lithium silicates and germanates 4−67566
- $^{18}O/^{16}O$, self-diffusion coeff. in solids meas. *(Czech)* 4−77245
- Sn supercond. film evaporated with etioporphyrin complex, Mossbauer parameters *(Russian)* 4−73060

isotope relative abundance

see also element relative abundance

- diorite, isotopic mineral ages, Eisenkappel intrusion, Austria 4−57942
- groundwaters on Oahu, Hawaii, isotopic and chemical analysis 4−68143
- interstellar D/H abundance ratio, from DCN, HD spectra 4−80652
- interstellar matter, microwave molecular spectra analysis 4−68456
- lunar highland samples, evidence of crustal impacts 4−46187
- mass spectrometer for direct indication of isotopic abundance ratio *(Japanese)* 4−51175
- Moon, age and history of highlands based on $^{87}Rb/^{87}Sr$ studies 4−62054
- S isotope fractionation by sediment adsorption of sulphates in Bay of Quinte (Lake Ontario) 4−64837
- solar atmosphere isotope ratios, elemental abundances and molecular compounds 4−76791
- superconducting elements, rel. to critical temp. 4−72897
- tritiated water, isotope balances for hydrometeorological systems 4−80307
- Troodos ophiolite complex, Cyprus, O, H isotope abundance rel. to serpentinisation 4−73463
- Tyrrhenian Sea, isotopic analysis of deep structure 4−61724
- Ag deposits, stable isotope geochem., Great Bear Lake, Northwest Territories 4−64764
- $^{40}Ar/^{36}Ar$ ratio increase in upper mantle, petrogenetic implications 4−61685
- $^{40}Ar/^{39}Ar$ ratio for xenolithic ultramafic rocks from Kola Peninsula 4−50230
- ^{40}Ar-^{39}Ar chronology and cosmic ray exposure ages for Apollo 15 samples 4−68379
- C isotope fractionation between dissolved bicarbonate and gaseous CO_2 4−50258
- C^{12}/C^{13} ratio in Arcturus from photographic spectrograms of red CN(2,0) band 4−58329
- ^{12}C, ^{13}C, isotope content in primary cosmic rays *(Russian)* 4−80441
- ^{12}C, ^{13}C stable isotopes, detection using (p,γ) reaction, ^{13}C enrichment determ. 4−46933
- $^{12}C/^{13}C$ in K giants, CO band strengths 4−70975
- $^{12}C/^{13}C$ ratio for Orion Nebula from $H^{12}C^{14}N$ and $H^{13}C^{14}N$ line emissions at 80 GHz 4−68458
- ^{13}C and ΣCO_2 in surface waters and atmospheric CO_2 4−64840
- $^{13}C/^{12}C$ in Sun neutrino prod., comparison, theory and expt. *(Russian)* 4−83181
- ^{14}C variation in natural geophysical reservoirs, Box model calc. 4−76673
- D/H ratio in giant planet atmosphere rel. to D enrichment of metallic H 4−62035
- ^{3}He, ^{4}He, >1 GeV/nucleon, in primary cosmic rays *(Russian)* 4−83162
- $^{3}He/^{4}He$ in He-weak stars 4−46235
- $^{3}He/^{4}He$ in ultrabasic xenoliths from volcanic rocks 4−45956
- Hg, anomalous abundance in peculiar A-B stars, diffusion theory 4−73692
- ^{26}Mg, calc. of $^{23}Na(\alpha,p)^{26}Mg$ thermonuclear reaction rate 4−55859
- ^{15}N enrichment analysis using low-energy proton activation 4−55147
- $^{15}N/^{14}N$ in Sun neutrino prod., comparison, theory and expt. *(Russian)* 4−83181
- ^{23}Na, calc. of $^{23}Na(\alpha,p)^{26}Mg$ thermonuclear reaction rate 4−55859
- O, meteorite ablation product atmos. oxygen isotope temporal variation determ. 4−58057
- $^{18}O/^{16}O$ and $^{17}O/^{16}O$ ratios in carbonaceous chondrites 4−62077
- Pb isotopic composition and Pb-U-Th concentrations in carbonatites 4−57908
- $^{206}Pb/^{204}Pb$ and crustal evolution of Slave Craton at Ghost Lake, N.W.T. 4−80224

isotope relative abundance continued

- ^{210}Pb in Gulf of California and eastern North Pacific, concentrations and residence times 4−70679
- $^{240}Pu/^{239}Pu$ ratio in Atlantic marine samples, fallout 4−50262
- ^{226}Ra in Gulf of California and eastern North Pacific, concentrations and residence times 4−70679
- Rb and Sr from Oklo natural fossil reactor, isotopic anal. for U mineralization age meas. *(French)* 4−80227
- $^{87}Rb/^{87}Sr$ age of Juvinas basaltic achondrite and early igneous activity 4−62067
- $^{146}Sm/^{147}Sm$ rel. to ratio meas. former cosmic radiation intensity determ. *(French)* 4−54349
- $^{87}Sr/^{86}Sr$ ratio for gneisses in S.W. Greenland, origin 4−50240
- ^{235}U, isotopic anomalies in mined samples, explanation by antimatter meteorite in Gabon 4−45977
- ^{235}U, isotopic anomalies in mined samples, nuclear reactor spontaneous occurrence on Earth (at Gabon) 4−45978
- Xe composition of meteorite 4−76810

isotope separation

see also isotope exchanges; radiochemistry

- atomic beam deflection, by resonance radiation using stimulated emission 4−43754
- chemical reactions under thermodynamically nonequil. conditions *(Russian)* 4−70605
- deuterium and tritium recovery, by laser photolysis of water 4−50191
- e.m. separators, lens effect of extraction electrode aperture 4−55550
- formaldehyde, laser induced photodissociation obs. 4−45934
- gas mixture, selective stimulation of chemical reactions by laser beam 4−50192
- INS separator progress report 4−71238
- laser application, and examples, review 4−45935
- laser beam application, review 4−45932
- laser selective excitation, atomic and molecular two-photon processes 4−66282
- on-line separator at JINR heavy-ion cyclotron 4−77280
- photochemical process, selective unimolecular photoisomerization method 4−83033
- photodissociation, laser induced chemical effects, review 4−45931
- photoselective enrichment, stimulated Raman scatt. process appl. 4−78315
- radionuclide separation from fission products by h.v. electrophoresis *(German)* 4−64720
- rare-earth elements, highly radioactive source prod. by 660 MeV p irradiations of lanthanide targets 4−77162
- transplutonium elements separation from neutron irrad. ^{241}Am 4−57876
- Br_2, laser selective photochemistry of $Br_2 + HI$ system 4−68020
- Cd trace element determ. using high yield e.m. isotope separator and neutron activation 4−46958
- ^{111}In, carrier free prod. 4−70614
- ^{15}N, in chem. reactions under thermodynamically nonequil. conditions *(Russian)* 4−70605
- ^{238}Pu, aged, separation of ^{234}U by precipitation 4−63316
- U, in light gas presence, separation nozzle process 4−81613
- ^{234}U, from aged ^{238}Pu, precipitation 4−63316
- ^{235}U production, gas separation, square cascade, accurate kinetics equations desired 4−78254

isotope shifts

see also atomic spectra

- ^{169}Yb, isotope shifts, nuclear moment determ. from hyperfine splitting, meas. 4−51748
- alkaline earth metal oxide, ozonide, from $M + O_3$ matrix reaction, i.r. spectra 4−48025
- atomic eigenvector calc. from isotope shifts of normal mode frequency 4−56830
- benzene, partially deuterated, nonradiative and fluorescence lifetimes of individual vibronic levels 4−75005
- p-benzoquinone(-h_4),(-d_4), vapour, fluoresc. spectra, assignment of $n\pi^*$ singlet states 4−48074
- p-benzoquinone (-d_4),(-h_4), vibr. assignment, ground state fundamentals 4−48019
- chloroform, i.r. vibr. spectra, $^{12}C/^{13}C$ isotope shifts, force field 4−48023
- 1,1-dibromoethane, and deuterate, far i.r. and Raman spectra, vibr.-rot. anal. 4−52156
- fluorotrichloromethane, polycrystalline film, Raman spectrum 4−57523
- formaldehyde, Raman spectra of deuterated compounds *(French)* 4−52174
- gas laser measurement technique, nonlinear effects 4−69411
- hexamethylenebenzene, crystal, l.f. Raman spectra 4−57525
- methanol, deuterated, i.r. spectra in Ar matrix, Fermi resonance shift, force field 4−48039
- N- methyl-ethylidenimine, i.r. spectrum, rot. constants, valence force field 4−63426
- microscopic approach 4−71807
- peroxyacetylnitrate, i.r. spectra in oxygen matrix, isotopic shift, mol. config. 4−48033
- polyatomic molecules vibrational frequencies, approx. calc. with computer *(Russian)* 4−43864
- sugars, D isotope effect on chem. shifts of ^{13}C n.m.r. signals, use for signal assignments 4−52208
- trimethylammonium halide, i.r. and Raman band profiles, H-band and isotope effects 4−66428
- $[^{64}Zn(^{92}MoS_4)_2]^{2-}$, and ^{68}Zn, ^{100}Mo analogues, i.r. spectra investig., isotope shifts, vibr. coupling 4−72203
- CO, n.m.r. spectroscopy, temp. depend. 4−69519
- $^{12}C^{16}OF_2$, $^{13}C^{16}OF_2$, $^{12}C^{18}OF_2$, $^{13}C^{18}OF_2$, microwave rot. spectra, 18-77 GHz, rot. consts., mol. struct. 4−48051
- $Cs_2Pt(NO_2)_4$, ^{14}N and ^{15}N substituted, i.r. and Raman spectra, vibrational assignment 4−78462
- D, deuteron polarisation effect on isotope shifts 4−51954
- H, deuteron polarisation effect on isotope shifts 4−51954
- ^{193}Hg, hyperfine structure, isotope shift, Zeeman-scanned optical pumping method 4−59918
- ^{193m}Hg level crossing determ. of 6s6p $^{3}P_1$ h.f.s. constants, deduction of isotope shifts 4−59932
- $K_2Pt(NO_2)_4$, ^{14}N and ^{15}N substituted, i.r. and Raman spectra, vibrational assignment 4−78462

isotope shifts continued
- LaI, at. spectrum obs. 4−72041
- Li, isotopic concentration determ. by emission spectrometry 4−68834
- Li-1,3 dionates, i.r. spectra, struct. and vibr. interaction isotope shift anal. 4−56243
- LiF:H(D), U band absorption, isotope shift rel. to local mode frequency for U centre 4−79761
- Mg(NH$_3$)$_6$Cl$_2$, Raman spectrum, vibrational anal., deuteration effect *(French)* 4−57528
- OH$^-$, OD$^-$, high resolution photodetachment, threshold region 7000-6560 Å 4−43873
- Pb isotopes, comparison of muonic atom and electronic X-ray shifts 4−66357
- S$_3$(BX)$_2$, X=Cl, Br, I, CH$_3$, i.r. and Raman spectra 4−57522
- Sb, even isotopes, anal. of props. using density dependent effective interaction 4−47641
- Xe I arc spectrum in visible and i.r. regions, isotope shift obs. 4−47840
- Yb even isotopes, charge distrib. from muonic X-ray transitions *(German)* 4−77950
- Zn^{32}S(^{34}S), atomic eigenvector calcs. from isotope shifts of normal mode frequency 4−56830

isotopes
- *see also radioisotopes*
- ^{12}C substitution for ^{13}C n.m.r. labelling in biosynthetic pathway studies and other applications 4−46926
- ^{13}C^{16}O, isotopic anal. by i.r. overtone spectroscopy 4−74165
- ^{3}H, uptake and loss in grass vegetation, atmospheric exposure, expt. results 4−65285
- Ne, sublimation energy, isotope effects and new calc. value 4−63908

isotopic generators *see radioactive sources*

iteration methods *see iterative methods*

iterative methods
- *see also predictor-corrector methods*
- aerodynamic calc. of wings of finite span *(Rumanian)* 4−56405
- astrophysics, optically thin extended sources, spatial spectroscopic diagnostic 4−58206
- atmospheric water vapor profile, low-altitude, i.r. meas. 4−61779
- Boltzmann and Krook equations soln. 4−81250
- Boltzmann equation, accuracy of iterative and Monte Carlo solns. 4−81254
- cascade, calc. of plane, stationary incompressible flow *(German)* 4−52431
- Case's eigenfunctions, full-range completeness in soln. of Milne neutron transport problem 4−66250
- conjugate gradient method for large geodetic triangulation system 4−46097
- convective heat transfer, supersonic recirculating flow region, Telenin's method 4−78584
- coordinate stretching, interface location, general relaxation method, application to composite polytropes 4−76531
- corner layer flow, optimisation of ADI method 4−78617
- differential equations, second order, arising in problem of rotational excitation of rigid rotor, iterative solns. 4−66519
- elastic material, homogeneous isotropic, numerical soln. of plane strain and stress problems 4−59121
- equation for generalised axially symmetric theory of potential *(Russian)* 4−51286
- finite difference Newton-Raphson soln. for atomic Hartree-Fock problem 4−63321
- galvanomagnetic coefficients, a.c. cond., polar semiconds., convergence props. 4−82431
- gas mixtures, influence of diffusion velocity on motion, successive approx. method *(Russian)* 4−56350
- Gauss Seidel finite element analysis, Dugdale model solutions, single edge cracked plate 4−65662
- geomagnetic problems, e.m. induction effects calc. in thin conductors 4−68106
- glass melt, natural convection calc. 4−48206
- hyperbolic equations, functionally stable iteration process 4−51277
- image reconstruction, iterative three-dimensional, accurate algorithms 4−71113
- integral equation formulated with Greens functions solved iteratively 4−65713
- inverse eigenvalue problem, soln. by iteration algorithm *(German)* 4−43002
- Kantorovich method, for elasticity problems 4−59166
- Knudsen iteration method for nonlinear flow problems 4−78662
- least-squares analysis of exchange-broadened e.s.r. spectra 4−53280
- Lie series perturbation solution to invariant bedding reflection equations 4−81529
- linear differential eigenvalue problems, two-point, iterative solns. 4−55188
- linear Fredholm eqn., improved successive approximation method 4−71485
- linear operator equations in Banach spaces, approx. solns. 4−81111
- magnetic dipole excited cylinder, iterative perturbation soln. 4−77590
- meteorological field objective analysis on the sphere 4−68199
- MHD generator with anisotropic conduction, end effects *(Russian)* 4−81953
- minimising skew, optimal data transform., computer program 4−68876
- neutron transport eqns., iterative solns. convergence accel. 4−81521
- Newton, modified, for transient solns. of nonlinear nuclear reactor with various feedbacks 4−78208
- Newton's method, analysis of nonlinear structures 4−59181
- nonlinear differential eqns., singularly excited periodic solns. and small parameter method 4−77372
- nuclear structure calculation, soln. of the generalised Brueckner-Hartree-Fock equations in the exp(S) formalism 4−71799
- one dimensional continua, Ritz method, iteration method combination *(German)* 4−81151
- partial differential equation system, iterative soln. *(German)* 4−74232
- plasticity, ideal body under Haar-Karman hypothesis conditions, approx. soln., convergence *(Russian)* 4−74322

iterative methods continued
- potential problems in general 2D regions, numerical solution package:POTENT 4−77591
- radiative transfer, variable-moment quotient soln. 4−71445
- simultaneous iteration reln. to flexural vibration problem for rotationally symmetric bodies 4−51382
- statistical astronomy, rectification of observed distribs. 4−65225
- Sturm-Liouville problem, inverse, iterative soln. 4−47037
- Sturm-Liouville problems, upper and lower bounds for zeros of eigenfunctions *(French)* 4−43023
- superposition approximation and natural iteration calc. in cluster variation method 4−52851
- thermostatic problems, temp. field and thermal resist. solns. 4−43202
- time dependent Schrodinger equation, for two level system in sinusoidal field 4−77525
- transfer functions of biological data, high and low order, graphical and iterative fitting 4−76945
- transport calcs. convergence acceleration of inner iterations using modified synthetic method 4−81582
- wing, low aspect ratio, thickness effect, slow oscillation at subsonic speed 4−51410

itinerant model of magnetism *see band model of magnetism*

Jahn-Teller effect
- alkali halide phosphor, activated with Tl$^+$-type ions, dynamical Jahn-Teller splitting of B absorpt. band 4−53483
- allene, and deuterated derivatives, photoelectron spectra, vibrational anal. 4−56295
- cobaltocene, e.s.r. in rare gas matrices, 4.2K 4−72226
- II-VI lattice e.p.r. of Cr^{2+}, Jahn-Teller coupling coeffs. 4−49226
- Lie groups, octahedral complexes 4−60745
- phenyl alkyl ketones, dual phosphoresc., Jahn-Teller and viscosity-depend. matrix pot. 4−48064
- static field splitting of zero-phonon lines in Jahn-Teller systems 4−75797
- structural phase transitons in Jahn-Teller system, soft-mode spectroscopy, review 4−56851
- superexchange theory, orbital degeneracy, material properties 4−79506
- T × t, large finite coupling 4−79297
- tetragonal molecular system, Jahn-Teller instability and mag. circular dichroism for E-orbital state 4−56171
- trinuclear complexes, mag. Jahn-Teller effect investigation 4−75796
- two-frequency description for Jahn-Teller coupling of impurities in crystals 4−53053
- U-matrix used to derive canonical transformations, applied to Jahn-Teller systems 4−51433
- Al$_2$O$_3$:Ni^{3+}, orbital doublet 4−70204
- Al$_2$O$_3$:Ni^{3+}, paramag. reson. spectra, Jahn-Teller multimode model 4−73023
- α-Al$_2$O$_3$:Ti^{3+}, zero phonon transitions and interacting Jahn-Teller phonon energies determ. 4−49429
- BaF$_2$:Sc^{2+}, e.p.r. meas., vibronic interaction 4−79589
- CO$_3^-$, radical, prep. in solid soln. in Ar, vibr. spectrum investig., struct. 4−48006
- CaAl alum:Ti^{3+}, Jahn-Teller coupling of Γ_{5g} state to Γ_{3g} vibrational mode, quasi Γ_8 ground state 4−79299
- CaF$_2$:Eu^{2+}, vibronic fluorescence calc. at 4130 Å, Jahn-Teller problem 4−57621
- CaF$_2$:Sc^{2+}, e.p.r. meas., vibronic interaction 4−79589
- CaO, phosphoresc. microwave double reson., coherent Jahn-Teller states 4−73049
- CuF$_{2-2x}$Zn$_x$Ti$_x$O$_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
- CuFe$_{2-2x}$Ga$_{2x}$O$_4$, cooperative Jahn-Teller distortions, comp. and temp. 4−79135
- CuFe$_2$O$_4$, tetragonally distorted mag. ordering behaviour 4−57342
- CuFe$_{2-2x}$Zn$_x$Ge$_x$O$_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
- DyVO$_4$, mag. field depend. of Jahn-Teller transition 4−63882
- Dy$_p$Y$_{1-p}$VO$_4$, $0 \leqslant p \leqslant 1$, mixed crystals, cooperative 4−79298
- Fe$_3$O$_4$, magnetite, Verwey ordering as cooperative Jahn-Teller transition 4−82374
- Fe$_2$TiO$_4$, rel. to giant magnetostriction, elastic consts., and anisotropy const. 4−45159
- IrCl$_6^{2-}$, octahedral, Ham effect in ^{2}T$_{2u}$ excited state charge transfer 4−73127
- KI:Tl-type phosphors, luminesc., spin-orbit Jahn-Teller interactions with vibr. modes investig. 4−70355
- KI:Tl-type phosphors, quadratic interaction for coexistence of two kinds of Jahn-Teller distortions, Fukuda model 4−57041
- KMgF$_3$:Co^{2+}, dynamical Jahn-Teller effect in ground ^{4}T$_{1g}$ and excited ^{4}T$_{2g}$ orbital triplets 4−48920
- KMgF$_3$:Mn^{2+}, mag. circular dichroism, phosphorescence excitation spectrum 4−73171
- KZnF$_3$:Mn^{2+}, mag. circular dichroism, phosphorescence excitation spectrum 4−73171
- K$_2$Zn(SO$_4$)$_2$.6H$_2$O:Cu^{2+}, e.s.r., Jahn-Teller effect 4−76148
- Li$_{0.5}$Fe$_{2.5}$O$_4$, impurity effects on phase transition 4−52889
- MgO:Co^{2+}, dynamical Jahn-Teller effect in ground ^{4}T$_{1g}$ and excited ^{4}T$_{2g}$ orbital triplets 4−48920
- MgO:Cr^{2+}, acoustic attenuation, determ. of energy level separation 4−44858
- MgO:Fe^{2+}, far i.r. absorption, spin-orbit levels 4−57583
- MgO:Ni$^+$(Ni^{3+}), dynamic Jahn-Teller effect in e.p.r. spectrum 4−53310
- Mn$_3$O$_4$-Mn$_2$SnO$_4$, macroscopic distortion of cryst. struct. by Mn^{3+} ion *(French)* 4−45074
- Mn$_3$O$_4$-Mn$_2$SnO$_4$, Mn^{3+} high spin configuration, ferrimag. *(French)* 4−70148
- NiCr$_2$O$_4$, hydrostatic press. effect on cooperative Jahn-Teller phase transition temp. 4−48753
- NiZn ferrite, Co substituted, temp. depend. of mag. props. 4−73001
- RbMnF$_3$, Mn^{2+} triply degenerate states comparison 4−69987
- Si, distorted ⟨111⟩ C interstitial, e.p.r., stress relax. 4−61035
- SrCl$_2$ crystals, O$^-$ centre, e.p.r. spectra 4−76159
- SrF$_2$:Sc^{2+}, e.p.r. meas., vibronic interaction 4−79589
- Tb$_p$Gd$_{1-p}$VO$_4$ $0 \leqslant p \leqslant 1$, mixed crystals, cooperative 4−79298
- Ti-Fe(0.2 at%), obs. of resist. min. and Kondo like behavior, model using non mag. localised impurity states 4−48960

Jahn-Teller effect continued
  TmCd, low temp. thermal expansion and magnetostriction obs. 4−82598
  TmVO$_4$, tetragonal-to-orthorhombic distortion, temp. depend. obs. 4−60586
  TmVO$_4$, with cooperative Jahn Teller effect mag. props. 4−79500
  YIG, n.m.r. of ^{55}Mn, site distrib. of Mn ions *(French)* 4−64268
  ZnS:Cu^{2+}, in $^2T_2$ state, near i.r. absorpt. and emission spectra 4−57584
jellies *see gels*
jet stream *see atmospheric movements*
jets
  see also plasma jets; sprays
  aerosonic games with control elements and externally generated pulses 4−44032
  air, impingement on flat plates, noise produced 4−78558
  air, plane, discharge into blind pass 4−44062
  air, recirculation zone, nozzle flow 4−44051
  air jet turbulent regions, crossed beam correlation meas. of sound source 4−43988
  air slot, into blocked passage, anal. 4−44049
  airfoil cascade edge losses, jet flow model 4−44020
  axisymmetric, discharging into semibounded space, secondary flow outside turbulent region 4−44058
  axisymmetric free jet, transition region, circular tube, mean velocity measurement *(Japanese)* 4−78643
  axisymmetric jet column, unstable waves investig. 4−78642
  axisymmetric jet of ideal fluid, stability 4−44053
  boiling water reactor recirculation systems, jet pump development 4−47769
  buoyant plumes, 3-dim. unsteady conservation eqns. 4−44056
  coastal jets and upwelling in bounded basins 4−50268
  cold liquid jet, vapour condensation, heat transfer 4−69593
  compressible free, centreline velocity decay 4−81917
  compressible streams interaction in plane channel at small Mach numbers 4−48311
  contrary, position meas. system *(Bulgarian)* 4−48312
  discrete hole cooling with free-stream turbulence and favourable press. gradient 4−75090
  duct flow, plane symmetric sudden expansion 4−56415
  exhaust, in rocket engine, model for soot production rate 4−50165
  exhaust noise, rough combustion, nonsteady aerodynamic sources 4−78583
  extinction of spherical diffusion flames, Spalding's theory 4−76577
  fan-shaped, of different mol. wt., mixing downstream 4−75154
  fission-gas, in LMFBR, reln. to liquid-submerged sonic gas jet eqns. of motion 4−51868
  flame, role of acoustic streaming in sound interaction 4−56417
  flow visualisation, double exposure method in holography 4−55169
  fluid injection through one side of vertical channel 4−78635
  free-surface problems, finite element anal. 4−72328
  fuel-coolant interaction, bubble expansion and collapse with jetting 4−56445
  gas, liquid-submerged sonic, eqns. of motion, reln. to fission-gas-jet in LMFBR 4−51868
  gas flow, heat-conducting, in planar channels with strong local injection, modelling 4−75153
  gas injection, effect of hole geometry and gas density on film cooling 4−44055
  gas unsteady flow, meas. by orifices operating with supercritical press. differential 4−63576
  gas-jet recoil transport method in system for rapid aqueous radiochemical separation 4−55003
  gas-particle mixture, supersonic jet eqn. of motion *(Russian)* 4−52519
  H$_2$, rot. relax. rate meas. using mol. beam time of flight anal. 4−60129
  heated, two-dimens. jet, discharged as water surface, flow characts., pollution appl. 4−75150
  heated subsonic, noise, jet density exponent issue 4−63574
  Helmholtz jets, underdetermined impingement problem 4−81923
  hydrojet rocket engine, eqn. of thrust, viscous wake, boundary layer 4−44052
  hypersonic viscous gas, mixing, Navier-Stokes eqns. 4−48278
  impinging coaxial annular flows, attenuation of unsteady flow state 4−48225
  i.r. emission from hot jet, turbulence representation by crossed spectral densities 4−43990
  jet flow nonstationary interaction with two dimensional target 4−66624
  laminar incompressible wall jet on moving plate 4−78640
  laminar wall jet with non-isothermal surface conditions, heat transfer anal. 4−75093
  liquid, droplet, production at tip, associated electrification investig. appl. to water 4−78694
  liquid, penetration depth into supersonic crossflow 4−63577
  liquid jet, oscillations, surface-active material effect 4−44048
  liquid jet, spatial stability in air 4−44066
  liquid jet drop formation, one-dimensional analysis 4−81926
  liquid jet stationary nodes, spherical surface contact 4−56413
  liquid jets and air in crossflow, direct contact convection 4−75178
  local heat transfer coeffs. determ. using liq. crysts. 4−58758
  mixing development towards asymptotic similar soln. 4−78646
  molecular beam skimming from nonequilib. gas jets 4−81931
  momentum jets and forced plumes, numerical study 4−81924
  moving source solns. relevant to jet noise 4−83360
  multinozzle jets, gas flow 4−48309
  noise, excess, generation 4−44076
  noise, modification of Lighthill's moving source model 4−44072
  noise, secondary wave nonlinear generation 4−68584
  noise from high temp. jet 4−44069
  noise from hot subsonic jets 4−43991
  noise generating regions in real jet engine and model jet, cross correl. meas. 4−44070
  noise generation, conference, Brussels (1973) 4−46530
  noise generation in subsonic jets 4−44074
  noise mechanism 4−44073
  non-Newtonian fluid, free surface jet, rel. distrib. rheological props. depend. 4−48304
  normal impingement simple soln. 4−66621
jets continued
  nozzle design for hovercraft *(Russian)* 4−75155
  pipe flow sudden enlargements, integral analysis 4−52447
  plane, temp. distrib. soln. 4−78647
  plane EHD wall jet, propagation above conducting plate, boundary layer 4−48336
  plane jet in counter flow, vortex street formation 4−66630
  radial to rapid massive rotating sphere 4−56384
  rotational energy relaxation rates, determ. by time of flight anal. of mol. beam 4−60128
  screen perturbed, turbulence and acoustic characts. 4−78636
  self-evaporating liquid discharge, critical phenomena 4−69591
  single-row system of jets in crossflow 4−48310
  sound power from moving sources shrouded by jet flow, convective amplification 4−44071
  sound source intensity distributions in subsonic and supersonic jets 4−43989
  spray from pressure jet entering recirculating air flow, droplet size distribution and trajectories 4−60256
  stability in surrounding viscous liq. 4−48217
  subsonic, heat exchange with normally disposed flat obstacle 4−44059
  subsonic, interaction with plane boundary located normal to jet axis 4−66623
  subsonic, separated by vortex sheets, instability due to acoustic radiation 4−63575
  subsonic turbulent, noise intensity calc. 4−44057
  supersonic, expansion in channel with suddenly changing cross section, similarity parameters 4−44060
  supersonic, impinging on plate, near wall jet 4−81929
  supersonic, interaction with external acoustic waves *(Russian)* 4−60211
  supersonic, shock wave interaction with tangential discontinuity 4−52449
  supersonic, shock wave noise 4−44043
  supersonic, strongly rotating, reverse flow zone 4−44063
  supersonic, unstable interaction with infinite baffle 4−66619
  supersonic and transverse external flow, interference 4−44028
  supersonic free jet investigation by laser anemometer 4−74191
  supersonic jet target for intense neutron source facility 4−69348
  supersonic stream, base press. and temp. behind axisymmetric body *(Russian)* 4−60210
  supersonic submerged underexpanded gas jet, closing compression shock 4−44061
  supersonic underexpanded in hypersonic stream, mixing layers 4−72327
  supersonic underexpanded jet, interaction with finite flat baffle 4−66620
  swirling turbulent plume, entrainment model 4−78645
  transition flow region in free gas jets 4−44064
  troposphere, stratified jet stream, finite amplitude waves and CAT 4−46024
  turbojet plume containing CO, chem. reaction in turbulent flow 4−60262
  turbulent, discharged at various inclinations into crossflow, near-field trajectory 4−48302
  turbulent, disturbance press. waves development 4−66626
  turbulent, free annular, propag. characts. 4−52448
  turbulent, heated, mean temp. and vel. 4−48314
  turbulent, in confined crossflow, deflection and impingement 4−44067
  turbulent, leaving rectangular nozzle, exptl. anal. of structure *(Russian)* 4−44054
  turbulent, multiple source, entrainment characteristics 4−60208
  turbulent, noise, press. sources for wave model 4−81916
  turbulent, non-Newtonian polymer solution 4−60207
  turbulent, passing through semipermeable obstacle 4−52450
  turbulent gas jet, influence of kinetic energy and compressibility on boundary layer eqns. *(Russian)* 4−52445
  turbulent gas jet, momentum-, mass- and heat transfer *(German)* 4−75149
  turbulent gas jets, cocurrent flow turbulent mixing 4−48306
  turbulent jet, moving along porous cylinder 4−69611
  turbulent mixing, centreline mass fraction decay, modelling methods 4−81915
  turbulent mixing diagnostics using laser Raman scatt. 4−81922
  turbulent pressure resolution into azimuthal components 4−44075
  turbulent stream, diffusion of particle contaminants 4−48375
  turbulent swirled jets formed by annular swirlers 4−78641
  turbulent vortex rings, fluid ejected from sharp-edged orifice 4−60212
  turbulent wall jets, flow development, friction coeff. 4−48305
  turbulent wall jets over logarithmic spiral surfaces, development of jets 4−66618
  turbulent wall-jets in conical diffusers, mean flow meas. 4−48303
  two-dimensional, maximum vel. meas. *(Japanese)* 4−56416
  two-dimensional free and parietal, universal relationship for mean vels. *(French)* 4−75148
  ultrajet from hydraulic pulsator nozzle, approx. model *(Russian)* 4−52443
  under expanded supersonic, laser-Doppler velocity meas. 4−71296
  underexpanded supersonic flow visualisation, laser interferometry 4−46993
  uniform, low Reynolds number, production 4−81927
  urinary tract obstruction, modelling, drop interval analysis 4−46396
  vapour condensation, heat transfer 4−44065
  wall jet, turbulent, flow over logarithmic spiral surface 4−69590
  wall layer, deviation from law of the wall 4−48308
  water-polyethylene oxide, spray droplet formation 4−52446
  whirling jets, parallel, interaction effects 4−66622
  wing characteristics, expt. study of spanwise air jet influence 4−75135
  CO$_2$, supersonic, condensation on cryogenic panel, performance meas. 4−56418
  He-jet recoil-transport apparatus, liquid-air cooled, for radioactive recoil atoms 4−77133
jitter *see vibrations*
jogs *see dislocations*
Johnsen-Rahbek effect *see adhesion; electrostatics*

Johnson noise *see thermal noise*

joining processes
see also brazing; soldering; welding
scintillators to optical waveguides 4—74119
Au to Au diffusion bonding, Hg, In and Ga interlayer 4—73337
Cu core fixed in Mo shell, thermal expansion of system *(Russian)* 4—70482

Jordan-Thiry field *see cosmology; general relativity*

Josephson junctions
see also tunnelling
a.c. and d.c. effects applics. *(Slovak)* 4—82530
a.c. and d.c. Josephson effects *(German)* 4—70116
asymmetrical and cross, diffraction patterns and vortex structure 4—45057
coupling with high-Q supercond. microwave cavity, theory 4—60924
cryogenic voltage comparator system for 2e/h meas. 4—65363
cylindrical Josephson junctions, self-resonance calcs. 4—64169
detectors, appl. to magnetic field and voltage measurement, for infrared detection 4—67318
diamagnetism, precursor, Josephson-coupled layered and isotropic superconds. 4—57224
fluctuation power spectrum 4—60928
harmonic mixing of 1 GHz source with HCN laser, 825^{th} harmonic 4—74084
instrumentation application, magnetometry and cryogenics 4—80853
one-dimensional SNS and SN junctions, V-I characts., field and current distrib. *(Russian)* 4—82537
preparation by evaporation method 4—45061
quasiparticle pair interference current in weak links 4—45063
quasiparticle-pair interference current, observability 4—79467
resonance scattering effect, Josephson current through supercond.-normal metal-supercond. junction 4—67317
series connected for microwave detection *(Russian)* 4—62492
superconducting alloys with local states within gap, temp. depend. of Josephson tunnelling current 4—45065
superconductor/normal conductor/seuperconductor sandwich with third terminal 4—70115
thermally excited fluxoid quantum transitions in coupled ring 4—49133
transient effect and thermo-e.m.f. in S-N-S structures *(Russian)* 4—70120
transparency, correction to Josephson current in second order of perturbation theory 4—57226
tunnel junctions, lifetime of zero-voltage state determ. 4—76024
tunnelling current in coupled superconductors, quantum theoret. derivation 4—57223
tunnelling supercurrents, a.c. and d.c., discovery 4—70118
unit of voltage, maintenance using Josephson effect 4—65335
Nb point contact junction, microwave response in presence of strong fluctuations 4—82535
Nb thin film microbridges, electron-beam fabricated, exam. of props. 4—76021
Nb-Nb, laser irrad. effect, 45 × energy gap freq. 4—49130
Nb-Nb point contact as oscillator-mixer, freq. conversion, 145-1600 GHz 4—67314
Nb-NbO_x-Pb, prep. of devices and arrays using photoresist technology, and lifetest 4—49134
Nb_2O_5, fabrication method 4—60923

Joshi effect *see glow discharges*

Joule-Thomson effect
gases, enthalpy determ. by Joule-Thomson effect meas., apparatus, applic. to N_2 4—52907
N_2O, enthalpy-press. behaviour determ., Joule-Thomson effect studies 4—78554

junction field effect transistors *see field effect transistors*

junction lasers *see semiconductor lasers*

junctions, waveguide *see waveguide couplers*

Jupiter
13th satellite, positions, ephemeris for 1974 Sept. 30 to Oct. 30 period 4—80524
asteroid orbit stability for close approach to Jupiter 4—54442
atmosphere, C_2H_2 and C_2H_6 identification in i.r. spectrum 4—73620
atmosphere, composition, banded struct. 4—50480
atmosphere, composition and structure rel. to origin of life 4—50500
atmosphere, ethane ν_9 fundamental intensity, absorpt. investig. 4—74993
atmosphere, Pioneer 10 S-band radio occultation *(X)* 4—46182
atmosphere, structure, composition between turbopause and mesopause 4—68364
atmosphere entry probe, duplication of stagnation region conditions in shock tube 4—72308
atmospheric H-He abundance from β Scorpii occultation light curves 4—70923
atmospheric model, optical parameters and photometric characts. *(Russian)* 4—80516
atmospheric radiowave prop. 4—80519
bow shock structure, Pioneer X obs. 4—54421
Callisto, radio emission, brightness temp. meas. 4—50502
Callisto and Ganymede 2.8 cm brightness temp. 4—73621
cloud, radioastronomical meas. of NH_3 content 4—62044
decameter radioemission, effect of solar cosmic rays, meridional struct. of solar wind *(Russian)* 4—80523
decametric radio emission, modulation lanes in dynamic spectra 4—83183
deep interior, applic. of fully ionised liq. metal conduction theory 4—60777
dekametre radiation, periodicities and sources rel. to posn. of Io *(Swedish)* 4—68352
disc temp. meas. at 2.07 and 3.56 cm wavelength 4—54405
evolution from protoplanet 4—70925
formation from gas-dust cloud 4—50476
Galilean satellite i.r spectra rel. to H_2O frost surface 4—50494
Galilean satellites, implications of Jupiter's early contraction history for composition 4—50487
Galilean satellites, polarimetric survey in green light 4—54412
Galilean satellites, reproduction by planetaria projectors, ancillary unit 4—54606
Galilean satellites, trapped particle absorption 4—70931
imaging photopolarimetry, Pioneer 10 4—46181

Jupiter continued
Io, coordinated international observation programme planned for 1974 Nov. 6-16 4—58253
Io, He 10830A emission line obs. 4—68357
Io, Na I D-lines, spatial extent of emission around satellite 4—68350
Io orbital plane and Na I emission disc, 5000-9000 Å obs. 4—76792
ionosphere, Pioneer 10 prospects 4—70942
i.r. video pictures at 5 μ, comparison with colour photographs 4—50478
Jovian clouds, Pioneer 10 images, equatorial plumes and other cloud forms 4—68365
magnetic field, high energy electrons and protons 4—46179
magnetic field, interaction with solar wind 4—46178
magnetic field, Pioneer 10 obs. rel. to Io-modulated decametric radiation 4—68351
magnetosphere, energetic electrons, theoretical model 4—58236
magnetosphere, energetic electrons 4—46180
magnetosphere, stably trapped proton fluxes 4—50475
magnetosphere configuration model 4—80521
meteor stream of Jupiter family, orbital and radiant evolution 4—54452
methane-d_1 self- and foreign-gas-broadened linewidths 4—75000
new satellite possibility, precise positions and ephemeris 4—76793
occultation of β Scorpii, diurnal temp. variations, methane mixing ratio 4—58250
occultation of β Scorpii, simultaneous high time-resolution records 4—58249
Pioneer 10, occultation by Jupiter, computer simulation of microwave experiment 4—62041
Pioneer 10, US space probe, preliminary results *(German)* 4—50503
Pioneer 10 results summarised 4—76795
plasmasphere, decameter wave emission origin, conversion from electron cyclotron plasma wave 4—58257
protosun core of Jupiter-Sun close binary system 4—61994
radiation belt, electron number density and energy determ. 4—62048
radiation belts, electron and proton fluxes 4—68358
radiative-dynamical equilibrium states 4—50472
radio spectra, hyperfine structure 4—54423
red spot, three-monthly oscillations *(French)* 4—62039
Sampson's theory for motion of Galilean satellites 4—54357
satellite mutual eclipses, UBV photoelectric light curves 4—65093
satellite photometric and radiometric obs., rotational var. of Io and Europa 4—54409
satellites, eclipse of Ganymede by Callisto, Oct. 30th, 1973 4—58256
second order perturbations, comparison with Le Verrier *(French)* 4—50434
spectra and gas pressures 4—76797
Sun-Jupiter system, periodic orbits of second generation 4—61977
synchrotron emission from charged particles with power-law energy spectrum in uniform magnetic field 4—73603
tidal force, rel. to solar activity, August 1972 *(Japanese)* 4—70897
Titan, photochemistry of hydrocarbons in atmosphere 4—50492
upper cloud level, thickness and density 4—62045
visible cloud structure from H_2 quadrupole line intensities 4—54422
H_2 pure rotational Raman scattering in 3500-3900 Å 4—46171
H_2^+ u.v. spectrum possibility of using u.v. spectral probe 4—65103

K-capture *see nuclear electron capture*

K mesons *see kaons*

K-N interactions *see kaon-nucleon interactions*

Kalman filters
gyroscopic proportional correction scheme *(Russian)* 4—51387

kaon-baryon interactions
see also kaon-hyperon interactions; kaon-nucleon interactions
No entries

kaon-baryon scattering
see also kaon-hyperon scattering; kaon-nucleon scattering
No entries

kaon decay
see also kaon hadronic decay; kaon leptonic decay
semileptonic, measurement of K_l-K_s mass difference from charge asymmetry 4—77810
$K \to \pi\mu(e)\nu$, correction to Dashen-Weinstein theorem assuming $(3,3)+(3,3)$ symmetry breaking 4—55598
$K \to \pi\mu(e)\nu$, exact bounds for form factor 4—55593
$K \to \pi\mu(e)\nu$, resolution of phase shift ambiguities in $K\pi$ scattering 4—43434
$K \to \pi\mu(e)\nu$, role of second-class contribs., theoretical considerations 4—71653
$K \to \pi\mu(e)\nu$ form factors, application of on-mass-shell current algebra 4—81403
K^0, research in Hungary *(Hungarian)* 4—43402
$K^0 \to \pi\mu\nu$, vector and scalar form factors 4—59536
$K^+ \to \pi^-\mu^+e^+$, μ-e transitions in gauge model of weak interactions 4—51706
$K^+ \to \pi^0e^+\nu$ and $K^+ \to \pi^0\mu^+\nu$ decay modes, combined analysis, form factors 4—77794
$K^+ \to \pi^0\mu^+\nu$, decay correlation and muon polarization meas., form factor determ. 4—47480
$K^+ \to \pi^+e^+e^-$, unitarity bound on decay rate 4—81402
$K^+ \to \pi^+\nu\nu$, 60-105 MeV region, negative search 4—62918
$K^+ \to \pi^+\nu\nu$, effective coupling constants for neutral current, deep inelastic contributions 4—55590
$K^+ \to \pi\mu\nu$, slopes of vector and scalar form factors 4—59535
K^+_{e3}, Cabibbo angle and intermediate boson mass calcs. 4—71644
$K_l \to \eta_2(480)+\gamma$ decay probability, exptl. limitation *(Russian)* 4—69153
$K_l \to \gamma\gamma$ in PCAC theory, non-cancellation of Schwinger and seagull terms 4—66031
$K_l^0 \to \pi \to (e)\nu$, neutrino mass limits determ. from decay spectra 4—55596
$K_l^0 \to \pi e\nu$, wide-gap spark chamber study, energy depend. of form factor 4—55597
$(K_l^0 \to \pi\mu\nu)/(K_l^0 \to \pi e\nu)$ branching ratio measurement 4—62917
K_{l3}, bounds on chiral SU(3) × SU(3) symmetry breaking from decay parameters 4—74589
K_{l3} decay, structure of Duffin-Kemmer-Petiau matrix elements 4—66020

kaon hadronic decay
- interference terms, consequences for regeneration experiments, nonperturbative techniques 4−55599
- $K \to 2\pi$, parity violating, phenomenological anal. 4−77798
- $K \to \pi^+\pi^-$ in $e^+e^- \to k^0k^0$ at φ resonance, $|\eta_{+-}|$ determ. 4−71678
- $K^0 \to \pi^+\pi^-$, coherent regeneration amplitude in Cu from 0.6 to 1.4 GeV/c 4−59538
- $K^+ \to \pi^+\gamma\gamma$, branching ratio in current-current quark model, modified fermion loop model 4−55600
- $K^+ \to \pi^+\pi^0$, $\Delta I = 1/2$ selection rule, gauge theories 4−74590
- $K^+ \to \pi^+\pi^0\gamma$, direct decay, rel. to other weak radiative decays 4−77799
- $K^\pm \to \pi^\pm\pi^0\gamma$, direct-emission amplitude to order eg^2G 4−66023
- $K_l \to \pi^+\pi^-/K_s \to \pi^+\pi^-$ amplitude ratio, determ. of CP-noninvariance parameter $|\eta_{+-}|$ from $e^+e^- \to K^0K^0$ 4−62923
- $K_l{}^0 \to \pi^0\pi^+\pi^-$, slope parameter for neutral pion spectrum 4−62921
- $K_l{}^0 \to \pi^+\pi^-\gamma$, CP conserving transition 4−71654
- $K_l{}^0 \to \pi^+\pi^-\gamma$, search for events, branching ratio determ. 4−47482
- $K_s{}^0 \to \pi^+\pi^-$, or $2\pi^0$, $\Delta I = 1/2$ selection rule, gauge theories 4−74590
- $K^0 \to \pi^+\pi^-$, phase φ_{+-} of CP violation 4−77800
- K^*, decay contributions in $K^+p \to K^0X^{++}$ inclusive reaction 4−47610
- $K^{*0}(1420) \to K^0\pi^+\pi^-$, meas. of decay branching ratio 4−59630
- $K^{*0}(1420) \to K^+\pi^-$, meas. of decay branching ratio 4−59630
- $K^{*0}(1420) \to K^{*+}(892)\pi^-$, meas. of decay branching ratio 4−59630
- $K^{*+(0)} \to K^{+(0)}\gamma$, decay widths prediction from current algebra 4−81411

kaon-hyperon interactions
- No entries

kaon-hyperon scattering
- No entries

kaon interactions
- *see also kaon-baryon interactions*
- new conservation laws for strong interactions *(Russian)* 4−47457
- $K^\pm$ d total cross sections, 50-200 GeV/c 4−77938
- $K^\pm p$ total cross sections, 50-200 GeV/c 4−77938

kaon leptonic decay
- K_{l3} in two component theory of PCAC 4−62915
- $K_{\mu3}{}^0$ decays, radiative corrections to μ polarisation 4−62933

kaon-nucleon interactions
- charge exchange, 2-48 GeV/c, predicted s-channel Regge residue behaviour 4−71710
- in kaonic atoms, effect on X-ray transition 4−47914
- low energy, information from exotic bound atomic and nuclear states 4−59700
- K^0 coherent regeneration amplitude in Cu from 0.6 to 1.4 GeV/c 4−59538
- K^0 coherent transmission in nuclear matter, total cross sections and forward scatt. amplitudes 4−55712
- $K^\pm$ inelastic cross sections in C and Cu nuclear targets at 2.95 GeV/c 4−55889
- $K_l \to K_s$ differential regeneration cross section in Pb and Cu, coherent production and optical models 4−47729
- $K_x{}^0$ regeneration on nuclear targets, coherent production model 4−55890
- $K^0{}_l d \to K^0{}_s d$, 5 and 10 GeV/c, using phenomenological fit in Glauber multiple scattering theory 4−74676
- $K^+d \to K^0\pi^+d$, 4.6 GeV/c, effective exchanged trajectory 4−63025
- $K^+d \to K^0\pi^+np_s$, 3 to 5 GeV/c, backward production of K^* (892) 4−63024
- $K^+d \to k^+\pi^-pp_s$, 4.6 GeV/c, backward production of $K^*(892)$ 4−63024
- $K^+d \to K^+\pi^+\pi^-pn$, 12 GeV/c, search for evidence of $\Delta(1236)$-$\Delta(1236)$ component of deuteron 4−69194
- $K^+d \to K^{*0}(1420)pp_s$, meas. of $K^*(1420)$ decay branching ratio 4−59630
- $K^\pm d \to K^{*\pm}(892)d$, effective exchanged trajectory 4−63025
- KN, in resonance region, duality properties of cross sections, bootstrap implications 4−55673
- $KN \to \pi\Lambda$ hypercharge-exchange, dispersion reln. anal. 4−59625
- $KN \to \pi\Sigma$, phase-shift anal., linear-zero hypothesis and SU(3) symmetry 4−63021
- $K^-N \to K\pi\pi N$, isospin anal. of peripheral $K\pi\pi$ production 4−63023
- $K^+n \to K^+\pi^-p$, 9 GeV/c, double Regge pole anal. 4−59634
- $Kp \to KN^*(1470)$, differential cross sections, impact picture and diffractive dissociation 4−55701
- K^-p, 10 GeV/c, determ. of α-decay parameter of $\Omega \to k\Lambda$ decay 4−69152
- K^-p, cross-sections for quasi-two-body reactions, 1.263-1.843 MeV/c 4−43440
- K^-p, in resonance region, duality properties of cross sections, bootstrap implications 4−55673
- K^-p, inclusive production of Λ hyperon and K^0 at 3.93 and 14.3 GeV/c 4−69197
- $K^-p \to 1^-$ meson $+ {}^{1/2+}$ hyperon hypercharge exchange reactions, 4.25 GeV/c 4−55688
- K^-p 4.2 GeV/c events, bubble chamber film anal., Nijmegen PEPR I performance 4−77204
- $K^-p \to (K^-\pi^-\pi^+)p$, 10 and 16 GeV/c, spin-parity structure of Q and L enhancements 4−47594
- $K^-p \to \eta(\eta')\Lambda$, strange K^* and K^{**} exchanges, nonperipheral model validity 4−71737
- $K^-p \to \gamma +$ anything, 14.3 GeV/c, inclusive cross section, π° invariant distribution 4−66103
- $K^-p \to K^-\Delta^+(1230) \to K^-p\pi^0$, 1915 to 2170 MeV, partial wave analysis 4−55669
- $k^-p \to k^-(\pi^-\pi^+)p$, 14.3 GeV/c, search for double-Pomeron-exchange contributions 4−47592
- $K^-p \to K^-\pi^-\pi^+p$, 14.3 GeV/c, partial wave analysis, Q enhancement study 4−59641
- $K^-p \to K^-\pi^+\pi^-\pi^0p$, 7.3 GeV/c, $K\omega$ spectrum anal. 4−77923
- $K^-p \to K^0\Delta^0(1236)$, 15 GeV/c, total cross section 4−47591
- $K^-p \to K^0n$, 10.7 and 15.7 GeV/c, total and differential cross sections 4−47591
- $K^-p \to K^0n$, amplitude analysis of A_2 exchange at 6 GeV/c 4−66095
- $K^-p \to K^0n$, dual absorptive model, phenomenological study 4−47586
- $K^-p \to K^+\Xi^-$, 1.9 to 5 GeV/c, energy dependence of differential cross section 4−63018

kaon-nucleon interactions continued
- $K^-p \to \Lambda(1520)\pi \to K^-p\pi^0$, 1915 to 2170 MeV, partial wave analysis 4−55668
- $K^-p \to \Lambda(1815)\pi^0 \to K^-p\pi^0$, threshold to 2170 MeV, partial wave analysis 4−55667
- $K^-p \to \Lambda\eta'$, 2.18 GeV/c, study of η' meson 4−63057
- $K^-p \to \Lambda\pi$, spin-parity of $\Sigma(1580)$ 4−77901
- $K^-p \to \Lambda\pi^0$, 440-800 MeV/c, pole-resonance model, role of interference terms 4−47574
- $K^-p \to pX$, 14.3 GeV/c, obs. in p fragmentation region 4−63037
- $K^-p \to \varphi\Lambda = 3$ to 6 GeV/c, obs of f(1019) decay to K^+K^- 4−66098
- $K^-p \to \varphi\Sigma^0$, 3 to 6 GeV/c, obs. of $\varphi(1019)$ decay to K^+K^- 4−66098
- $K^-p \to \pi^+\Sigma^-$, 1.9 to 5 GeV/c, energy dependence of differential cross sections 4−63018
- K^-p rising total hadronic cross-section systematics 4−47600
- $K^-p \to \Sigma^-\pi^+$, fraction of stopped K^- mesons interacting in propane bubble chamber 4−59611
- $K^-p \to \Sigma^0\eta$, 862-1001 MeV/c, cross section for η decay via neutrals and into $\pi^+\pi^-\pi^0$ 4−47575
- $K^-p \to X^0(960)\Lambda$, spin anisotropies in Adair distribs. *(Russian)* 4−66101
- $K^0p \to \Lambda\pi^+$, 1 to 12 GeV/c, total and differential cross-sections meas. 4−74679
- $K^0p \to \Sigma^0\pi^+$, 1 to 12 GeV/c, total and differential cross-sections meas. 4−74679
- $K^+p \to (\pi^-, K^0, \pi^-\pi^-, \pi^-K^0) + X$, 10 GeV/c, anal. of spectra correlations 4−59643
- $K^+p \to K^0X^{++}$, inclusive, triple Regge anal., K^* resonance decay and Regge trajectory 4−47610
- $K^+p \to K^0\pi^+p$, 3 to 5 GeV/c, backward production of $K^*(892)$ 4−63024
- $K^+p \to K^+\Delta^{++}(1236)$, 15.7 GeV/c, total and differential cross sections 4−47591
- $K^+p \to K^+\pi^-\Delta^{++}$, 12 GeV/c, study of $K^+\pi^-$ scattering, partial wave analysis 4−74687
- $K^+p \to K^*(890)\pi N$, 5 and 8.2 GeV/c, isospin analysis of diffraction dissociation process 4−71740
- $K^+p \to K\pi\Delta(1236)$, 5 and 8.2 GeV/c, isospin analysis of diffraction dissociation process 4−71740
- K^+p total cross sections, linearly rising in ln s, diffractive component 4−74703
- $K^\pm p$, 32 GeV/c, parameters characterising charged particle multiplicity distributions 4−59646
- $K^\pm p$ total cross section calculation, 10-400 GeV/c 4−74706
- $K_l{}^0p \to K_s{}^0p$, 1-10 GeV/c, differential cross sections 4−74678
- $K_l{}^0p \to K_s{}^0p$, I=0 KN phase shift soln., Z_0^* resonance existence 4−59612
- $K\pi\pi$ spectra, two resonance anal. of Q enhancement 4−55696
- $N\Lambda K$ coupling const. determ. from dispersion reln. anal. of $K^\pm p$ forward scatt. amp. 4−59618
- $K^-p \to K^0n$, differential cross sections and polarisations at all energies by peripheral orbit model 4−55650

kaon-nucleon scattering
- charge exchange, data compilation 4−74671
- elastic, data compilation 4−74671
- elastic amplitudes, forward real parts 4−47581
- elastic high energy, doubled Regge trajectory model 4−59621
- isoscalar, near K^*N threshold, simple Z_0^* model 4−59624
- phase shift analysis of exptl. data based on field theory 4−77899
- phase sum rule for high energy scatt. *(Russian)* 4−77908
- t-channel exchange amplitudes, zeros and phases 4−59616
- K^0 coherent transmission in nuclear matter, total cross sections and forward scatt. amplitudes 4−55712
- KN, KN elastic amplitudes, forward real parts 4−43435
- KN, phase shift analysis of exptl. data based on field theory 4−77899
- KN, πN, pp elastic amplitudes, comparative study, t=0 4−55676
- KN elastic amplitudes, forward real parts 4−47581
- $K_l{}^0N \to K_s{}^0N$ regeneration, real parts of KN and KN elastic amplitudes 4−47581
- Kp, elastic, forward dispersion reln. investigation of real part assuming rising total cross section 4−77906
- K^-p backward elastic scatt., factorizing dual amplitude with Mandelstam analyticity 4−59614
- $K^-p \to K^-p$, differential cross sections and polarisations at all energies by peripheral orbit model 4−55650
- K^+p, elastic, 1.8 GeV/c, high partial waves in accelerated-convergence-expansion analysis 4−74669
- K^+p, elastic-diffraction slopes, impact parameter formalism 4−77904
- K^+p, low energy, pomeron contribution using s-channel unitarity model 4−59610
- K^+p elastic scatt. data, coupled channel anal., resonance pole with $J^p = (3/2)^+$ 4−81437
- K^+p elastic scattering, 130 to 755 MeV/c, differential cross sections, low energy parameters 4−77900
- $K^\pm p$, 1-3 GeV/c, dispersion reln. anal. of forward scatt. amp., $N\Lambda K$ coupling const. determ. 4−59618
- $K^\pm p$, elastic, radiative corrections 4−59548
- $K^\pm p$ elastic scatt., 0.9-2.6 GeV/c differential cross section, real part of forward scatt. amplitude 4−59617
- $K^\pm p$ elastic scatt. amplitudes determ. 4−63013
- $K^\pm p$ forward elastic scatt., 3-6 GeV/c, systematic study 4−59620

kaon production
- beam, low momentum, π/K ratio yields 4−42868
- photo- and electroproduction, review of experimental data 4−77830
- photoproduction, below 1.5 GeV, data compilation 4−81415
- $\gamma p \to K^+\Lambda(\Sigma^0)$, exchange degeneracy 4−74605
- $\gamma p \to K^\pm +$ anything, 6 GeV, invariant cross sections, scaling violation 4−55617
- $\nu_{(\nu)}p$ inclusive production, review of data 4−77851
- K/π ratio in central plateau, dynamical and symmetry effects 4−74710
- K^0, by 70 GeV protons on Al nuclei, momentum spectrum meas. *(Russian)* 4−71910
- K^0, in π^-p, π^-n and π^-C interactions, 40 GeV/c, inclusive and topological cross sections 4−77932
- K^0, single particle inclusive distribs. from pp interactions at 12 and 24 GeV/c 4−51739

kaon production continued
- K^0 inclusive production in 18.5 GeV/c $\pi^{\pm}p$ interactions, cross section behaviour 4−55717
- K^0 inclusive production in K^-p interactions at 3.93 and 14.3 GeV/c 4−69197
- K^+ cross section in pp inclusive reactions, 15.3-26.5 GeV/c 4−59651
- K^+ photo- and electroproduction, pseudoscalar-versus-pseudovector interactions 4−47516
- K^{*0} charge exchange prod. anal. 4−74681
- K_s^0 inclusive prod. in pp scatt. at 14.75 GeV/c 4−77944
- K^*, K^{**} strange-meson exchanges in $K^-p \rightarrow \eta(\eta')\Lambda$ reactions, nonperipheral model validity 4−71737
- K^{*0} charge exchange prod. anal. 4−74681
- $K^-p \rightarrow K^+\Xi^-$, 1.9 to 5 GeV/c, energy dependence of differential cross section 4−63018
- $K\pi\pi$ spectra, two resonance anal. of Q enhancement 4−55696
- $\nu_l l \rightarrow K\pi(KK, \pi\pi, K\pi\pi)$, analysis *(Russian)* 4−81404
- pn interactions, 19.2 GeV/c, secondary particle obs. using CERN deuterium bubble chamber 4−59639
- pp inclusive collisions, large transverse momenta, model 4−77939
- $pp \rightarrow K^-K^-K^+K^+$, 1.6-2.2 GeV/c, annihilation process, cross section and resonance production anal. 4−47595
- $pp \rightarrow K^+ + X$, positive particle production in fragmentation region at CERN ISR 4−47609
- $pp \rightarrow \pi^-\pi^+K^-K^+$, 1.6-2.2 GeV/c annihilation process, cross section and resonance production anal. 4−47595
- $\pi^-p \rightarrow K^+\Sigma^-$, 1.9 to 5 GeV/c, energy dependence of differential cross sections 4−63018
- $\pi\pi \rightarrow KK$ partial wave amplitudes from hyperbolic dispersion relations 4−66086
- Be + p, 200, 300 GeV/c, meas. of $\pi^{\pm}$, $K^{\pm}$, p and p prod. 4−71893

kaon resonances *see meson resonances*

kaon scattering
- *see also kaon-baryon scattering*
- strong, research in Hungary *(Hungarian)* 4−43402
- $K\pi$, dispersion relations and unitarized Veneziano model 4−51731
- $K\pi$ scattering phase shift ambiguities, unique solution from K_{l3} form factors 4−43434
- $K^+\pi^-$ studied in $K^+p \rightarrow K^+\pi^-\Delta^{++}$, 12 GeV/c, partial wave analysis 4−74687
- πK scattering lengths, current-current Sugawara form 4−47576

kaons
- beam of low momentum produced at Nimrod 4−42868
- form factors, weak and e.m. review of expts. and theory 4−81409
- form factors, zero parameter model, t^{-2} behaviour 4−62932
- kaonic atoms with distorted even-even nuclei, effect of nuclear electric moment on X-ray yields 4−63378
- mass differences, in nonlinear Lagrangian model of broken chiral $SU_3 \times SU_3$ symmetry 4−55584
- polarisability, calcs. using vector-meson dominance and PCAC 4−59527
- polarisability, studied in Compton scattering amplitudes 4−66032
- stopped in elements and isotopes with $Z=2$-92, X-ray and γ-ray spectra 4−72107
- K^- mass determ. from K^- atom X-ray meas. 4−66358
- K_l-K_s mass differences from charge asymmetry in semileptonic decays 4−77810
- K° mass differences by two regenerator method 4−77809

Kapitza resistance
- three-dimensional isotopically substituted lattice, model 4−44741
- $Ce_2Mg_3(NO_3)_{12}.24H_2O$, thermal boundary resist. with liquid ^3He 4−44740
- Cu/solid ^3He interface, theoretical explanation 4−44741
- Cu-liquid He^4 calc. including phonon attenuation and impedance matching 4−63958′
- Ga-He liq. interface, 1.2-1.8K, electronic thermal cond. 4−52956
- ^3He, at metal or mag. salt surface, spin-spin interactions 4−75665
- ^3He-^4He dilution refrigerator, surface efficiency of heat exchangers 4−65401

KDP *see potassium compounds*

Kennelly-Heaviside layer *see E-region; ionosphere*

keratin *see proteins*

Kerr electro-optical effect
- liquid crystal, nematic, Kerr effect obs. in isotropic phase 4−63754
- liquid crystals, mol. theory of orientations fluctuations and optical Kerr effect 4−56610
- MBBA, action of impurities on Kerr effect 4−82109
- nitrobenzene, charge behaviour, static and pulsed high voltage 4−45249
- nitrobenzene, electric field and space charge distrib. in l.f.-a.c. fields obs. 4−82665
- nitrobenzene-benzene solutions, n.m.r. and Kerr data comparison 4−64271
- optical glass, self-focusing mechanism 4−55525
- solid-liquid interface, electric field distortion 4−44986
- $KCl:CN^-$, electric field alignment of substitutional CN^- mols. 4−49328
- Nd: glass laser, mode-locked, time resolved spectroscopy, 10 ps pulses, Kerr photography 4−80896
- YAG, self-focusing mechanism 4−55525

Kerr magneto-optical effect
- semiconductor transport meas. at liquid He temp. using microwave Kerr magneto-optical effect 4−65496
- $CoCr_2S_4$, hot pressed microcryst. powder, near i.r. 4−57504
- $FeBO_3$, equatorial Kerr effect, visible and near u.v. region 4−53465
- Ni-Fe, mag. domain struct. obs. 4−45145

kicksorters *see counting circuits*

Kikuchi lines *see electron diffraction crystallography*

kinematic viscosity *see viscosity*

kinematics
- *see also acceleration; ballistics*
- crane, double-link level luffing, optimal synthesis 4−81141
- gyroscope, two-degree-of-freedom, kinematical drift 4−55234
- M51, axisymmetric properties of spiral galaxy 4−71041
- M51, Hα obs. of kinematics and dynamics of spiral galaxy 4−71040
- M51, spiral structure of spiral galaxy 4−71042
- Pade and Chebyshev approximations for point kinetics 4−81583

kinematics continued
- skijump from jumping platform, optimum control to give longest possible jump *(Russian)* 4−74273
- small-angle scattering, kinematic anal., applic. to beam-recoil method 4−75035
- teaching problem of runner 4−62378
- tube surface deformation in explosive expansion 4−68888

kinematography *see cinematography*

kinetic theory
- *see also Boltzmann equation; collision processes; intermolecular mechanics; kinetic theory of gases*
- anisotropic Heisenberg Hamiltonian 4−49145
- binary mixture of hard spheres, Percus-Yevick eqn., appl. and soln., eqn. of state derived 4−51447
- Bogolyubov's equations in quantum statistics, solns. in Banach space 4−51460
- dense fluid, kinetic theory 4−78879
- dilute solutions of flexible macromolecules, kinetic theory and rheology 4−52800
- dilute solutions of flexible macromolecules, kinetic theory and rheology 4−52801
- electron flow, fast, unsteady eqn. for soln. to steady and unsteady problems *(Russian)* 4−81251
- electron-phonon system, low-freq. nonequilib. fluctuations 4−72757
- Enskog-Vlasov type eqns., approach to equilibrium states, existence and uniqueness 4−43167
- evaporation, reverse temp. gradient in vapour 4−77577
- external field, time depend., Landau approx. kinetic eqns. 4−52541
- external field, time-depend., kinetic eqns. 4−52540
- fluid, long time behaviour, time dependent collision operator 4−63746
- fluids, long-time behaviour, kinetic approach, time-depend. collision operator 4−68946
- fully renormalized, density fluctuations 4−47213
- Green's functions, non-equilib., calcs. 4−59291
- hard sphere fluid, mol. dynamics calcs. of Brownian motion onset, binary collision rates calc. 4−51464
- infinite correlation length, kinetic eqns., subdynamics theory 4−68947
- ionospheric topside, kinetic theory application 4−46074
- Kirkwood-Rice-Allnatt, transport in liqs. 4−69927
- Landau-Lifshitz fluctuation formulae derivation 4−55379
- Liouville distribution function approximation, Gross theory 4−71411
- liquid, kinetic memory function 4−60143
- macromolecular solution, bead-rod model, linear unsteady flow props. 4−61536
- macromolecular solution, steady flow and equilib. rheological props., kinetic theory 4−49976
- metallic systems, ion subsystem dynamics effect on transport coeffs. 4−57069
- model non-Markovian kinetic eqns., stochastic interpretation 4−65817
- molecular acoustic applications *(German)* 4−52854
- nonequilibrium phase changes, variational calcs. 4−79142
- nonequilibrium statistical mechanics, review 4−74407
- nonequilibrium system, nucleation of crit. fluctuations and onset of instabilities 4−59303
- noninteracting particles, equation for probability distribution of velocity field and beam density *(Russian)* 4−77556
- nonlinear magneto-optical phenomena, third harmonic generation, kinetic theory 4−43352
- phase separation in binary liquid and solid solns., metastable states 4−72550
- plasma, collisionless, drift modes in presence of low impedance h.f. field 4−44225
- plasma, kinetic model for neutral gas between plasma and wall 4−44174
- plasma, kinetic properties in presence of strong elec. field, polarisation effect *(Russian)* 4−81979
- plasma, spatially modulated, parametric instability 4−52577
- plasma, thermal relaxation in d.c. mag. field, simulation 4−75204
- plasma, thermal relaxation in d.c. mag. field 4−75203
- plasma waves, nonlinear interaction 4−75242
- polyatomic liquids, generalised moment method 4−60394
- polyatomic liquids sphere, ellipsoid models 4−63745
- polyethylene, thermal dissociation *(German)* 4−50144
- rotational Raman line width 4−72196
- statistical mechanics, eqns. derivation in weak-interaction approx. by nonequilib. statistical operator method 4−74406
- turbulence, two-point kinetic theory 4−66577
- Van der Waals fluid, microscopic theory 4−72271
- Van der Waals model for mixtures, conc. fluctuation corrections 4−72272
- water, viscosity, self-diffusion, and spin-lattice relax., kinetic model 4−67478
- weakly nonequilibrium system, eqns. of motion for parameters 4−55414
- $CaCO_3$, thermal dissociation *(German)* 4−50144

kinetic theory of gases
- *see also association of gases; Brownian motion; collision processes; diffusion in gases; equations of state; intermolecular mechanics; Joule-Thomson effect*
- accommodation pumping phenomenon, kinetic model 4−78665
- acoustic propagation in binary mixtures 4−52328
- adsorbed gases, kinetic eq. derivation, statistical-mech. model 4−63508
- biatomic gas with monatomic impurity *(Russian)* 4−56346
- Bogolubov functional method, derivation of hyrodynnamical equations *(Russian)* 4−74420
- Boltzmann's equation and dynamic methods development means *(German)* 4−52324
- Boltzmann linearized equation, gaseous mixtures, molecular gases 4−43902
- charged hard spheres, thermodynamic and structural props., Monte Carlo calcs. 4−66537
- condensation of vapour on liq. surface 4−79145
- diatomic gas-radiation interaction, correlated translational and internal modes 4−75072

- **kinetic theory of gases** continued
  - dilute gas of symmetric top mols., kinetic theory of flow birefringence 4−69554
  - dimer formation and decay, kinetic eqs. derived 4−83017
  - electron diffusion and drift in gases, review of theory and expt., book 4−60151
  - energy exchange through elastic collisions, gases with Maxwellian vel. distrib. 4−81984
  - evaporation-condensation, solutions to Boltzmann and Krook equations 4−81250
  - gas and surface simultaneous diffusion in capillaries 4−72629
  - gas flow, nonlinear Boltzmann eqn., asymptotic soln. 4−66556
  - gas law apparatus, student experiment 4−54802
  - hard sphere gas, density derivative of self-correlation function 4−52323
  - kinetic memory function 4−60143
  - Knudsen gas with rotational degrees of freedom, heat transfer, periodic effects 4−52325
  - Liouville equation, generalized boundary condition and BBGKY hierarchy 4−51450
  - mass action law for interacting gases and plasmas, statistical derivation 4−71454
  - master equation, time-depend. projection-operator anal. for two-body forces 4−55393
  - Maxwell gas, van Hove self-correl function 4−66539
  - mean free path of molecules leaving a vapour source *(German)* 4−67031
  - mixtures, influence of diffusion velocity on motion, successive approx. method *(Russian)* 4−56350
  - mixtures, moderately dense, transport coeffs. of hard sphere mixtures 4−72265
  - molecular system, nonexponential decays in single vibr. level fluoresc., kinetic and quantum mech. approaches, comparison 4−66466
  - monatomic Maxwell gas, exact soln. for kinetic moments eqn. *(Russian)* 4−56343
  - multicomponent mixture, viscosity, empirical method 4−78560
  - nonequilibrium systems, new thermodynamic variables for stationary ideal gas 4−55412
  - nonideal gas kinetic equations 4−75211
  - Poiseuille flow in long tube with accommodating wall for arbitrary Knudsen numbers 4−78667
  - polar, second virial coeff., contrib. of bound double molecules having dipole and quadrupole moments 4−43901
  - polyatomic, nonhomogeneous gas, forces on small particles 4−75186
  - quasiclassical representation, molecules with rotational degrees of freedom *(Russian)* 4−78553
  - Rayleigh gas with arbitrary distrib. functions of light particles *(Russian)* 4−63515
  - relativistic, sound propag. in multi-component mixture 4−81821
  - spherocylinder molecules, axially elastic, kinetic theory 4−78549
  - temperature-density effects by method of elementary solutions in linearised BGK model 4−48172
  - thermomagnetic torque, effect of nuclear spin coupling 4−56342
  - vibrational relaxation of diatomic gas through translational and radiational 'heat baths' 4−63413
  - Ar, dilute gas, viscosity, thermal conductivity 4−43907
  - Hg accommodation coeff. on glass 4.2-300 K 4−48838
  - Kr, dilute gas, viscosity, thermal conductivity 4−43907
  - Xe, dilute gas, viscosity, thermal conductivity 4−43907
- **kinetic theory of liquids** *see kinetic theory; liquid theory*
- **kinetics** *see kinematics*
- **kinetics of chemical reactions** *see reaction kinetics*
- **kink bands** *see dislocations*
- **Kirchhoff adders** *see adders*
- **Kirkendall effect** *see diffusion in solids*
- **kitchen appliances** *see domestic appliances*
- **klystrons**
  - *see also reflex klystrons*
  - ion beam, plasma filled drift space, charge density meas. 4−66769
- **Knight shift**
  - *see also nuclear magnetic resonance*
  - noble metal based dilute alloys, and charge oscill., Knight shift, pair interaction, appl. to Cu alloys 4−79275
  - superconductor, spin resonance and Knight shift *(Russian)* 4−70108
  - transition metal alloy, dil., electronic struct. change. oscill., knight shift, pair interaction 4−79275
  - transition metals and alloys, spin-lattice relaxation times of ^{27}Al, ^{119}Sn and ^{63}Cu impurities 4−61053
  - Ba, depend. on temp 4−76177
  - CoAl, of ^{27}Al, mag. props., 78-1100K *(Russian)* 4−79618
  - CrAl$_7$, temp. depend. obs., antiferromag. to paramag. transition 4−64278
  - Cu, hyperfine properties anal. 4−57410
  - Cu-3d transition metal dilute alloy, electron spin density determ. near impurity atoms 4−64275
  - Cu-Co, dilute alloy, n.m.r. meas., 1.4 to 290K, diamag. deviation due to mag. impurities 4−82625
  - Cu-Fe, dilute alloy, n.m.r. meas., 1.4 to 290K, diamag. deviation due to mag. impurities 4−82625
  - Cu-Mn, dilute alloy, n.m.r. meas., 1.4 to 290K, diamag. deviation due to mag. impurities 4−82625
  - CuS$_2$, mag. susceptibility and n.m.r. meas., 4.2 to 300K 4−45196
  - Cu$_2$Sb, mag. and n.m.r. meas. 4−53322
  - Fc-Al alloys, of ^{27}Al, mag. props., 78-1100K *(Russian)* 4−79618
  - n-InSb, obs. of chem. and hyperfine contribs. near quantum limit, 0.4-4.2 K 4−53323
  - Li, press. depend., average spin density 4−73039
  - Nb$_3$Al$_{1-x}$Ge$_x$, n.m.r. of ^{27}Al and ^{93}Nb *(Russian)* 4−70232
  - NiAl, of ^{27}Al, mag. props., 78-1100K *(Russian)* 4−79618
  - NpP, paramag. and ordered phase mag. props., ^{31}P Knight shift meas. 4−49163
  - Pt-Rh alloys, conc. depend. 4−64276
  - Sc intermetallics, contact and orbital contribs., 78-300K *(Russian)* 4−49247
  - Si:P, temp. depend., cond. type effect 4−49248
  - Tl, Knight shift temp. depend. correlated to supercond. temp. press. depend. 4−49246
- **Knight shift** continued
  - V-Al, n.m.r. meas. of ^{51}V 4−79622
  - V-Cu, n.m.r. meas. of ^{51}V 4−79622
  - V-Sn, n.m.r. meas. of ^{51}V 4−79622
  - (V$_{1-x}$Cr$_x$)Be$_{12}$, n.m.r. obs. of ^{9}Be and ^{51}V, mag. susceptibility meas. 4−60946
  - V$_3$Si, nucl. acoustic reson. of ^{51}V, above and below martensitic transform. 4−73038
  - V$_3$Si, structural transition effect, low temp. lattice instability *(Russian)* 4−60915
- **Knudsen flow**
  - aerosol, small particles, dynamics 4−72348
  - aerosol filtration by fibrous filters 4−66669
  - aerosol filtration by fibrous filters 4−66670
  - capillary network, temp. depend. *(Russian)* 4−69596
  - continuum-slip flow analysis for particle interactions in viscous flow 4−66668
  - evaporation-condensation, solutions to Boltzmann and Krook equations 4−81250
  - ideal gas mixtures, diffusion through capillaries, transport eq. derivation *(German)* 4−52525
  - irreversible behaviour of Knudsen gas, invariant diffusion eqn. 4−62730
  - microporous materials, moisture transport interpret. w.r.t. mol. streaming, surface diffusion and capillary suction 4−61550
  - nonlinear flow problems using method of Knudsen iteration 4−78662
  - nth-order reaction, mole changes in porous catalyst, transport regime effects 4−63625
  - plane flow, thermal transpiration 4−56429
  - polydisperse ultrafine fibre filters, gas flow 4−64646
  - rarefied molecular gases, mag. field depend. of heat flux *(Russian)* 4−69550
  - surface area of powders determ. in diffusion tube 4−45865
  - tangential momentum accommodation, arbitrary Knudsen numbers, Poiseuille 4−78667
  - He-Ne-Ar mixture, diffusion in capillaries, Knudsen to mol. diffusion transition 4−56347
- **Knudsen number** *see Knudsen flow*
- **Kohn effect** *see lattice dynamics*
- **Kondo effect**
  - band ferromagnet, study using vertex part integral-equation method 4−49165
  - Hamiltonian, simplified, for finite term perturbation theory, low temp. props. 4−49161
  - low temperature, frequency dependent conductivity rel. to Nagaoka model 4−64054
  - magnetoresistance of dilute magnetic alloy, calc. for vicinity of Kondo temp. 4−53083
  - renormalisation and scaling 4−60948
  - scaling laws exactness 4−45095
  - semimetal, paramag. impurity effects on current state *(Russian)* 4−72750
  - spin 1/2 system, longit. static and dynamic susceptibility 4−72953
  - transition metal:^{57}Fe, summary of Mossbauer evidence associated with Kondo effect 4−49278
  - Ag-Mn, dilute alloy, impurity interaction effects, Kondo type elec. resist. minimum 4−57071
  - (Ag-Pd)-Yb, enhancement of Kondo scatt., elec. resist. 4−75838
  - Au-Mn, dilute, local d-spin interaction effect 4−57259
  - AuYb, nuclear orientation expts. on ^{175}Yb and ^{169}Yb 4−67498
  - Bi$_3$Te$_3$ single cryst., Kondo type resist. minimum below 10K 4−72764
  - CeAl$_3$, dense Kondo system, singlet ground state form. at low temp., specific heat meas. 4−49158
  - CeAl$_3$, obs. below 1K, evidence for transition to mag. state without mag. scatt. 4−60960
  - Ce$_{1-x}$La$_x$Al$_3$ Seebeck coefficient 4−79332
  - Co$_{1+x}$Al$_{1-x}$ alloy, $x<5\times10^{-3}$, specific heat meas. $T\simeq10$K, rel. to Kondo effect *(French)* 4−79498
  - Cu:Co, electron spin density near Co atoms, n.m.r. meas. 4−57261
  - Cu-Co, Cu-Fe and Cu-FeCo alloys, dil., low temp. thermo-e.m.f. *(Russian)* 4−64066
  - Cu-Fe, Kondo alloy, exchange energy and spin scatt. anisotropy, de Haas-van Alphen meas. 4−49159
  - Fe$_{1-x}$Ti$_{1+x}$, mag. scattering centre from neutron diffr. obs. 4−48959
  - La$_3$Al(Ce), Kondo superconductor, mag. impurity effects on supercond. props. 4−76009
  - (La$_{1-x}$Ce$_x$)Al$_2$, supercond. normal cond. transition, obs. below transition temp. 4−57195
  - (La$_{1-x}$Th$_x$)$_{1-c}$Ce$_c$, disappearance of Kondo effect, low temp. resistivity obs. 4−57074
  - (La$_{1-x}$Th$_x$)$_{1-c}$Ce$_c$, Kondo resistivity, mag. to non mag. transition, theoretical model 4−57281
  - LaY:Ce, superconducting Kondo system, sp. ht. jumps 4−64151
  - Mo-Mn(Fe)(Co) alloy, dil., anomalous resist., 1.5K-room temp. 4−45093
  - NbSe$_2$:Fe, anisotropic Kondo resist. 4−64189
  - Pd$_{80-x}$Co$_x$Si$_{20}$, amorphous alloys, electrical resistivity, low temp. minimum 4−70009
  - Pr-Ce, obs. of elec. resist., temp. range 1.3 to 300K 4−44888
  - Rh-Fe, low temp. resistivity, 40 ppm to 2.2 at.% Fe 4−72744
  - β-Ta:N, film, elec. cond., temp. depend. 4−75976
  - Ti-Fe(0.2 at%), obs. of resist. min. and Kondo like behavior, model using non mag. localised impurity states 4−48960
  - Ti-V alloys, localized spin fluctuations and elec. resist. singularities *(Russian)* 4−67200
  - (V-Cr)Fe, resist. min., obs. of negative temp. coeff. 4−60768
  - Y-Ce dilute alloy, mag. susceptibility and exchange dilute alloy, mag. susceptibility and exchange resist., hexagonal cryst. field effects 4−49160
  - Zn-Mn dilute alloys, obs. 0.35-100K 4−72751
  - Zn-Mn single crystals, anisotropy in resistivity measurements, 0.3 to 8K 4−44894
  - Zn-Mn(Cr) crystal field splitting parameters, exchange const. 4−79474
- **Kramers-Kronig relations**
  - alkali halides, aq. solns., i.r. reflect. meas., refractive indices determ., struct. of water investig. 4−70292

- **Kramers-Kronig relations** continued
  - condensed media, optical constants, R_p/R_s ratio, Kramers-Kronig relationship *(Russian)* 4−70276
  - insulator, local field effects and low-optical-freq. dielec. response matrix, model 4−70245
  - water, liq., optical, dielec. props. meas. rel. to collective electronic oscills. investig. 4−60398
  - AgCl, optical consts., expt. data error effect 4−76235
  - AlN, polycryst., opt. props. at 0.10-25 μ 4−45260
  - EuO(S)(Se)(Te), EuO:Gd, mag. semiconds., optical props., band struct. investig. 4−64400
- **Kramers systems** *see determinants*
- **Kromayer lamps** *see mercury vapour lamps*
- **krypton**
  - adsorption on Cu single crystal (1,1,1) face 4−56970
  - adsorption on graphite, adsorpt. isotherms meas., triple point of monomol. layer determ. 4−44768
  - adsorption on iodides, interaction energies determ. *(French)* 4−44778
  - atom, $^3P_2$ state, at. scatt., depolarization effects 4−59976
  - atom, Beutler lines, appl. of vacuum u.v. spectroscopy with continuum source 4−42797
  - atom, electron impact ionisation, 3d inner shell alignment obs. 4−74897
  - atom, momdentum density, Compton profile 4−72026
  - atom, multiphoton ionisation, freq. depend. 4−78352
  - atom, photoelectron angular distribution parameters 4−47885
  - atom, photoionisation, simplified random-phase-approx.-with-exchange, comparison with reaction matrix 4−47867
  - atomic and molecular u.v. spectra, 250 keV electron excited, time depend. 4−47893
  - atomic collision with H_2^+ dissociative, obs. of polarization of Balmer lines of H 4−60126
  - atomic Compton profiles, X-ray form factors, depend. X_α exchange parameter 4−81713
  - atomic metastable state, near-threshold photoionisation, autoionisation effect 4−72063
  - Compton scattering, relativistic Hartree-Fock profile 4−66277
  - c.w. ion laser, high power, construction and test results *(German)* 4−55464
  - d.c. electric-field-induced second harmonic generation 4−47378
  - dilute gas, viscosity, thermal conductivity, kinetic theory 4−43907
  - ion beam, defect form. in muscovite due to irrad. *(French)* 4−66946
  - ion engine, atomic excitation processes, influence of metastable states 4−59948
  - ionisation, electron impact, cross section calc. 4−78363
  - ions, multiply charged, heavy, duoplasmatron-type discharge source 4−78828
  - light source, Kr^{86}, $2p_{10}$-$5d_5$ transition length standard *(Rumanian)* 4−54817
  - liquid, average energy per ion-pair, electron scatt. 4−56785
  - liquid, nonlinear acoustical props. investig. 4−56813
  - molecule, intramolecular potential between atoms, self-exchange correction 4−56046
  - multiple photoionisation 4−78565
  - optical absorption threshold in alkali metal hosts 4−45336
  - photoionization cross-section of outer s-subshells 4−78348
  - plasma afterglow, microwave and mass spectroscopic obs., ion densities 4−60321
  - plasma in flashtube, electrical conductivity meas. 4−75319
  - positive column, pulsed discharge, constriction mechanism 4−82072
  - radioactive source, rapid production 4−62506
  - solid, adsorption of He 4−75701
  - solid, cryst., mech. stability rel. to lattice parameters, free energy investig. *(French)* 4−56643
  - solid, efficient fluoresc., 10 to 30 kV electron excitation 4−61198
  - solid, Mossbauer recoilless fraction calc. using lattice dynamical method 4−57442
  - solid, optical emission spectrum of Rb atoms 5p→5s resonance transition obs. 4−76313
  - solid, phonon dispersion curves, inelastic neutron scatt. obs. at 10 K 4−44628
  - solid film, photolum. due to intrinsic excitons and impurities 4−61216
  - Stark splitting calc., $6p_{10}$ level, overlapping configs., perturbation const. *(Russian)* 4−43717
  - thermal conductivity, 300 to 1200K 4−48174
  - trace component in air, anal. using mass filter system, nonconc. principle and detection limit *(Japanese)* 4−46501
  - X-ray absorption in ionography, efficiency and resolution in diagnostic radiology 4−80747
  - X-ray photoelectron spectrum, satellite struct. 4−63350
  - Ar-Kr, binary liquid mixtures, partial struct. factors in long wavelength limit 4−78884
  - Ar + Kr, conformal solution theory, mixture radial distrib. function and mol. dynamics 4−44455
  - CO-Kr solid mixtures, electron diffr. struct. investigation 4−69970
  - He + Kr, He electron loss cross section 4−72095
  - Hg + Kr collision, broadening of Hg resonance line−2537 Å, Jablonski theory 4−43755
  - Kr II, Kr III lines, electron impact excitation cross sections 4−47887
  - Kr II laser, pulse-excited, 647.1 nm, waveforms 4−77655
  - Kr-Br discharge, Kr metastable atomic state population 4−81721
  - Kr-N_2O, binary gas mixture, thermal diffusion factors meas., temp. and composition depend. 4−78561
  - Kr-Xe, binary liquid mixtures, partial struct. factors in long wavelength limit 4−78884
  - Kr-Xe, c.w. laser, spontaneous emission, current depend. 4−81301
  - Kr + H, stripping collisions, 1-10 keV, small-angle ion scatt. 4−81728
  - Kr + H^+, outer s-shell ionisation, 125-1200 keV 4−59962
  - Kr + $H^+(D^+)$ 3s, 4s electron capture cross section 4−47908
  - Kr + He, gas system, diff. coeffs. rel. to conc. determ., pot. parameters calc. 4−48179
  - Kr + He*, Penning electron ang. distribs. 4−74880
  - Kr + He*(Ne*) collisions, KrII excitation 4−66323
  - Kr + I_2* inelastic collision, entropy analysis of rot. and vibr. state distribs. 4−63488
  - Kr + methane ion collision, ion dissoc. mass spectra, isotope effects, 2-25 eV *(French)* 4−48110
- **krypton** continued
  - Kr + N^+, energy-change spectrum, Wigner spin rule 4−78374
  - Kr^+, laser state radiative lifetimes meas. 4−77650
  - Kr^{++} + Ne, collisions, electron transfer investig., cross sections determ. 4−61585
  - ^{85}Kr, adsorpt. on alumina powders investig. *(French)* 4−56968
  - Li-Kr, high resolution differential cross section, intermol. pot. meas. 4−66349
  - N^+ + Kr, elastic scatt., interaction pots. 4−69438
  - Ne-Kr system, vapour-liq. and gas gas equilib. to 1850 atm. 4−72559
  - Rb halides, Kr interstitial migration, anharmonic lattice statics calcs. 4−60648
- **krypton compounds**
  - $KrCl_n$, stability, validity of three-centre four-electron model, exchange perturbation calc. 4−66386
  - KrF_2, bonding, ab initio calcs. 4−52080
  - KrF_n, stability, validity of three-centre four-electron model, exchange perturbation calc. 4−66386
- **Kuhn-Thomas sum rule** *see molecular electronic structure*
- **Kurie plots** *see beta-decay theory*
- **Kyropoulous method** *see crystal growth*
- **labelled atoms** *see radioactive tracers*
- **labelled compounds** *see radioactive tracers*
- **labelled molecules** *see radioactive tracers*
- **laboratories**
  - *see also acoustical laboratories*
  - activities centre at Kansas State 4−54810
  - CERN, its work and facilities 4−77016
  - CERN high energy projects 4−77017
  - clinical, automation, trends *(German)* 4−81073
  - Los Alamos Meson Production Facility radiobiology/therapy progress report 4−46442
  - marine testing laboratory at Oceanological Centre of Brittany 4−70847
  - radiation therapy, regional physics laboratory organisation for hospitals 4−46435
  - synchrotron radiation, technical problems, experiments 4−77154
- **laboratory apparatus and techniques**
  - *see also high-pressure techniques; high-temperature techniques; low-temperature techniques; optical design techniques; optical workshop techniques; student laboratory apparatus; vacuum techniques; X-ray apparatus*
  - 300 kV ion implantation system with parallel e.s. scanning 4−53623
  - applicator, cheap, for thin layer chromatography 4−58997
  - cables, miniature, laboratory, for use at 4 K 4−42759
  - CAMAC computer peripheral interface system 4−46919
  - CAMAC data acquisition and control in nuclear medicine laboratory 4−50822
  - CAMAC data links for nuclear physics laboratory 4−46771
  - card catalogue for chemical reagents in an organic laboratory 4−58721
  - chamber, high pressure, for inelastic neutron scatt., autofrettage technique of construction 4−55004
  - circulatory evaporator 4−65390
  - collector for preparative gas chromatography 4−58996
  - computer, laboratory built for sequencing and timing purposes 4−55122
  - h.v. impulse testing, air gap residual ionisation levels, effects 4−48181
  - interfacility standard cell calibration by current transfer 4−65337
  - isothermegraph, automatic apparatus for specific surface and pore size distrib. meas. in porous solids *(French)* 4−42920
  - magnetosphere, partial scale model, plasma phys. processes 4−68287
  - magnetosphere, penetration of fast electrons and precipitation 4−68255
  - microwave noise standards laboratory automatic data recording 4−65342
  - Princeton Plasma Physics Lab. data acquisition system 4−60334
  - Princeton Plasma Physics Lab. data acquisition system software support 4−60335
  - Princeton Plasma Physics Lab. digital control system 4−59077
  - rider card index requirements for meas. equipment laboratory 4−46556
  - rotating disc shutter, fast opening, for flash photolysis experiments 4−58953
  - screw adjuster, shake free, no clamping 4−68620
  - tweezers, vacuum operated 4−68808
  - US Laser Product Performance Standard power and energy instrumentation 4−65467
  - vacuum control valve for aerosol cans of laboratory gases 4−68655
  - ^{60}Co, γ and X-ray calibrations laboratory 4−46436
  - Hg cleaning using collodion 4−42924
- **labryrinth speakers** *see loudspeakers*
- **ladder filters** *see ladder networks*
- **ladder networks**
  - *see also filters*
  - cascade accelerator for electron microscope *(Russian)* 4−71241
  - LC, electrolytic capacitor power source for quasi-steady magnetoplasmadynamic arc 4−82043
- **Lamb shift** *see atomic spectra; relativistic corrections*
- **lambda point** *see liquid helium-4; superfluidity*
- **laminar flow**
  - aerodynamics appl. of generalised capacity matrix 4−78619
  - air, laminar flow along electric arc in tube, heat transfer *(Russian)* 4−56378
  - air injection, turbulent transition, characts. 4−48202
  - binary gas mixture, accelerating compressible laminar boundary layer flows, Mach no. effect 4−81883
  - binary mixtures, barodiffusion at rotating disc 4−44119
  - binary vapour mixtures, direct contact condensation on laminar coolant 4−75085
  - blood, in channels with boundary irregularities 4−46369
  - blunted wedges, Navier-Stokes solns. for laminar incompressible flow 4−81886
  - boundary layer, axisymmetric, on circular cylinder, transition mechanics 4−63556

laminar flow continued
boundary layer, compressible, universal eqns. *(German)* 4−63559
boundary layer, energy of small wave-like perturbations *(German)* 4−63557
boundary layer, forced convection heat and mass transfer 4−43930
boundary layer, in noncentred unsteady waves 4−48263
boundary layer, in presence of suction or induction, automodelling problem *(Russian)* 4−75124
boundary layer, intermittent region, turbulent/non-turbulent properties 4−66567
boundary layer, laminar separation, effect of blowing 4−44013
boundary layer, large amplitude l.f. solns. 4−81873
boundary layer, similarity transformation in heat and mass transfer 4−43931
boundary layer, thermal wall gradient numerical evaluation 4−56374
boundary layer, three-dimens., eqns. soln. for swept infinite cylinders and small cross flow 4−81882
boundary layer, three-dimens., in incompressible liq., approx. soln. *(Russian)* 4−69579
boundary layer, three-dimens., near stagnation pt., transpiration cooling 4−44002
boundary layer, two-parameter approx. *(Russian)* 4−52407
boundary layer, with free convection on vertical porous surface, heat and mass transfer 4−43960
boundary layer above membrane supported on viscous fluid layer, stability 4−48247
boundary layer at wall, error bounds 4−48240
boundary layer eqns. for Howarth flow in presence of suction, computer calcs. *(Russian)* 4−52408
boundary layer gas flow past plane plate *(German)* 4−69585
boundary layer on rotating three-dimensional blade, flow investig. 4−75131
boundary layer on spinning sharp body at angle of attack 4−81885
boundary layer Prandtl-von-Mises form of differential eqn. soln. 4−59060
boundary layer transition on large flat plate in anechoic wind tunnel, wall pressure bursts 4−44016
boundary layer under intensive injection and radiant heat exchange 4−44007
boundary layers, soln. of momentum eqn. in Krocko's variables *(Russian)* 4−44014
boundary layers on continuously moving surfaces, thermal radiation 4−52390
boundary layers over inclined blunt bodies, open type of separation 4−66601
bubble, spherical cap, mass transfer 4−44121
capillary flow in triangular grooves 4−78573
cavitation inception on axisymmetric bodies, viscous effects 4−48363
channel flow instabilities, Meissner's entropy principle transition point calc. 4−63585
chemically reacting boundary layer, analysis during hybrid combustion 4−48384
compressible laminar wake, finite-amplitude instability 4−81930
compressors, supersonic stratified flows *(French)* 4−48277
convection, natural, shallow cavity, differentially heated end walls, theory 4−75094
convection, natural, shallow cavity, differentially heated end walls, numerical solns. 4−75095
convection about vertical plates with oscillatory surface temp. 4−52389
convection combined with injection, heat transfer 4−52378
convection from vertical cone at high Prandtl numbers 4−52394
convective heat transfer, supersonic recirculating flow region, Telenin's method 4−78584
convective heat transfer in prismatic pipe of triangular section 4−43951
convective laminar to turbulent transition, numerical anal. 4−56377
Couette flow, pressure-stabilized, with variable viscosity and mech. energy dissipation 4−43922
Couette plane channel flow 4−56359
cryogenic container, gas-cooled support temp. distrib. and power loss 4−65402
drag minimisation optimum design, variational anal. 4−56397
eccentric laminar Couette flow, long cylindrical capsules 4−72287
electrokinetic effects in charged capillary tubes, volume- and charge-transport coeffs. 4−68012
equilibrium of taut string in flow, frictional drag 4−48189
film under side cyclic motion, thermal analysis 4−52392
finite element least squares analysis of laminar boundary layer flows 4−81830
flame, role of streaming in sound interaction with laminar flow jet 4−56417
flat, rectangular duct, naphthalene-air mixture laminar flow, local meas. transfer coeffs. 4−75083
fluid with microstructure, channel flow 4−56398
forced convection, thermal entrance region, curved pipes 4−72275
forced convection film condensation of vapour flowing around circular cylinder 4−52353
forced convection in arbitrary polygonal ducts, numerical soln. 4−52360
forced convection in slow flow through ducts and packed beds, Graetz problem 4−52485
forced convection in slow flow through ducts and packed beds, vel. profile in cubic sphere array 4−52486
forced convection in slow flow through ducts and packed beds, cubic sphere array problem 4−52487
forced convection in slow flow through ducts and packed beds, boundary layers in cubic sphere array 4−52488
free convection turbulent flow, MHD, turbulent to laminar transition 4−75168
friction factors, flow in triangular ducts 4−56358
frictional drag of cylindrically-shaped bodies of revolution 4−78701
gas mixture, reactive laminar flow over plate heat transfer, friction stress *(Russian)* 4−75098
gas-liquid interface, wavy disturbance effect on heat transfer 4−63586
heat transfer, by convection *(Spanish)* 4−81839
heat transfer in parallel plate flow 4−60185
heat transfer predictions in circular ducts 4−43924

laminar flow continued
humidity generator, diffusion of vapour into flowing gases 4−75068
hypersonic boundary layer, near sharp compression and expsn. corners, momentum integral method 4−44021
ideal fluid, stability of plane-parallel flow, non-existence of continuous spectrum *(Russian)* 4−75162
incompressible, past abruptly accelerated elliptic cylinder, 45° incidence 4−81863
incompressible boundary layer with variable dynamic viscosity, approx. soln. of eqns. 4−78606
incompressible fluid, highly accelerated flow at moderately large Reynolds number 4−81876
incompressible liquid, heat transfer in initial portion of circular tube, laws of heat supply 4−60168
incompressible Navier-Stokes eqns. in doubly connected regions, numerical soln. 4−81854
incompressible wall jet on moving plate 4−78640
intermittent flow, turbulent/non-turbulent decisions 4−66566
intermittent pipe flow, Pitot tube flow probes, high frequency response 4−81834
jets, simple soln. for normal impingement 4−66621
kerosene flowing in PTFE pipe, electrostatic streaming current and potential 4−79401
lifting-surface programs evaluation 4−78618
liquid, in small channels, volumetric flow rate and flow channel volume determ. by solid-sphere radiotracer method 4−81108
liquid between corotating discs, laminar and turbulent regimes 4−66605
liquid condensate film, laminar stability anal. 4−63535
liquid film, downward flow along vertical surface with attendant heat transfer 4−43947
liquid film, hydrodynamic stability 4−56388
liquid films, inertia forces 4−52349
liquid mixture with temp. gradient, laminar flow stability 4−69557
longitudinal, between cylinders arranged in triangular array, variational approach 4−43923
low-Reynolds number flow, viscous flow generated by rotating axisymmetric bodies 4−44113
magnetofluiddynamic flow, constantly inclined magnetic and velocity fields 4−48335
membrane, deformable, laminary boundary layer stability 4−48243
MHD, flow characteristics in travelling mag. field *(Russian)* 4−81954
MHD, instability onset, flow equations *(Russian)* 4−81950
MHD laminar flow, transverse field, stability contours *(Russian)* 4−81944
mixed convection in isothermally heat horizontal pipe, theory 4−75087
natural convection between vertical parallel plates at unequal uniform temps. 4−52361
nematic, transverse effects 4−82108
nematic liquid film, shear laminar flow, instability 4−48193
neutral disturbance, finite amplitude, asymptotic stability anal. 4−52348
non-Newtonian fluid, circular channel flow, kinematic and dynamic characteristics 4−48322
non-Newtonian fluid, dynamic shape factor in convective heat and mass transfer 4−48203
non-Newtonian fluid, in annular duct, developing press. profiles 4−52451
non-Newtonian fluid, radial flow between stationary parallel discs, cross viscosity effect *(Japanese)* 4−78650
non-Newtonian laminar channel flow, solute dispersion, Eyring model fluid 4−60217
non-Newtonian power law fluids, laminar boundary layer flow 4−56425
non-Newtonian power-law fluids, laminar boundary layer flow 4−44087
non-parallel flow, stability 4−81829
nonstationary heat exchange for flow in pipes of annular cross-section 4−43958
nuclear reactor cooling, rod displacement effect, heat transfer anal. 4−43621
Oldroyd fluid flow in inlet region of channel, injection effect rel. to boundary layer 4−48324
peristaltic motion, effect on, anal. 4−83290
pipe, flow stability indicators *(Russian)* 4−56360
pipe flow stability 4−66560
pipe-flow resistance of liquid with gas bubbles *(German)* 4−63520
plane slow viscous flow, power series method 4−78570
plane-parallel channel, local friction in initial part 4−43921
plane-parallel flow along deforming boundaries, hydrodynamic stability Squire's theorem 4−48248
plate, gas suction from thermally insulated laminar boundary layer 4−48244
Poiseuille channel flow, nonlinear cellular motions 4−63519
Poiseuille flow, bifurcating, in annulus, friction factors 4−81890
Poiseuille flow, Coriolis force effect on stability 4−43998
Poiseuille flow, hydrodynamic stability, variational method 4−52341
Poiseuille flow, nonlinear evolution of three dimensional disturbances 4−48209
Poiseuille flow, two dimensional, inertial migration of rigid spheres 4−75182
Poiseuille flow in long tube with accommodating wall for arbitrary Knudsen numbers 4−78667
porous walls, parallel and uniform, of different permeability 4−66674
pseudoplastic fluid in laminar boundary layer over porous flat plate with suction, initial-value method 4−44086
pseudoplastic solution, laminar flow in horiz. circ. tubes, heat transfer 4−56375
pulsating influence on heat transfer *(German)* 4−43927
radiative heat transfer by solid suspension in flows with radiating fluid 4−52521
reacting gas flow in tubes, hydrodynamics and heat transfer *(Russian)* 4−52531
rectilinear anisentropic gas flows 4−78571
rod bundles, longitudinal flow 4−75114

laminar flow continued
  rotating disc, exptl. study of heat and mass transfer is laminar, transient and turbulent regimes *(Russian)* 4−60171
  2 rotating discs, parallel and at different speeds 4−66585
  semi-infinite flat plate in shock tube, shock induced unsteady boundary layer 4−78626
  sharp wedges, symmetric laminar incompressible flow, Navier-Stokes solns. 4−81887
  simple fluid between two surfaces in rotation, secondary flow *(German)* 4−66592
  slow motion of spherical cap in viscous fluid, free suspension in shear field 4−60190
  slow viscous flow caused by translation and rot. of spherical cap 4−60189
  spatially varying electromechanical flow structures, hydrostatics and steady dynamics 4−60232
  sphere heat transfer coefficient, $3\times10^4<R_{e\infty}<3.3\times10^5$ 4−60170
  stability, wall motion influence *(German)* 4−78574
  supersonic, vibr.-dissoc. relax. in laminar boundary layer, catalytic effects 4−48265
  supersonic laminar separated flow with and without suction, heat transfer and press. distribs. 4−52419
  three-dimensional isothermal separation in annular expansion contraction with rot. inner cylinder 4−48350
  transient, in plane channel of periodically variable cross-section, nonlinear effects *(French)* 4−75076
  transient laminar boundary layer, parametric calculation 4−75120
  transitional flow heat transfer from plates 4−43935
  transonic, shock wave boundary layer interactions 4−78624
  tube with twisted tape, laminar and turbulent flow friction and heat transfer characts. 4−63525
  unsteady viscous, channel flow, anal. using finite size transform 4−52345
  unsteady viscous compressible flow through straight channel with porous walls 4−60234
  unsteady viscous flow in pipe with slowly varying cross section 4−60159
  VISCO-laminar fluid, non-isothermal struct. flow in round tubes *(Russian)* 4−52346
  viscoelastic, finite element analysis 4−60155
  viscoelastic, heat transfer for flow in curved pipe of elliptic cross-section 4−52374
  viscoelastic fluid, dimensional analysis of flow 4−60157
  viscous, finite element method, variational principle formulation 4−60156
  viscous, past finite flat plate, Kuo's soln. 4−56396
  viscous, rel. to diffusive creep 4−66966
  viscous barotropic gas, along annular tube 4−48281
  viscous compressible liquid, axisymmetric flow, network method *(Russian)* 4−52350
  viscous flow past flat plate with finite thickness 4−63552
  viscous fluid between rot. surfaces of revolution, eqns. of motion 4−69577
  viscous fluid in conical diffusor, heat transfer *(Russian)* 4−52367
  viscous heating in circular Couette and cylindrical Poiseuille flow 4−78575
  viscous homogeneous gas, laminar boundary layer flow 4−56404
  viscous incompressible fluid, source flow between two porous discs 4−44004
  viscous incompressible fluid flow between rotating porous cylinders 4−56426
  viscous incompressible fluid flow normal to uniformly accelerated cylinder investig. 4−78608
  viscous liquid, between non-concentric rotating cylinders, Navier-Stokes-Helmholtz eqn. *(Russian)* 4−56385
  viscous unsteady flow through annulus formed by vibrating bar and cylinder 4−48190
  vortex rings in air obs. 4−75111
  vortices shed behind bodies, shedding mode, transition, separation point *(Japanese)* 4−63547
  wall jet with non-isothermal conditions, heat transfer anal. 4−75093
  wall shear at three-dimens. stagnation pt. with moving wall 4−81874
  water, laminar boundary layer at solid surfaces, onset of turbulence 4−48246
  wing, free flight, laminar boundary layer, control of form drag 4−44019
  Ar, laminar flow along electric arc in tube, heat transfer *(Russian)* 4−56378
  $CuSO_4$, electrolyte soln., Hg^{2+} electroreduction, viscosity, diffusion investig. rel. to temp. 4−54036
  H_2O, liq. film, condensation of immiscible organic vapour, heat transfer 4−75084
  $HgNO_3$, soln., electrolyte, Hg^{2+} electroreduction, diffusion investig. rel. to temp. 4−54036
  N_2, laminar flow along electric arc in tube, heat transfer *(Russian)* 4−56378
  NO_2, chemically reacting in cooled flat tube, heat and mass transfer in laminar flow *(Russian)* 4−63630
  NO_2, chemically reactive, heat and mass transfer in triangular rod beam 4−78718
  NO_2, in circular pipe, heat transfer 4−69561
  O_2, mass transfer to rotating cones 4−48194
laminations
  No entries
lamp accessories
  see also lamps
  ceramics, translucent ceramics as lamp envelopes 4−49902
lamps
  see also discharge lamps; filament lamps; light sources
  luminescent lamp, linear program anal. of luminophosphor light outputs *(Russian)* 4−73192
  metal halide, spectroradiometric meas. 4−80888
  physical aspects, review *(Hungarian)* 4−80864
  random light display, simple design 4−65558
  standardisation, use of reference light sources and colour rendering indices *(German)* 4−46652
  travelling wave type, nonlinear interactions in electron streams *(Russian)* 4−51632
Lande g-factor *see g-factor*
Lande splitting factor *see g-factor*
landing fields *see airports*
Langmuir probes
  see also plasma diagnostics
  diagnostics in electrostatically stoppered spindle cusp machine 4−44327
  dielectric impurities, surface instability in diagnostics 4−56515
  double probe technique for meas. plasma electron temp. fluctuations as a result of h.f. waves 4−56523
  flow velocity measurement in e.m shock tube 4−71298
  glow discharge, negative glow, rel. to plane probe behaviour 4−44388
  ion current density on probe surface, in flowing h.p. plasma 4−60316
  ion mass meas. in gas discharges 4−56560
  ion wave turbulent spectrum obs. 4−60288
  magnetoplasma, radial ion density profile, using Langmuir probe 4−66705
  plasma density comparison with digital instrument 4−72395
  spherical, effect of support on probe characts. 4−63690
  welding arc temperature profile measurement, analysis error 4−66780
language translation and linguistics
  colour-naming linguistics correl. with colour perception expt. 4−58531
languages, formal *see formal languages*
languages, programming *see programming languages*
lanthanides *see rare earth metals*
lanthanons *see rare earth metals*
lanthanum
  atom, electron excitation, M-series X-ray spectrum 4−47896
  atom, ionisation of 4d-shell, X-ray emission spectra *(Russian)* 4−45370
  atom, spectral obs. of isotope shifts 4−72041
  film, optical absorption energy vars. *(French)* 4−49502
  ion bombardment, I beam, cross section for K X-ray production 4−45395
  liquid and solid, heat capacity, thermal and elec. cond., 1200-1600K *(Russian)* 4−44893
  mass absorption coefficients for CK_α line *(Japanese)* 4−45382
  photoabsorption in the vicinity of 3d absorption edge 4−61246
  CaF_2:La, additively coloured, for ruby laser Q-switching 4−59425
  CaF_2:La,Er, absorption spectrum laser induced changes 4−61184
  in Fe, effect on internal friction *(Chinese)* 4−79979
  La hydrated ion, ortho-para H_2 interconversion 4−60095
  $La+He^+$ thermal energy collision, hybrid charge transfer/Penning reaction 4−66343
lanthanum alloys
  see also lanthanum compounds
  perovskites, oxidative nonstoichiometry, powder neutron diffraction, defect structure, oxidised lanthanum manganite 4−63825
  $Ce_{1-x}La_xAl_3$, Kond sideband effects in Seebeck coefficient 4−79332
  Eu_xLa_{1-x}, magnetic superconductor, phase diagram determ. 4−70091
  Gd-La, exchange interactions, lattice parameters and Curie temp. meas. 4−57266
  La:Ce, mag. susceptibility, crystal field effects calc. 4−72959
  La-Th:Ce, supercond.-normal phase boundary, impurity conc. depend. 4−67304
  $LaAl_2$:Gd, mag. glass system, sp. ht. meas. in temp. range 0.55 to 10K 4−53234
  La_3Al(Ce), Kondo superconductor, mag. impurity effects on supercond. props. 4−76009
  $LaB_6:Er^{3+}$, crystalline field effects, e.p.r. obs. 4−57372
  $LaBi:Er^{3+}$, crystalline field effects, e.p.r. obs. 4−57372
  LaCd, mag. props. and resistivity meas., supercond. transition point 4−60953
  $(La_{0.9936}Ce_{0.0064})Al_2$, sp. ht. meas., evidence for intermediate temp. supercond. 4−49119
  $(La_{1-x}Ce_x)Al_2$, supercond. normal cond. transition, obs. below transition temp. 4−57195
  $LaPd_3:Yb^{3+}$, crystalline field effects, e.p.r. obs. 4−57372
  $LaRu_2$, cubic to tetragonal distortion at 30K 4−61352
  $LaRu_2$:Gd, type II supercond. state, e.p.r. of localised moment 4−49127
  $LaSb:Ce^{3+}$, Dy^{3+}, Er^{3+}, Yb^{3+}, crystalline field effects, e.p.r. obs. 4−57372
  LaSb:Gd, single crystal, resolved e.s.r. spectra, cubic crystalline field parameter meas. 4−82611
  $(La_{1-x}Th_x)_{1-c}Ce_c$, disappearance of Kondo effect, low temp. resistivity obs. 4−57074
  $(La_{1-x}Th_x)_{1-c}Ce_c$, mag. to non mag. transition, supercond. temp., Kondo resistivity 4−57281
  LaY:Ce, superconducting Kondo system, sp. ht. jumps 4−64151
  Ni-La, microalloying effect on recrystn. texture *(Russian)* 4−49708
  $Y_xLa_{1-x}(Co_yFe_{1-y})_5$, cryst. struct. and mag. props., neutron diffraction obs. 4−70166
lanthanum compounds
  see also lanthanum alloys
  anti-Stokes luminophors L44 and L45, luminescence spectra and colour coords. *(Russian)* 4−73151
  ethyl sulphate: Tb^{3+} heating of dipole-dipole pool of impurities in nucl. relax. *(Russian)* 4−79629
  lanthanides, spontaneous ignition in air, student demonstration 4−58702
  orthovanadate, formation, and phase relns. in system Nd_2O_3-V_2O_5 4−53973
  $Bi_{1-x}La_xFeO_3$, solid soln., elec. and mag. props. 4−57457
  $Ca_8La_2(VO_4)_6O_2$, apatite structure, lattice parameters *(French)* 4−44514
  Cs, $NaLnCl_6$, Ln=trivalent lanthanide ion, mag. susceptibilities meas., crystal field levels investig. 4−49152
  Eu_2O_3-La_2O_3-Ta_2O_5 system, cross section with 25 mole % Ta_2O_5 4−44649
  GeO_2-La_2O_3-$Ga_2O_3(Ta_2O_5)$ system glasses, viscosity and elastic props. correl. with phase diagram 4−67897
  La metaniobite, i.r. spectra, electrophysical props. 4−67511
  La-Cr-B system, phase diagram 4−69888

lanthanum compounds continued
$LaAlO_3:Pr^{3+}$, fluoresc. line narrowing by laser excitation *(French)* 4−49440
LaB_6, single cryst., stress induced splitting of plasma edge, obs. 4−49381
LaB_6, thermal and elec. cond., 1300-2000 K 4−44916
LaB_6 powder, compacted at high temp. and pressure, decomposition 4−49862
LaB_6 rod cathodes for triode electron gun *(Russian)* 4−73233
$La_{1-x-y}Ce_xTb_yPO_4$, quantum efficiency of diffusion limited energy transfer 4−53498
$LaCl_3$, Eu^{3+} doped, electrostatic field parameters *(French)* 4−75791
$LaCl_3$, spin-lattice relaxation rates for Nd^{3+}, Er^{3+}, Ce^{3+}, 2.7 to 29K 4−57371
$LaCl_3:Ce^{3+}$, electric multipole interaction investigation 4−67178
$LaCl_3:Nd^{3+}$, spin-lattice relax. of Kramers doublets in zero external field 4−82612
$LaCl_3:Pr^{3+}$, Nd^{3+}, photon upconversion processes 4−51635
$LaCl_3:Pr^{3+}$, nd^{3+} sequential two-photon excitation and energy transfer up-conversion obs. 4−57611
$LaCl_3:U^{3+}$, relaxation processes detected by resonant self-absorption of fluorescence 4−57369
$LaCl_3$-ACl system, A=Li, Na, K, Rb, Cs, thermodynamic quantities of mixing meas. using electrochem. cell method 4−68011
$LaCl_3$-D_2O, diamag. electrolyte soln., struct. breaking investig. 4−61015
$LaCrO_3$-Cr cermets, monochromatic emittance, 300-1900K, oxidation effects 4−61485
$LaD_{2.30}$, ordered struct. rel. to $CeD_{2.29}$ 4−66875
LaF_3, solubility of LnF_3, (Ln=Sm-Er), on crystn. from melt 4−48769
LaF_3 solid electrolyte, ionic cond. 4−53102
LaF_3-MgF_2, multidielectric component mirrors for far u.v. 4−58775
LaF_3-$SrF_2:Nd^{3+}$, as laser medium 4−47353
$LaFe_{12}O_{19}$, anisotropy and saturation 4−82579
$La_2Fe_2S_5$, neutron diffraction obs. of mag. struct. *(French)* 4−49185
$La_{32.66}Fe_{11}S_{60}$, cryst. struct. *(French)* 4−48544
$La_5Ge_3B_x$, (x=0, 0.5, 1.0, 1.5, 2.0), Nowotny phases, cryst. struct. 4−63810
La_2GeSe_5, congruently melting compound, polymorphism at 685°C, semiconductor 4−69891
$La_2Ge_2Se_7$, incongruently melting compound, polymorphism at 605°C 4−69891
$La_2Ge_3Se_9$, incongruently melting compound 4−69891
$La_6Li_2Si_3$, cryst. struct., X-ray diffr. study 4−75504
$La_xM_{10-x}Na_x(PO_4)_6F_2$, (M=Ca, Sr, Ba), cryst. struct. obs. 4−72449
$La_2Mg_3(NO_3)_{12}$ 24 H_2O, proton polarised, determ. of crystal magnetic field 4−72933
$La_2Mg_3(NO_3)_{12}:Sm$, dynamic nuclear polarisation 4−79608
$La_2Mg_3(NO_3)_{12}.24H_2O:Ce^{3+}$, phonon-limited resonant two-phonon relax. process, conc. depend. at 4.2K 4−76155
$La_2Mg_3(NO_3)_{12}.24H_2O:Nd^{3+}$, neutron diffr. from polarised protons, method of struct. determination 4−78870
$LaMnO_3$, synthesis and formation kinetics in solid phase 4−66873
$LaMn_7O_{12}$, high press. synthesis, crystal struct., perovskite like cpds. 4−75495
$La_{32.66}Mn_{11}S_{60}$, cryst. struct. *(French)* 4−48544
La_3NbO_7, formation by coprecip. from solns. of synthesis from oxides 4−45896
$LaNi_{5.3}H_6$, p.m.r., structure and diffusion 4−76171
LaO, electronic transitions, vibr. constants, Franck-Condon factors, r-centroids 4−60049
LaO, LaO_2, mass spectra determ. of ionisation pots. 4−52234
La_2O_3, Eu^{3+} doped, electrostatic field parameters *(French)* 4−75791
La_2O_3, photoabsorption in the vicinity of the 3d absorption edge 4−61246
La_2O_3, surface migration on NaCl, ion microprobe analysis 4−67096
La_2O_3 + Li liquid reaction 4−83027
LaOBr:Tb X-ray phosphor emission obs. 4−57609
LaOCl, cryst. film, growth from vap. 4−82804
LaOCl phosphors, lanthanide ion luminesc. spectra excitation *(Russian)* 4−53530
La_2O_2S, Eu^{3+} doped, electrostatic field parameters *(French)* 4−75791
La_2O_2S:Tb X-ray screens, speed, resolution, quantum utilisation 4−54684
$La_2O_3.11Al_2O_3$:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
$La_2O_3.11Al_2O_3$:Eu, Mn, phosphor depreciation under u.v. irrad. 4−61213
$LaPO_4$, luminescence and absorpt. spectra, activated by Nd^{3+}, Eu^{3+} and Tb^{3+} 4−57590
LaS, monochalcogenide, electron energy spectrum using group theory, optical props. 4−44837
LaS, optical constants analysis by Kramers-Kronig method *(German)* 4−79692
La_2S_3, synthesis and dielec. props. 4−70256
LaSe, monochalcogenide, electron energy spectrum using group theory, optical props. 4−44837
La_2Se_3-La_2Te_3 system, synthesis and X-ray phase anal. 4−48735
$LaSi_{1.6}Ni_{0.4}$, $LaSi_{1.6}Fe_{0.4}$, mag. meas. in temp. range 6-630K 4−60943
La_2SnS_3, cryst. struct. *(French)* 4−78969
$La_2Sr_3(BO_3)_4$, crystal structure determ. from Weissenberg camera data 4−52742
$La_{1-x}Sr_xCoO_3$, spin state equilib., magnetic and electron transport props. Mossbauer spectroscopy 4−70234
$La_{0.65}Sr_{0.35}MnO_3$ powder, catalyst for CO oxidation, magnetocatalytic effects, expt. evidence 4−57883
LaTe, monochalcogenide, electron energy spectrum using group theory, optical props. 4−44837
La_2Te_3-La_2Se_3 system, synthesis and X-ray phase anal. 4−48735
$LaTiNbO_6$, synthesis 4−53799
$La_{1-y}U_yO_{2+x}$, thermodynamics and phase relns. 4−69897
$LaVO_3$, mag. sp. ht., 50-298K 4−79523
$La_2(WO_4)_3$-Cs_2WO_4, sintered mixtures, phase diag. 4−48732
$(LaY)_3Ga_{0.33}Fe_{4.67}O_{12}$, refractive index at 1.15 μm 4−49321

lanthanum compounds continued
$LalO_3$, Eu^{3+} doped, electrostatic field parameters *(French)* 4−75791
α-$LiLa(MoO_4)_2$, hydrothermal synthesis and cryst. struct. 4−49557
$(Pb,La)(Zr,Ti)O_3$, β-phase electro-optic ceramic, field induced microstructure 4−63829
$(Pb,La)(Zr,Ti)O_3$, ceramics, vibr. modes, Raman and i.r. spectra 4−61145
$(Pb,La)(Zr,Ti)O_3$, ceramics, polymorphic phase 4−63924
$(Pb,La)(Zr,Ti)O_3$ ceramic, elec. controlled secondary phase 4−67540
$(Pb,La)(Zr,Ti)O_3$ ceramic, with diffuse transition region, phase relations and dielec. props. 4−70272
$(Pb,La)(Zr,Ti)O_3$:Nb,Fe, photochromic effect, transmission spectra 4−76233
$Pb_{1-x}La_x(Zr_{0.65}Ti_{0.35})_{1-x/4}O_3$ ceramic, optical recording of digital data 4−67532
$(Y,Gd,La)_3(Fe,Al,Ga)_5O_{12}$ garnet magneto-optical memory based on compensation wall domains 4−49197
$(Y,La)_3(Ga,Fe)_5O_{12}$ film, exchange const. and bubble domain wall energies 4−60973
YB_6-LaB_6 system, mutual solubilities and supercond. 4−60618
$Y_{2.9}La_{0.1}Fe_{3.8}Ga_{1.2}O_{12}$ film, domain wall dynamics 4−60997
Laplace transforms
Box model calculations, using Laplace transform method, ^{14}C variation in nature 4−76673
Cauchy problem soln. by R-network analysis using Laplace transform *(Russian)* 4−51489
differential operator applied to plain strain problems in elasticity theory 4−43045
flotation rate distributions, numerical inversion of Laplace transform 4−48356
Fourier-Laplace, of generalized functions, appl. to unrenormalizable and nonlocalizable field theories 4−59057
generalized, theorems and their verification 4−74211
heat conduction in hollow cylinder, transfer functions 4−43203
numerical inversion by series representation in Laguerre's function 4−65637
Schrodinger eqn. soln. in terms of classical paths 4−65724
Schwarzschild black holes, analysis of exterior scalar waves 4−68429
semiconductor, impurity-atom distrib., slit in masking film 4−67737
solution, interaction of acoustic waves, elastic shell, internal mech. systems 4−77474
theorem generalization using nonlinear Fourier transform, causality and local analyticity 4−55190
transport theory in critical assemblies with uniform neutron distrib. 4−81541
variational principle Laplace operator, appl. torsion of composite rod 4−71323
viscoelastic wave anal. 4−59204
large scale integration
see also integrated circuit production
No entries
laser accessories
acoustooptic modulator as switchable beam splitter for holography 4−77102
antisolarizers, prevention of colour centre form. in laser glasses, 180 to 240 nm 4−77678
beam attenuator, variable, propylene or propane gas cell, for TEA CO_2 laser 4−46710
beam coaxial alignment instrument, for perturbation expts. 4−65463
beam shaping devices, using Faraday and Pockels polarisation effects 4−65462
beam split into multiple rays using collection of microscope slides for student demonstration 4−54795
beam splitter, non polarizing lossless periodic dielectric multilayers 4−58847
birefringent filter, design for high-power dye lasers 4−62471
calorimeters for low-power laser energy meas. 4−65466
deflector system, polychromatic light, polarization discrimination 4−68668
diagnostic device, transient gain detection 4−74079
diamond, natural, as high-power laser window 4−42820
dielectric coated windows, beam damage meas. 4−55501
digital optical stores *(German)* 4−42819
dye cell in Nd^{3+}: glass laser cavity, positioning for satellite pulse elimination, Kerr gate obs. 4−47364
dye solution convertor attachment, for N_2 laser 4−77668
electro-optic pulse generator, picosecond, without use of mode-locked laser 4−62474
electro-optical fast gating, prod. of single multi-line 10-6 μ laser pulses 4−46706
Fabry-Perot interferometer, laser wavelength meas., systematic errors 4−51082
Faraday rotator using ED4 glass 4−65461
fibre optic diffuser and CS_2 cell for speckle reduction 4−77113
flash lamp power supply unit for Nd:glass laser *(German)* 4−54956
flashtube arrays, pumping of high-energy planar self-guiding dye laser 4−59416
giant laser pulse peak value, meas. and centralisation *(French)* 4−51620
glass filter for laser mode locking 4−65460
integrated electrooptic deflector, operation 4−51078
intensity filter using nonlinear optical materials 4−74082
i.r. transmitting material, laser-induced thermal lensing and interf., vidicon obs. 4−46700
i.r. vidicon, thermal lensing meas. from laser windows 4−46699
i.r. window materials, for high-power 2-6 μm radiation, figure of merit calc. including edge cooling and surface absorpt. 4−58845
Irtran-4, i.r. transmitting, laser-induced thermal lensing, vidicon obs. 4−46700
Josephson junction direct 825^{th} harmonic mixing of 1 GHz source with HCN laser 4−74084
junction laser coupling to fibre, glass cylindrical lens 4−77684
lens design, focusing effects, beam waist shift 4−42821
lenses, low-order modes 4−74085
metal coated metal mirrors, beam damage meas. 4−55501
metal mirrors, improved laser damage thresholds 4−59440

laser accessories continued
- methane, nonlinear absorbing gas, as delay line for He-Ne laser 4−46708
- mirror, metallic, refl. coeffs. meas. at 16.6 μm *(Russian)* 4−77109
- mirror, scattering meas., dominant mode refl. 4−68713
- mirror surfaces improvements 4−77108
- mirrors, apparatus for optical absorptivity meas. 4−58844
- modulator, $LiNbO_3$ Pockels type, operation 4−68712
- molecular absorber, saturation, passive Q-switching criterion 4−46702
- multichannel beam splitter, fly eye lens 4−80935
- output power meter for i.r. lasers 4−58848
- passive switches for ruby laser, polymethine dye materials 4−69058
- phase sensitive detector, used for freq. stabilization of gas lasers, response, theoretical analysis 4−71569
- photoelectric transducer detector S/N ratio *(German)* 4−54959
- phototropic shutter, optimum control mode, efficiency 4−68711
- picosecond optical sampling, 10 channel technique, oscilloscope display 4−62473
- polarising devices, using multilayer dielectric films 4−54957
- prism with small birefringence, efficient polarisation of laser radiation 4−71213
- protective eyewear 4−46698
- pulse generator, for GaAs laser diode, 110 nsec, waveguide study applic. 4−42822
- pulsed lasers meas., time and energy parameters, automated meter 4−51081
- quartz i.r. attenuator with water-cooled Fresnel reflection cuvettes 4−54960
- Raman prism instrument, modifications for laser spectrography use *(Spanish)* 4−42799
- reflective lens arrays for laser-induced fusion 4−59880
- resonantly two-photon pumped frequency convertor 4−43346
- restrahlen reflection of crystals for i.r. wavelength selection of laser output 4−42823
- semiconductor, radiation modulation using Gunn effect, appl. for laser beams 4−82689
- semiconductor laser pumping, current pulse generators for −50 to +60°C *(Russian)* 4−62847
- soft aperture, damage, reduction in high-power laser amplifier system 4−46707
- solid-state high power laser system, for plasma and CTR fusion research 4−43322
- spark gap, rotary, in series with flash lamp, dye laser switching 4−74076
- square aperture high power transmitter, absence of thermal blooming 4−51618
- streak tube, circular, 1 psec resolution 4−68716
- styrofoam calorimeter for high energy CO_2 lasers 4−51084
- three-minor multiple beam interferometer, resonance props. investig. 4−71208
- two photon fluorescence monitor, for pulse shape obs. of Nd^{3+}:YAG laser 4−46709
- US Laser Product Performance Standard power and energy instrumentation 4−65467
- wavelength stabilization of He-Ne laser for length meas. *(German)* 4−62837
- window, KCl, extrinsic absorption due to mol. ion impurities 4−65464
- window materials, Alphaphone i.r. absorption meas. device 4−54961
- windows, i.r. transmitting, photoelastic const. calc. 4−57500
- windows, optical response, ultrashort pulse regime 4−51079
- windows and window coatings, damage threshold + morphology 4−55502
- Ag_3AsS_3, proustite, backward wave medium i.r. down conversion 4−51638
- BaF_2, i.r. transmitting, laser-induced thermal lensing, vidicon obs. 4−46700
- CO_2, freq. stabilization by external nonlinearly absorbing SF_6 cell 4−69047
- CO_2, vibr.-rot. line selection by diffr. grating in resonator 4−69049
- $CdGeAs_2$, chalcopyrite, efficient doubling and c.w. difference freq. mixing in i.r. 4−47375
- CdTe, electro-optical modulator, extinction ratio meas. 4−46703
- Co_2 laser radiation angular divergence and transverse intensity distribution meas. 4−80932
- ^{133}Cs vapour, selective refl. obs. from semicond., laser, possible laser stabilization appl. 4−80937
- GaAs, electro-optical modulator, extinction ratio meas. 4−46703
- GaAs, resonant piezoelectric modulator 4−58846
- GaAs Pockels cell, single nanosecond pulse selection of CO_2 laser, reliable half wave operation 4−51083
- Ge, absorption and optimum doping level for i.r. optics 4−46712
- KCl, window, light absorption, 10.6 μm, temp. depend. 4−67560
- KH_2PO_4, incompletely deuterated, high-speed electro-optical switch 4−80936
- $LiNbO_3$ total internal reflection modulator for Q-switching 4−46704
- NH_3 resonant absorber, coherent reshaping of N_2O laser pulses 4−74078
- $NaNO_2$, optical backward mixing of Ar, CO laser lines, visible light generation 4−51639
- OsO_4 vapour, absorpt. cell for CO_2 laser lines 4−81780
- RbH_2PO_4, conversion of high power ruby laser radiation to u.v. 4−51636
- SF_6, mol. saturation, passive Q-switching criterion 4−46702
- SF_6 gas calorimeter, use in 10.6 μm CO_2 laser system 4−65465
- Si, i.r. transmitting, laser-induced thermal lensing, vidicon obs. 4−46700
- $Sr_xBa_{1-x}Nb_2O_6$, low voltage modulation, video frequency 4−62475
- TeO_2, noncollinear acousto-optic tunable filter 4−42818
- TeO_2 acousto-optical deflector, rapid tuning of dye laser 4−58843
- TiO_2-SiO_2, multilayer mirror chem. coatings, uniformity of laser resist. 4−55489
- W-Ni point contact diodes, characts. for laser harmonic generator mixers 4−62472
- Xe arc lamp, increased radiance by 1500A, 150 μsec pulsing, pulser circuit 4−46711
- ZnI_2-$FeCl_2$ aqueous soln., liquid cladding for face-pumped Nd:glass laser 4−46697

laser accessories continued
- ZnS:Cr light trap, for He-Ne emission *(French)* 4−46696
- ZnSe, chem. vapour deposited, refractive index temp. change meas. at 10.6μ 4−74077
- ZnSe high energy laser windows, antireflection coatings for 10.6 μ operation 4−77107

laser beam applications
- *see also integrated optics*
- absolute frequency meas. for light velocity determ. 4−65365
- acoustic surface velocity meas., sing-around method 4−68626
- air pollution observation 4−65289
- air pollution remote meas., differential absorption, NO_2 chemical factory emission 4−65284
- air-sea interface wind profile, correlation with laser sea return, prediction models 4−61730
- airborne laser bathymetry system, N_2/Ne laser 4−61955
- airborne particle detection, optical extinction meas. 4−76759
- anemometer, flow rate of fluids meas. 4−51238
- artificially formed cloud, pulse laser investigation *(Polish)* 4−64868
- atmospheric beam-wander, cancellation by fast-tracking laser transmitter 4−80340
- atmospheric molecular and aerosol backscatter, laser determ. *(Russian)* 4−61941
- atmospheric observation, f.m.-c.w. radar and lidar 4−64999
- atmospheric organic pollutants, determ. by laser induced i.r. fluorescence, remote sensing 4−80402
- atmospheric particulate content from lidar observations 4−73558
- atomic absorption analysis using laser energy source 4−62615
- atomic spectroscopy, suitable N_2 dual channel Blumlein laser construction details 4−55472
- automatic TV-laser meas. devices for microparticles and fluid microimpurities *(Russian)* 4−80903
- biology, single cell physical parameters obs. 4−42942
- biomaterials, CO_2 laser application to thermal properties measurements 4−62571
- bubble nucleation and growth, laser beam applic. 4−52504
- carrier-frequency, double-exposure speckle photography of deformations 4−51104
- cathode-ray tube, stereoscopic colour TV and video recording *(Czech)* 4−54953
- cavitation induced by a ruby laser *(German)* 4−72341
- chemical analysis, pulsed tunable dye laser, absorpt. and fluoresc. spectra 4−69515
- chemical reaction stimulation by selective excitation of molecular vibrational modes 4−54063
- cinematography, high speed equipment 4−77111
- cloud composition, backscattered polarisation technique 4−65000
- communication, a.m. and intensity modulation, output S/N ratios, calcs. 4−59361
- communication and measurement technique *(German)* 4−55537
- communication in optical waveguides, simulation 4−55533
- communications 4−74538
- compression of D-T plasma, precompression by explosion 4−78792
- concentric laser compression of plasma, averaged similarity eqns., numerical analysis 4−78794
- concrete piles, rebounding meas. with He-Cd laser beams *(Japanese)* 4−59460
- contactless inspection of planar surfaces by moving-mirror scanner 4−47387
- controlled nuclear fusion technology, conference San Diego, Calif., USA (April 1974) 4−69306
- controlled thermonuclear reactor engineering design 4−55952
- crack terminal region contour determ. in polymers 4−61562
- crystallographic diffraction pattern, analogy, student demonstration 4−58697
- crystallography, orientation of ruby and corundum single crysts. *(Russian)* 4−66795
- deflection system, major holograph copying systems *(German)* 4−46679
- deposition polymeric antireflection coating monitoring 4−42777
- dielectric loss tangent meas. of electro-optic modulator crystals 4−58779
- differential-absorption backscatter technique, NO_2 calibrated remote meas. 4−65283
- diffraction photographs, laser, how to make 4−54812
- digital TV recording, current developments, review 4−55532
- displacement measurement, laser heterodyne detect. from phase modulated signal 4−46568
- dosimeter, thin film, using laser based optical densitometer system 4−46826
- drift control system for Fabry-Perot scanning apparatus for plasma spectroscopic diagnostics 4−66770
- dye, tunable, search and rescue system and computer memory addressing system 4−77670
- dye laser, present status review 4−43314
- dye laser, tunable, application to atomic spectroscopy 4−43727
- dye lasers, tunable, and applics. 4−71550
- electro-optical versatile alignment system, field appl. 4−47383
- electro-optics conference, Montreux, Switzerland, (1974) 4−43281
- electrokinetic motion of suspensions, laser Doppler spectrometer for measuring 4−42804
- emission microanalysis under protective gases at variable press. 4−71281
- emission spectroscopic element anal., improved Q-switched ruby laser microprobe 4−74083
- engineering and physics, lasers as energy sources *(German)* 4−51545
- fascimile, laser wirephoto transceiver, design and development 4−55540
- fibre diameter measurement by laser diffr. method 4−80100
- film, magneto-optical, thermomagnetic writing 4−53400
- flame spectroscopy, ground-state population distrib. of OH in methane air flame, u.v. laser determ. 4−70599
- flash calorimetry method for heat capacity meas. of nucl. materials 4−50976
- flow of heterogeneous mixtures monitoring, modulation methods 4−74196
- flow visualisation interferometry, aerodynamics, underexpanded supersonic jet 4−46993

laser beam applications continued
fluorescence measurement, pulsed dye laser 4–59459
frequency mixing using metal-to-metal i.r. diodes for high resoln. mol. spectroscopy 4–52155
fusion experiments, methods for ρR determ. using neutron diagnostics 4–69354
fusion initiation, neutron diagnostics 4–69355
fusion initiation, review of potential lasers for power plant operation 4–69351
fusion microexplosion, in laser implanted fissile spheres 4–78150
fusion microexplosion CTR, laser-induced, use of superclean exotic fuels 4–69357
fusion power plant system analysis 4–69321
fusion production, review of techniques and engineering problems 4–74794
fusion reaction initiation, feasibility studies 4–72005
fusion reactor, laser-compression, blanket design, operating frequency and pellet production 4–51907
fusion reactor, laser-heated-solenoid, energy yield charact., raw gain factor 4–69358
fusion reactor, laser-induced, with suppressed oblation, conceptual design 4–69312
fusion reactor control, neutronics aspects 4–69329
fusion reactors, inertial confinement, laser-energized ablation of fuel pellet surface 4–69353
fusion reactors, systems for compression and ignition of inertially confined TN pellets 4–69352
gas, visual refr. defects, meas. 4–76966
glass preparation, spin melting 4–45802
gravitational acceleration meas., falling body in He-Ne laser-photodetector system *(Russian)* 4–62409
heterodyne laser interferometer with acousto-optical modulator 4–80907
heterodyne radiometer, remote detection of pollutant gases 4–71135
h.f. optoelectronic recirculation generator with optical delay line 4–81359
hologram recording, using cathode-ray tube with laser screen 4–80927
holographic memory, image reconstruction using semicond. laser screen of cathode ray tube 4–77104
holography, pulsed, discussion and appl. as practical industrial tool 4–42813
hybrid IC trimming *(German)* 4–43356
III-V semiconductor film, deposition, vapour composition w.r.t. structure *(Russian)* 4–79884
III-V semiconductors, crystal orientation and imperfections obs. *(Czech)* 4–66801
industrial control, instrums., economics 4–47398
interferometer, laser Doppler, analysis for data reduction 4–74060
interferometry, as production tool, historical review 4–46666
interferometry, holographic technique for gas density meas. high velocity flows 4–46992
interferometry, multifringe electro-optic phase modulator as reference 4–54945
interferometry measurement, acoustic signal at cat inner ear, transmission determ. *(German)* 4–77259
i.r. systems *(German)* 4–47367
isocentric radiation therapy equipment, gantry angle repositioning and calibration 4–54699
laser Doppler velocimetry in MHD boundary layers 4–69655
laser Raman scattering, feasibility, appls. 4–65437
laser-fusion power reactors, scientific and economic problems 4–63307
laser-fusion reactor, optics radiation damage problems 4–81675
laser-fusion reactors, pulse unfocusing Li vapour density 4–72004
length meas. using laser displacement measuring system *(German)* 4–73977
length shift measurement, three mode laser 4–43358
length standards, He-Ne coherence and stability *(French)* 4–42698
levitation of dielectric sphere by radiation pressure, stability 4–65947
lidar, meas. of atmospheric gases by differential absorption, error anal. 4–61927
Lidar applications to nocturnal atmospheric radiation inversion meas. 4–68275
light velocity meas. using stabilized CO_2 laser radiation 4–73972
linear θ-pinch d.c. Joule losses, laser and mag. heating compared 4–63686
logic systems using many-resonator injection laser 4–81338
lunar laser ranging station, operation and performance 4–46343
machine tools automatic height control using gas laser *(German)* 4–80931
magnetic bubble sensing by pulsed focused laser beam 4–51658
magnetic film data recording, laser apparatus 4–59461
mass market, He-Ne laser applics. requiring low scanning power 4–51657
measurement, interferometric and alignment, effects of atmospheric fluctuations *(French)* 4–42689
measurement, processing by focused beam, data memory, review 4–47390
memory, optical working, based on injection laser and m.i.s.i.m. struct. 4–81361
metal heating by CO_2 lasers, calc. 4–47395
micro-emission analysis, instrumentation *(German)* 4–65596
microdensitometer, laser interferometer controlled 4–46718
microhologram carrying textual information, reconstruction with injection laser 4–80928
microprobe analysis of the Paval meteorite 4–58268
microscope, laser Doppler type, appl. for flow velocity meas. 4–51053
microscope, projection, use of Cu vapour laser 4–80904
microspectral analyzer, time changes of electrical and optical parameters *(Bulgarian)* 4–55136
microwelding, pulse shaping in lasers 4–62822
miniaturisation of optics *(French)* 4–47392
mode-locked laser Raman spectroscopy, technique for rejection of interfering background luminesc. signals 4–42795
multicoloured laser beam display system 4–51659
multimode optical vessel in resonator, for weak absorpt. line investigation of atm. gases *(Russian)* 4–43336

laser beam applications continued
multispectral laser beam image recording on monochrome film 4–46732
NC machine tool position meas. by laser interferometer 4–46572
neutron pulse generation using overcompression of substance by reactive pressure *(Russian)* 4–74539
night vision applic., with security to observer *(Spanish)* 4–62872
nondestructive testing, scan laser heat source 4–55535
nuclear fusion, high power Nd: glass system design 4–77674
nuclear fusion initiation in reactor *(German)* 4–47808
optical communication system, reliability, theory 4–55538
optical data processing and optical communication applic. 4–43357
optical data storage *(German)* 4–42819
optical fibre, diameter meas. method 4–42703
optical glass testing, using modified Williams interferometer 4–58786
optical memory group addressing with faster response *(Russian)* 4–55531
optical switching in electronic telephone exchanges 4–69098
optical variables ang. depend. meas. using c.w. laser 4–51018
optoacoustic air pollution detectors, laser calibration system 4–71138
ore, laser microspectral analysis 4–51208
p-n homogeneous junction, inhomogeneous field distributions 4–64131
particle size and velocity, laser interferometer obs. 4–42699
photography, 20 ns light source, hypervelocity ablation test range 4–47396
photography, high speed, shock gas flow visualisation technique 4–46991
photography, micrometre contactless meas. *(German)* 4–46715
photoselective isotope enrichment, stimulated Raman scatt. process appl., Q-switched solid lasers 4–78315
piercing of hole in metal plate, movement of melt *(Russian)* 4–70431
plasma, electron density meas. using laser interference method 4–56524
plasma combined i.r.-diagnostic techniques based on generalised Mach-Zehnder interferometer 4–66775
plasma compression by shock wave generation 4–78793
plasma density measurement, Fabry Perot laser interferometer 4–77091
plasma diagnostic by Thomson scattering using 4 pulse ruby laser 4–69648
plasma diagnostics, by CO_2 beam scattering 4–56512
plasma diagnostics, scatt. determ. of spatially resolved impurity conc. and effective charge Z 4–63691
plasma diagnostics, Thomson scattering apparatus, ORMAK machine application 4–56526
plasma diagnostics using laser interferometers 4–56518
plasma electron temperature meas., laser beam scatt. 4–69670
plasma fusion, damage control in 100 GW system 4–55478
plasma generation, X-ray emission investig. 4–75286
plasma production, hard X-ray emission rel. to laser energy, pulse duration investig. 4–75287
plasma production, laser-pellet fusion, Rayleigh-Taylor instability, stabilisation mechanisms investig. 4–75265
plasma production, mechanisms of heating 4–56499
plasma temperature and electron density determ. by laser absorption 4–72396
polar motion resonance effects, radio interferometry and laser ranging determ. 4–54122
polarized, prod. from polarized atoms, using tunable dye laser 4–77724
position, velocity and acceleration measurement, time-resolved measurements 4–54826
power measurement, at submillimetric wavelengths using HCN laser 4–65486
prism angle and parallelism testing, laser interferometric method 4–54872
production line control, photodiode matrix system 4–43361
products directory, (1974) 4–54865
pulse method of thermal diffusivity measurements 4–62441
pulsed high power laser, continuous droplet source for plasma production 4–69640
pulsed welding 4–47386
radar system, signal optimisation, expt. 4–62874
Raman spectrophotometer, Cary 81, stray light figure improvement 4–51034
Raman spectroscopy particularly of organics, book 4–60079
rangefinder, Er:glass laser system for ceilometer 4–43362
rangefinder, microwave freq. modulation, freq. conversion in photodetector 4–68611
reactors, fusion power, R&D 4–43695
reflective lens arrays for laser-induced fusion 4–59880
review 4–62820
review covering holography, medicine, drilling etc. *(Spanish)* 4–51547
Rozhdestvenskii hook system applic. of org. dye laser 4–60326
satellite geodesy using cameras and lasers 4–54103
satellite links, laser sources and beam pointing systems 4–47397
scanning laser beam for random switching of bubble domain memory 4–47389
scattered in benzene, autocorrelation function 4–71199
Schlieren system, ultra high speed, for dielec. liquid breakdown obs. 4–82653
seismic wave dynamical characteristics by laser method *(Russian)* 4–54316
self-beat spectroscopy of plasma lipoprotein solns. 4–68479
shadow instrument with multibeam interferometer 4–74064
silica fibre drawing, CO_2 laser with ellipsoidal reflector system 4–59458
small-displacement and frequency meas. *(Russian)* 4–42776
solar granulation, granulation, laser optical analysis of photographs *(German)* 4–50724
solid surfaces microanal. laser beam impact ionisation in new mass spectrograph *(French)* 4–74168
Space Shuttle, Earth resource development 4–50225
spark gap triggering with low-power Nd:YAG laser 4–66786
speckle pattern prod., effects of atmospheric turbulence 4–51523

laser beam applications continued
- spectrometer calibration, interference method, using Fabry-Perot etalon 4−51036
- spectrometer direct reading 4−77085
- spectroscopic analysis, review 4−51227
- statuary cleaning, results of tests on marble and stone in Venice 4−43360
- stratospheric aerosol layers obs. by optical radar at Fukuoka, Japan 4−61755
- structural vibrations meas. using modulated laser 4−50956
- subpicosecond time meas., image tube streak camera improvements 4−65371
- surface contour meas., laser beam/TV camera system *(Japanese)* 4−43359
- surface geometry inspection, speckle-pattern interferometry, electronic processing 4−54944
- surgery, YAG laser radiation in tissue, intensity distrib. meas. *(German)* 4−81048
- system elements alignment, use of laser beam diffr. 4−58782
- telescope lens system testing, laser illuminated convergent ball bearing sources 4−42773
- thermal diffusivity measurement, in sintered UP from 570-1660K 4−44717
- thermonuclear micro-explosions with intense ion beams 4−74797
- thermonuclear microexplosions, laser-induced, use of fissionable triggers 4−78289
- thermonuclear power plant, laser controlled, conceptual design 4−69310
- thermonuclear reactor, laser-controlled, design using mag. fields for cavity-wall protection 4−69311
- thermoprobe with Ar^+ laser and CdS film, thermal profile obs. in Al film 4−65392
- three colour projection, using single modulator and three colour laser 4−77066
- torsional moments meas., dynamic, use of torque measuring coupling *(Italian)* 4−50954
- transfer recording, organic colorant characts. 4−81360
- triglycine sulphate, ferroelec. domain delineation etching versus pyroelec. laser technique 4−49285
- u.v. laser microbeam, 257 nm 4−58573
- V_2-VI_3 semiconductor film, deposition, vapour composition w.r.t. structure *(Russian)* 4−79884
- velocimeter, Doppler, signal processing for 4−46995
- velocity meter, use of Doppler effect *(German)* 4−46701
- vibration meas., using position-sensitive photodetector 4−50962
- video record player, long playing, Philips, optical scanning system *(German)* 4−43355
- water pollutants detection, i.r. absorption, CO_2 laser 4−62341
- welding, 10 kW industrial CO_2 laser system 4−74537
- wind measuring system, optical propagation technique 4−64998
- wind tunnel, hypersonic, laser-gas coupling method 4−47384
- X-ray source for medical appl., use of laser-generated plasma 4−62313
- zone melting, isolated semiconductor film areas fabrication 4−64499
- Al, stress wave prod. by nanosecond laser pulses 4−70588
- $BaY_2F_8:Er^{3+}$, i.r. quantum counter, GaAs laser pumped 4−74047
- Br* + HBr(HCl), laser excitation, electronic-to-vibr. energy transfer, i.r. emission obs. 4−51979
- CO_2 laser radiation wavelength meas. for light velocity determ. 4−65366
- Fe XIX-XXIII, ions, laser produced plasma, spectral classification 4−59910
- GaAs double heterostructure optical communications 4−77721
- HCN, c.w. laser as sub mm source, 4m length 4−71529
- He-Ne laser, use in light-scatt. probe for turbulent diffusion obs. 4−46984
- $^{127}I_2$ h.f.s. of R(127) line by laser saturated absorption 4−66427
- $LiNbO_3$, wavefront visualisation by imaging technique 4−63968
- Mn XVIII, Mn XIX, ions in laser produced plasma, spectral classification 4−59910
- MnBi film store, coercive force temp. depend. 4−57337
- NO spectroscopy at 100K with $PbS_{0.4}Se_{0.6}$ diode laser 4−71279
- Na atom, laser beam excitation, h.f.s. of $5^2S_{1/2}$ level by two step excitation 4−66307
- OH radicals, prod., fluoresc. investig. using tunable freq. doubled dye laser 4−52195
- SmS semiconductor-metal transition pressure reduction for reversible laser beam writing 4−47388
- Ti XVII, ions in laser produced plasma, spectral classification 4−59910
- V XVII-XI, ions in laser produced plasma, spectral classification 4−59910
- $YAG:Nd^{3+}$, rat liver changes obs., cutting characteristics *(German)* 4−50816

laser beam effects
- air, 1.06 μm laser induced breakdown, dust effects 4−69671
- air, 20 psec. laser pulse induced breakdown, focal length depend. 4−44255
- air, laser breakdown in stationary elec. field *(Russian)* 4−69076
- air, optical breakdown, dielectric surface effect on threshold 4−52337
- air, optical breakdown freq. depend. 4−78850
- air, shock wave generation by CO_2 TEA laser radiation 4−43337
- air, sparks in gas, charact. expansion vel. 4−78789
- air breakdown, by pulsed laser, focal length depend. using effective photon concept 4−82059
- alkali halides, intrinsic optical breakdown 4−55509
- 9-aminoacridine-ethanol solid solution, 4.2K, laser irradiation form. of absorpt. spectrum gap 4−82720
- ammonium oxalate crystal, harmonic generation *(Russian)* 4−51626
- atom, excitation and ionisation 4−59938
- atomic neutral low energy (1-10 eV) beam production 4−43752
- avalanche ionisation by laser pulse, inhomogeneity effect 4−74519
- biochemical and biophysical processes, laser induced 4−46355
- bulk damage rel. to self-focusing, paraxial ray approx. 4−43349
- cast iron, effect of continuous laser radiation on structure *(Russian)* 4−70447
- cavitation induced by a ruby laser *(German)* 4−72341

laser beam effects continued
- cellulose triacetate films, CO_2 laser emission effect on phys. struct. *(Russian)* 4−44492
- chalcogenide films with polymeric coatings, switching by laser irradiation 4−53129
- chemical effects, review 4−45931
- chemical effects and isotope separation, review 4−45932
- chemical reaction directional stimulation *(Russian)* 4−54042
- chemical reactions, review 4−45933
- compression of D-T ball with coating, numerical analysis of averaged eqns. 4−48444
- concrete piles, rebounding meas. with He-Cd laser beams *(Japanese)* 4−59460
- coupled laser scanning system, laser materials interactions 4−71265
- crystal damage threshold, short wavelength absorption influence 4−77697
- deflagration wave, subsonic plasma wave, model including radiative diffusion 4−78754
- degradation, of laser medium, due to ionisation by laser pulse 4−43296
- detonation wave ignition and propagation 4−60203
- deuteromethane, laser-induced translation energy fluctuations, time-resolved thermal lensing 4−52291
- dielectric, exoelectron imaging technique for damage anal. 4−55495
- dielectric film, damage investigation 4−43342
- dielectric mirror coating, inclusions, linear absorption 4−55499
- dielectric thin film coating, damage, defect role 4−55498
- dye, optically absorbing, laser induced thermoelastic shock waves 4−44033
- electron backward diffraction by standing light wave 4−47405
- electron source, monoenergetic, produced by photoionization of Ba atomic beam 4−58913
- evaporation of solids, liquid phase metastability *(Russian)* 4−62853
- film, irrad., local heating, pulse peak struct. influence *(Russian)* 4−77690
- films of oil or kerosene being on water, heating, spattering 4−47368
- freon 12, i.r. laser photolysis 4−54054
- fusion, obs. of ionospheric heating 4−58092
- gas, optical breakdown in stationary mag. fields *(Russian)* 4−81345
- gas breakdown by high energy quanta radiation *(Russian)* 4−81344
- gas breakdown induction, aberrations effect 4−74516
- gas ionization, theory 4−72059
- gas mixture, selective stimulation of chemical reactions 4−50192
- glass:Nd, pulsed destruction, thermal mechanism 4−47369
- glass, damage threshold depend. on nonmetallic inclusion size 4−69075
- glass, laser damage 4−77698
- glass, laser damage dynamic characts. 4−77699
- glass, light scatt. of laser beams by random microinhomogeneities 4−69073
- glass, low power pulse, metal coating effect 4−43344
- glass, surface damage, inclusion mechanism 4−55492
- glass lens, damage development, first stage 4−77696
- glass plates with CO_2 laser induced residual stresses, focusing of He-Ne laser beams 4−51649
- harmonic generation and frequency mixing, during plasma prod. 4−55514
- human body, max. permissible levels, personnel protection during use *(French)* 4−68541
- inert gas breakdown, solutions of classical Boltzmann eqn. 4−56557
- ion production, time and mass resolved energy spectra 4−76341
- ionic crystals, supersonic crack propag. induced by strong laser pulses 4−48693
- i.r. transmitting materials, failure due to absorbing inclusions 4−55507
- laser-driven implosions of spherical pellets, ablation stability, laser fusion 4−63670
- MBBA, nematic liquid crystal layer, c.w. thermal lens effect 4−81354
- metal, electron emission induced by ultrashort laser pulses *(Russian)* 4−79841
- metal, irrad. damage, obs. on water and paint coated pulse illum. targets 4−59442
- metal film, damage mechanism with focused N_2 laser irradiation 4−51622
- metal mirrors, improved damage thresholds 4−59440
- metallic film, laser-induced damage, temporal development of optically etched gratings 4−59441
- metallic film, Q-switched ruby laser, stress wave generation 4−65928
- mirror damage, metal or dielectric coated, meas., mechanism 4−55503
- mirror distortion, CO_2 beam heating, elastic half space model 4−43331
- monatomic gas, shock heating, nonequilibrium model 4−65927
- neutron pulse generation using overcompression of substance by reactive pressure *(Russian)* 4−74539
- nonequilibrium reactions and isotope separation, review 4−45935
- one-photon scattering cross section, of neutrons, i.r. beam irradiation of crystal 4−82237
- optical glass, damage threshold data anal., self focusing mechanism 4−55525
- optical materials damage, conf., Boulder, Colo., USA (May 1973) 4−55491
- organic colorants, transfer recording ability 4−81360
- perylene-ethanol solid solution, 4.2K, laser irradiation form. of absorpt. spectrum gap 4−82720
- photodissociation, physical and chemical process obs. 4−45934
- photographic materials, sensitometry using laser and normal light 4−74090
- photolysis, anthracene, in cyclohexane and methanol, non-linear absorpt., photoionization 4−80199
- plasma, dye laser induced fluorescence, decay rate meas. 4−51964
- plasma, laser produced from boundary between two solids, magnetic field of 10^7G 4−48441
- plasma, laser radiation r.f. heating, overdense plasma 4−48402
- plasma, laser scatt. diagnostics 4−52621
- plasma, magnetic field generation due to radiation press. 4−44187

laser beam effects continued
plasma, population inversion prod. by picosecond laser pulses 4–65903
plasma compression, averaged similarity equations 4–48442
plasma compression, effect of precompression on optimally cumulated plane shock wave 4–56475
plasma dense anomalous interaction of intense laser radiation *(Russian)* 4–78776
plasma diagnostics, competition between laser axial modes 4–52622
plasma formation in vapour layer produced on solid 4–70390
plasma fusion, comparison between laser and relativistic electron beams *(French)* 4–78785
plasma fusion, ion-acoustic and electron, stimulated laser scatt. 4–75228
plasma heating, laser pulse shaping, superthermal electron tail effects 4–78783
plasma heating, pinch plasma column 4–48403
plasma heating, stimulated Backward Brillouin scatt. 4–44189
plasma heating and fusion energy recovery, averaged equations 4–48443
plasma heating and laser compression of substances *(Russian)* 4–78798
plasma interaction, double-sided, anomalous effects of ion-acoustic wave excitation 4–44233
plasma production, electron temp. variation with laser pulse and target parameters 4–44405
plasma production, fast electron meas., X-ray spectra 4–44404
plasma production, ion population, X-ray spectroscopy 4–44403
plasma production, laser beam focusing on pellet, ignition conditions 4–44263
plasma production, laser-CTR pulse-tailoring system, rear excitation of pellets 4–52589
plasma production, low-threshold gas breakdown near solid targets *(Russian)* 4–66755
plasma production, microscopic interferometry obs. 4–56493
plasma production, self-generated mag. fields 4–60298
plasma production, solid target bombardment, Brillouin backscattering and parametric double resonance 4–48425
plasma production, X-ray and u.v. spectra, ionis. stages, X-ray source parameter 4–44406
plasma production and heating in magnetic field, beam self focusing 4–78787
plasma production nanosecond prepulse irrad. solid target 4–56497
Plexiglas, irrad. damage, obs. on water and paint coated targets 4–59442
PMMA, power threshold for focused laser damage, expt. 4–69072
PMMA blocks, supersonic crack propag. due to giant laser pulses 4–50001
polished optical surface, resistance testing 4–80881
polyethylene, deuterated, laser irrad., compression and heating of spherical targets *(Russian)* 4–75289
polyethylene, foil, microscopic damage obs., mechanism 4–59445
polyethylene laser produced plasma, C^{5+} population inversion 4–51965
polymer film, laser radiation damage 4–53882
polymethyl methacrylate carrier layer in optical waveguide with rhodamine 6G dissolved, photoluminescence *(Russian)* 4–53548
positronium annihilation line, narrowing and frequency tuning by laser field 4–81743
positronium formation, excited state, role of coherent radiation and active medium 4–81740
pthalimide derivative solution, spectral generation region boradening investigation *(Russian)* 4–43353
quantum electronics, conference, San Francisco, USA, (1974) 4–69036
quartz, fused, intrinsic optical breakdown, crystallinity and lattice disorder effects 4–43340
radioactive atoms, laser radiation effect on decay processes *(Russian)* 4–77988
Raman active liquids, laser radiation intensity profile effect on self-focusing *(German)* 4–81346
random phase light, conversion to phase coherence by parametric amplification 4–62803
ruby, optical breakdown by train of single ultrashort laser pulses *(Russian)* 4–65931
ruby, optically induced precessing magnetization using mode locked laser pulses 4–67431
self-focusing, control 4–74517
self-focusing damage, high power theory 4–55527
self-focusing damage, nonlinear index redefinition 4–55526
self-focusing damage minimisation, homogeneity requirements 4–55528
semiconductor, disordered, light induced amorphous to cryst. transform. 4–62855
semiconductor, elec. cond. variation induced by shock wave produced on laser interaction *(Russian)* 4–77700
semiconductor, n-type, resonant magneto-optical and self-induced effects, theory 4–77704
solid, thermal wave production 4–79329
solid state, especially metals, laser induced multiphoton photoemission, review 4–57672
sonoluminescence in water due to Nd-laser pulse 4–53489
steel, effect of continuous laser radiation on structure *(Russian)* 4–70447
steel, increase in hardness and wear resistance due to laser irradiation *(Russian)* 4–70478
steel, surface layer hardening by laser irrad., heat treatment conditions depend. *(Russian)* 4–79982
steel plate, crack form. facilitation using laser radiation *(Russian)* 4–53726
surface, CO_2 laser generated impulse and pressure, meas. 4–43338
surface damage, collective electron oscill. damping 4–55508
surface damage mechanism, linear optics 4–55493
surgery, tissue response model 4–46464
thermonuclear fusion concept, comparative eval. 4–63284
thermonuclear yield due to laser compression, electron free streaming limit effect 4–44286
transparent dielectric, laser irrad., nonradiative electron transitions and thermal effects 4–74520

laser beam effects continued
transparent dielectric, propag. of laser radiation absorpt. waves, self-similar soln. *(Russian)* 4–69077
transparent dielectric fracture, radiation emission, spectral meas. 4–74518
trichloromethane-trifluoromethane, spectrophone effect, time-resolved thermal lensing 4–52291
triglycine sulphate, localized irreversible thermal switching by laser 4–70264
two-photon ionization, near resonance effects, resolvent operator analysis 4–63342
water, shock wave generation by CO_2 TEA laser radiation 4–43337
water drop, heating and vaporisation on monochromatic beam irrad. *(Russian)* 4–63619
water drop, irrad. by series of optical radiation pulses, explosion *(Russian)* 4–75181
water drop, laser induced explosion, mechanism *(Russian)* 4–59444
window materials, Alphaphone i.r. absorption meas. device 4–54961
windows, optical response, ultrashort pulse regime 4–51079
windows and window coatings, damage threshold + morphology 4–55502
A, sparks in gas, charact. expansion vel. 4–78789
Ag-Cu eutectic system, metastable phases produced by laser melt quenching 4–45514
Ag_3AsS_3, proustite, surface damage at 10.6 and 0.694 μm 4–55510
AgCl, luminescence after ruby laser excitation 4–49422
Ag_2S, film, sensitivity, bleaching, darkening 4–61257
Al, spallation, pulse shaping effects 4–47366
Al, stress wave prod. by nanosecond laser pulses 4–70588
$Al_xGa_{1-x}As/GaAs$ double heterostructure laser material, dark-line degradation sites, etching and microscopy obs. 4–51606
Ar, gas breakdown, press. depend., ionisation mechanism 4–43911
As_2S_3/KCl mirror, metal or dielectric coated, damage meas. 4–55503
As_6Se_4, glass, hardness and transmission changes 4–59447
Au, foil and wire, damage obs., mechanism 4–59445
Ba, laser selective excitation 4–74846
Be, deform. of monocrysts. under laser irrad. *(Russian)* 4–79924
Be-Cu metal coated mirror, pulse damage meas. 4–55501
Br_2, isotope separation, laser selective photochemistry of $Br_2 + HI$ system 4–68020
CO_2, CO_2-N_2(He), gas, transient cooling by absorption of Q-switched laser radiations 4–59446
CO_2-He-N_2 mixture, laser-induced breakdown, refraction effect on spot size depend. 4–44253
CaF_2, AR-coated window, pulse damage meas. 4–55501
CaF_2, optical fluorite, radiation strength, effect of raw material 4–69074
CaF_2:La,Er, absorption spectrum changes, Q-switching 4–61184
CdSe, obs. of laser induced phase grating by free carrier generation 4–53547
CdTe/ThF_4 mirror, metal or dielectric coated, damage meas. 4–55503
Co_2-N_2-H_2 mixture, high gain at 10.6μ, pulsed discharge 4–65893
C_2radical, laser excited fluorescence in flames, radical conc. meas. 4–50169
Cs, multiphoton excitation and ionisation with tuneable dye laser 4–56023
D, sparks in gas, charact. expansion vel. 4–78789
D plasma, laser heating, inhomogeneous hydrodynamic model 4–66754
D-T plasma, laser heated, fusion energy prod. 4–44287
Fe, laser beam irradiation, nonlinear thermal effects 4–43343
Fe and alloys, high-power CO_2 laser influence in oxidising atm. *(Russian)* 4–53735
GaAs, damage thresholds, mechanism 4–55496
GaAs, intense laser flux effects 4–74514
GaAs luminescence, excitation levels dependence *(Russian)* 4–76290
Ge, i.r. beam damage, surface obs., threshold meas. 4–55504
p-Ge electron-hole drops due to laser irrad. 4–70352
Ge surface, irrad., layer struct. obs. *(Russian)* 4–52969
H, ionisation potential calc. in intense laser beams 4–59937
H, sparks in gas, charact. expansion vel. 4–78789
H_2, low pressure, CO_2 laser driven detonation waves in strong mag. field 4–52558
H_2, underdense, CO_2 laser-driven absorpt. waves 4–48460
H_2 gas, stimulated Raman line prod. with focused laser beam 4–43347
H_2O, photolysis, deuterium and tritium recovery 4–50191
He, cold dense θ-pinch plasma, CO_2 laser-induced heating 4–56496
He, ionisation potential calc. in intense laser beams 4–59937
He, laser induced breakdown, inelastic energy loss effects 4–44254
He, low pressure, CO_2 laser driven detonation waves in strong mag. field 4–52558
He, sparks in gas, charact. expansion vel. 4–78789
^{4}He, liquid, self-focusing role in optical breakdown 4–79215
KBr-KCl, single cryst., intrinsic optical breakdown, crystallinity and lattice disorder effects 4–43340
KCl, i.r. beam damage, surface obs., threshold meas. 4–55504
KCl, polycrystal, intrinsic optical breakdown, crystallinity and lattice disorder effects 4–43340
$KCl_{0.33}$-$KBr_{0.67}$, i.r. damage threshold, orientation depend. 4–55506
KH_2PO_4, surface damage threshold, effect of polishing mixture comp. 4–55490
KH_2PO_4 crystal, harmonic generation *(Russian)* 4–51626
$LaAlO_3$:Pr^{3+}, fluoresc. line narrowing by laser excitation *(French)* 4–49440
$LaCl_3$:Pr^{3+}, Nd^{3+} sequential two-photon excitation and energy transfer up-conversion obs. 4–57611
Li laser plasma, magnetic toroidal trapping 4–52608
LiD, pulse reflection from solid target, intensity depend. 4–62854
LiF, laser induced exoelectron images 4–49536
$LiIO_3$, damage, with and without harmonic generation 4–55494
Mo, film, induced transverse voltage pulse detection 4–74515
Mo film on Al_2O_3, voltage prod., thermal gradient correl. 4–75977
N_2, gas breakdown, press. depend., ionisation mechanism 4–43911
N_2, laser induced breakdown, inelastic energy loss effects 4–44254

laser beam effects continued
- NH_2, NH, laser photodetachment determ. of electron affinities 4—43872
- NO_2^-, laser photodetachment 4—75026
- Na, dye laser beam excitation, resonant Stark effect 4—47835
- Na vapour, dye laser field scatt., forward signal narrowing 4—72051
- NaCl, damage by 10.6 μ fractional J nanosec. pulses 4—55505
- NaCl, i.r. beam damage, surface obs., threshold meas. 4—55504
- NaCl, laser induced F-centre form., rel. to exoelectron images in LiF 4—49536
- NaCl single crystal, breakdown, effect of laser pulse duration on optical damage 4—43341
- O_3 + NO, laser induced vibr. excited O_3 reactive energy transfer, NO_2 chemiluminescence obs. 4—73418
- OCS, laser-induced translational energy fluctuations, time-resolved thermal lensing 4—52291
- OH, laser photodetachment determ. of electron affinities 4—43872
- OH^-, OD^-, high resolution photodetachment, threshold region 7000-6560 Å 4—43873
- S_2, laser photodetachment determ. of electron affinities 4—43872
- SO_2, laser photodetachment determ. of electron affinities 4—43872
- SO_2 laser-induced translation energy fluctuations, time-resolved thermal lensing 4—52291
- Se, film, laser light irradiation, reversible phase transformations 4—62859
- Si junction photodetector, damage, carrier effects 4—55497
- Si solar cells, effect of Cu doping on damage resistance 4—77691
- Si:B, compression and low temp. laser irradiation, obs. of exciton recombination spectra 4—49438
- Si_3N_4, laser thermal shocking, surface eval. using acoustic emission 4—64696
- Sn, surface diffusion of Ga after laser irrad. and deform. *(Russian)* 4—79234
- Te, photon drag and other e.m.f.'s induced by TEA CO_2 laser 4—57128
- Ti, foil, microscopic damage obs., mechanism 4—59445
- TiO_2-SiO_2, multilayer mirror chem. coatings, uniformity of laser resist. 4—55489
- W, laser radiation interaction, crit. flux density and desorption, field emission microscopy 4—61278
- YAG, damage threshold data anal., self focusing mechanism 4—55525
- ZnS, film, damage time resolution 4—55500
- ZnSe, intrinsic damage density, inclusion absorption, 1.06 and 10.6 μm 4—62851
- ZnTe/SnS mirror, metal or dielectric coated, damage meas. 4—55503

laser beam machining
- advantages and drawbacks *(German)* 4—55534
- chip separation in two stages 4—55536
- drilling of sampling orifice in wall of chemical reactor tube 4—71288
- glass scribing with pulses from Q-switched laser 4—47385
- industrial laser system and machines 4—47394
- metal, gas laser cutting, combustion theory approach *(Russian)* 4—53711
- piercing of hole in metal plate, movement of melt *(Russian)* 4—70431
- resistor adjustment, thin film *(Czech)* 4—62873
- stainless steel sheet, CO_2 laser cutting 4—55539
- GaP, monolithic electroluminescent display production 4—43354

laser beams
- *see also holography; Schwarz-Hora effect*
- atmospheric propagation, intensity fluctuations, finite receiver aperture effect 4—70749
- atmospheric propagation, weak scintillations, aperture averaging effects 4—43255
- atmospheric propagation of rapidly slued laser beams, thermal blooming rel. to wind speeds 4—80313
- atmospheric turbulence, effects on laser beam phase 4—68161
- coaxial alignment for perturbation expts., He-Ne and Nd:glass laser beams 4—65463
- collimated sources, reflective optics to obtain prescribed irradiative distribs. 4—59346
- divergence, flat-flat resonator, semiempirical eqn. 4—65929
- elliptical to circular cross section conversion, use of prism 4—59438
- e.m. field near focus as seen by moving electron, laser produced field 4—77693
- e.m. fields, general theory 4—77694
- in ferrite garnet, randomly magnetised, propag. anal. 4—70283
- focusing, hypersonic generation threshold *(Russian)* 4—51653
- focusing by optical system *(Czech)* 4—51548
- high power laser pulses, volume absorbing calorimeters 4—71214
- holographic phase correction, enhancement of axial brightness 4—46687
- intensity correlations, third-order, meas. near laser threshold 4—51621
- intensity distribution, spherical aberration effects 4—74516
- Maxwell's theory applications *(Dutch)* 4—47318
- mode-locked pulses, picosecond framing photography 4—42831
- multichannel splitting by fly eye lens 4—80935
- multimode laser beam, transverse distrib. *(French)* 4—62852
- noise, freq., intensity and field fluctuations 4—43279
- optical heterogeneity and induced extinction during org. solvent exposure to electrons *(Russian)* 4—77701
- parametric amplification, spatial and temporal, modulation effect 4—51642
- parametric superluminescence, transient process *(Russian)* 4—62870
- passive nonlinear absorber, limit pulses 4—77702
- phase aberrated nondiffraction limited, characts. 4—51619
- picosecond optical sampling, 10 channel technique, oscilloscope display 4—62473
- profiles and divergence meas. apparatus 4—51018
- propagation through turbulent atmosphere, cumulative probability distribution 4—50287
- pulse amplification, at 10.6μ in electron beam controlled pulsed discharge 4—65893
- pulse peak value measurement, electronic device *(French)* 4—51620
- pulse superposition in dye medium 4—77695
- pulsed, meas. of time and energy parameters 4—51081

laser beams continued
- quasi-gaussian aberration expansion in orthogonal functions 4—77692
- resolution of scanning beam, laser with spherical resonator *(Russian)* 4—65930
- rhodamine 6G pulse dye laser, first-order coherence 4—59411
- ruby laser, Q-switched near threshold, pulse struct. 4—69057
- satellite picosecond pulses, depend. on dye cell position, optical Kerr gate obs. 4—47364
- saturated fluctuations of radiation intensity in turbulent medium *(Russian)* 4—69092
- scintillation, focused beam in turbulent atm. 4—50295
- self-focusing, Raman limited laser beam diameters 4—55520
- self-focusing enhancement of harmonics 4—71572
- self-induced beam steering, intense laser pulses in nonlinear media 4—59448
- shape optimization in focused coherent optical system 4—65925
- shaping devices, using Faraday and Pockels polarisation effects 4—65462
- spatial coherence reduction for speckle reduction 4—77113
- spectral structure modification by modulation 4—59443
- splitting into multiple rays using microscope slides, student demonstration 4—54795
- spot wander after propag. through turbulent atm., centroid-sync. technique 4—46640
- thermal blooming, square aperture transmitter 4—51618
- turbulence, inner scale, determ. from laser beam log-amplitude scintillation variance 4—43257
- turbulent atmosphere, intensity fluctuations in focused laser beam propag. *(Russian)* 4—73534
- turbulent atmosphere, mutual coherence function and freq. spectrum 4—64901
- ultrashort pulse conversion to e.m. signal, dispersive waveguide with nonlinear cryst. 4—51648
- underwater transmission characteristics 4—55488
- units of power and energy, state special standard 4—50948
- wavefront curvature and beamwidth, simple meas. method 4—59439
- wavelength comparison with reference lamp, by movable-reflector interferometer 4—46668
- Ar c.w. laser emission, polarisation in transverse mag. field 4—51559
- Ar ion laser, beam divergence 4—43297
- CO_2, industrial system, far field beam brightness 4—74537
- CO_2, noncollinear folded mixing geometries for difference-frequency far i.r. generation 4—71573
- Co_2 laser radiation angular divergence and transverse intensity distribution meas. 4—80932
- HF, linewidth meas. using time resolvable bleachable absorption in HF 4—65926
- He-Ne, illumination on ruby laser, scattering pattern obs. 4—81319
- He-Ne, natural spatial coherence governed by spontaneous emission *(Russian)* 4—71568
- He-Ne expanded beam, optical parallelism meas. of ruby laser rods 4—59420
- Nd glass disc amplifiers, self-focusing, saturation 4—55529
- Nd:glass, mode locked, ultrashort pulse generation, linear region 4—65915
- Nd:glass laser, high repetition rate compressed picosecond pulse obs. 4—65917
- Nd^{3+}:YAG laser, continuous two-photon-fluoresc. monitoring during alignment 4—46709
- YAG:Nd, loss modulation mode-locked, pulse chirping 4—43318

laser cavity resonators
- *see also ring lasers*
- amplifier gain, regenerative modes 4—51610
- dye, with longit. linear pumping *(Russian)* 4—43334
- dye cell in Nd^{3+}: glass laser cavity, positioning for satellite pulse elimination, Kerr gate obs. 4—47364
- dye laser, high resolution, appl. of pressure scanning to tuning 4—77665
- electrogenerated chemiluminescence pumped dye laser cavity 4—51587
- fast flowing lasers with unstable resonators, free oscillating emission instability *(Russian)* 4—77663
- flat-flat, beam divergence, semiempirical eqn. 4—65929
- gas laser cavity stability meas., warm-up time rel. to hologram recording 4—65923
- gas lasers, field in cavity with quasi-quarter wave plates 4—71562
- injection laser, with two strongly coupled resonators, dynamics of emission 4—81329
- mode stability, arbitrary lens elements, off-axis propag. 4—62850
- nonstationary, plane-and-sphere and plane-parallel, for ruby laser, generation kinetics 4—51601
- one-dimensionally inhomogeneous media and resonators, spontaneous and stimulated emission theory *(Russian)* 4—77642
- open double-mirror resonators, diffr. losses calc. 4—71561
- photodecomposition effects on parameters of solution lasers *(Russian)* 4—59412
- plane optical resonator and waveguide with semitransparent wall, theory *(Russian)* 4—71564
- plane parallel, Raman laser, transverse mode locking 4—69068
- prism unstable resonator of solid laser, stabilisation of emission direction 4—51616
- pulse lengthening, using nonlinearly absorb. CdP_2, ZnP_2 in resonator 4—81343
- Raman inverse scattering meas., method of intra-cavity spectroscopy 4—58807
- Raman laser, with plane-parallel resonator, pumped by converging beam 4—81297
- Raman stimulated emission with polariton excitation, theory 4—51615
- resonance modulation of resonator parameters, mode locking *(Russian)* 4—55487
- rimmed Cassegrain resonator, modes and losses 4—71566
- ring and 90° roof mirror resonators, modes and losses 4—71567
- roof-mirror, 90°, integral eqn. 4—43332
- ruby, distortion *(Russian)* 4—43335
- ruby, with multimode optical vessel, for weak absorpt. line investigation *(Russian)* 4—43336

laser cavity resonators continued

- ruby element laser resonator, optical homogeneity rel. to stimulated emission losses 4−51617
- ruby laser, four pulse, used for Thomson scattering meas. on laboratory plasma 4−69648
- semiconductor radiating mirror laser, with external resonator, dynamics of emission 4−81333
- shock driven laser, cavity flow aerodynamics 4−71546
- single-mode laser radiation, polarisation, stability theory 4−71519
- stimulated Raman intraresonator emission of hypershort pulses using mode self-synchronisation *(Russian)* 4−71565
- stimulated scattering excitation, influence of spectral linewidth 4−81342
- surface heating of metallic mirrors in high power cavities 4−51623
- three-minor multiple beam interferometer, resonance props. investig. 4−71208
- tunable resonator with variable curvature mirror 4−69069
- tuning with tilted birefringent plates, laser modes, theory 4−47363
- unstable, loss and struct. of fundamental oscills., asymmetry effects 4−47365
- unstable configurations, mode behaviour, comment 4−74510
- waveguide, optically pumped far i.r. and mm wave 4−74512
- waveguide lasers, hollow, resonator theory 4−74511
- X-ray laser possibility using distributed feedbacks 4−65922
- Ar-ion laser, cavity dumped, excitation source for time-resolved fluorimetry 4−77644
- CO, prod. in O + CS react., vibr. levels investig. by intracavity laser technique 4−66408
- CO_2, optical distortion of heated mirror 4−43331
- CO_2 c.w. TEA hybrid laser, single mode performances 4−71535
- He-Ne, stimulated emission spectrum rel. to resonator tuning 4−51563
- He-Ne compact plano-concave resonator design *(German)* 4−47344
- He-Ne laser, resonator length effect of coupled lasing channels on standing wave interaction 4−51612
- He-Ne laser freq. stabilisation at $\lambda=0.63\mu$ w.r.t. generation freq. $\lambda=3.39\mu$ 4−55470
- He-Xe, improved unstable mode profiles, aperture shaping 4−74489
- Nd:YAG, cavity length up to 6.3 km, performance 4−59421
- Xe discharge intracavity cell, refractive index var., Ne laser tuning appl. *(Japanese)* 4−43333

laser modes

- active phasing dynamics, giant pulse system *(Russian)* 4−65918
- autostabilisation of intermode pulse freqs. in gas laser *(Russian)* 4−51580
- circular laser, nonlinear link between modes effect on capture zone *(Russian)* 4−51550
- continuous, laser light modulator designing for photographic sound recording *(Russian)* 4−77117
- cyclic lasers, nonlinear link depend. on mode of polarisation *(Russian)* 4−59381
- definition and selection 4−59383
- dye, saturable absorber mode locking, pulse compression 4−77672
- dye ring laser, tunable, N pumped with single mode operation 4−55486
- fast flowing lasers with unstable resonators, free oscillating emission instability *(Russian)* 4−77663
- gas, higher transverse mode energy extraction using inhomogeneous mirror 4−81308
- gas laser, 2 mode interaction, orthogonal and parallel polarisations 4−69048
- gas laser with rapidly decaying lower level, interaction of longit. oscill. modes 4−51562
- gas lasers, field in cavity with quasi-quarter wave plates 4−71562
- gas ring laser, mode competition rel. to nonlinear absorpt. and broadening 4−74513
- gas ring laser, theory of locking 4−51611
- gas ring laser, unsynchronised two-mode lasing investig. 4−71563
- glass filter for laser mode locking 4−65460
- injection laser, dynamic instability at low temps. *(Russian)* 4−77688
- injection laser, multimode emission with strong microwave modulation 4−81334
- injection laser, TE_n e.m. wave excitation, threshold depend. on excited mode order 4−81330
- injection lasers, single-mode and single freq., review 4−51609
- locking dynamics of homogeneously broadened lasers 4−59378
- low-order, lenses 4−74085
- monomode laser model, quantum statistics 4−69033
- multimode laser, freq. modulation effect *(Russian)* 4−59388
- Raman laser, transverse Stokes mode locking process 4−69068
- resonance modulation of resonator parameters, mode locking *(Russian)* 4−55487
- resonator modes, tuning with tilted birefringent plates, theory 4−47363
- rhodamine dye laser, mode locking improvement using saturable absorber 4−81316
- ring doubly-confocal unstable resonator, Q-switching or mode-locked operation 4−59436
- ring laser, two-mode operation 4−77689
- ruby, low temp. emission with passive switch, mode locking 4−69060
- ruby, passively mode-locked, picosecond pulse generation, absorber relaxation time 4−81320
- ruby, with phototropic shutter, optimum control mode, efficiency 4−68711
- ruby laser, mode locking by nonlinear total internal refl. 4−69087
- semiconductor, multimode stimulated emission spectrum, influence of intensity pulsations 4−77686
- semiconductor laser, wing mode obviation structure 4−47359
- semiconductor lasers, single and two mode regimes 4−51608
- single mode, coherent optical field props., theory 4−55455
- single-mode laser radiation, polarisation, stability theory 4−71519
- solid state laser, single mode population inversion effects in dynamics 4−81318
- spectral line width in multimode laser 4−77641
- spectrum, laser with additional mirror, longit. mode freq. splitting 4−65924
- stability, off-axis mode propag., arbitrary lens elements 4−62850

laser modes continued

- stimulated Raman intraresonator emission of hypershort pulses using mode self-synchronisation *(Russian)* 4−71565
- three mode laser beating, length shift meas. 4−43358
- two-mode strong coupling limit laser stability boundaries 4−71520
- unstable resonator configurations, mode behaviour, comment 4−74510
- waveguide lasers, hollow, transverse modes and losses, resonator theory 4−74511
- CO_2, TEA, actively mode-locked, multiline output 4−77656
- CO_2, TEA, p-Ge saturable absorber, mode locked pulse prod. 4−47335
- CO_2, TEA laser, actively mode-locked with high-power multiband output 4−51560
- CO_2, TEA laser, with helicoidal electrode config., active mode selection *(French)* 4−65902
- CO_2 c.w. TEA hybrid laser, single mode performances 4−71535
- CO_2 laser, multiline mode-locked u.v.-preionized 4−69040
- CO_2-N_2, supersonic stream, thermal excitation, optimal inversion modes 4−47343
- (GaAl)As-GaAs, double heterostructure laser with stripe geometry spectral characts. and inhomogeneities 4−69065
- GaAs, large cavity double heterostructure, mode control 4−59434
- GaAs, selective refl. from ^{133}C vapour, possibility of single mode emission 4−80937
- GaAs-(AlGa)AS, injection laser, radiation fields 4−71558
- He-Ne, 2 mode interactions, polarization depend. 4−69048
- He-Ne, 3.39 μm laser, FM mode-locking using large locking signal 4−62835
- He-Ne, coupled mode locking by two-quantum interaction 4−71534
- He-Ne, ring, synchronized, axial mag. field effect on beat freq. 4−59437
- He-Ne, stabilisation method investigation for twin-modex generation *(Russian)* 4−43310
- He-Ne, stimulated emission spectrum rel. to resonator tuning 4−51563
- He-Ne laser, mode crossing signal, collisional effects 4−62836
- He-Ne laser, resonator length effect of coupled lasing channels on standing wave interaction 4−51612
- He-Ne laser, sharp resonances in two-freq. lasing regime investig. 4−71536
- He-Xe, improved unstable mode profiles, aperture shaping 4−74489
- Nd:CaLaSOAP (silicate oxyapatite), pulsed mode-locked oscillator at 1.06 μ, characts. 4−62843
- Nd:glass laser, mode-locked by Eastman-9740 saturable dye 4−43321
- Nd:glass single freq. t.w. laser using active Q-switching *(Russian)* 4−77679
- Nd:YAG laser, cavity length up to 6.3 km, performance, self mode locking 4−59421
- Yag:Nd, mode locked, pulse chirping 4−43318

laser pumping *see optical pumping*

laser radar *see optical radar*

laser theory

see also laser transitions; population inversion; stimulated emission

- amplifier system design, proper input pulse for specific output pulse prod. 4−59379
- chemical lasers, thermodynamic anal. of chem. react., efficiency, operating conditions investig. 4−69042
- chemistry in lasers, precursor states contrib. 4−74483
- chemistry in lasers, Stokes 0-0 loss role 4−71522
- circular laser, nonlinear link between modes effect on capture zone *(Russian)* 4−51550
- Dicke-Haken-Lax laser, dynamical system, laser and superradiant phase transitions 4−81295
- distributed feedback by space modulation, u.v. emission without resonator *(Russian)* 4−71542
- dye, quantum states and chem. phenomena 4−51583
- dye, saturable absorber mode locking, pulse compression 4−77672
- dye lasers, effect of triplet state losses on coherence 4−74501
- dye lasers, flash pumped, numerical solutions of rate equations 4−51586
- dynamics, self Q-switching due to population inversion inhomogeneous distrib. 4−51549
- escape factor calc. at small optical depth, gas lasers 4−51578
- gamma laser feasibility *(Russian)* 4−77643
- gas dynamic laser based on binary mixture *(Russian)* 4−74497
- gas lasers, bistable, field fluctuations 4−55467
- gas lasers, emission from $J=1\rightarrow J=0$ transition, polarisation and statistical properties 4−71537
- gas ring laser, unsynchronised two-mode lasing investig. 4−71563
- gasdynamic and chemical, linear theory, diffusion problems *(Russian)* 4−69051
- inert gas excimer laser, dynamic model 4−77645
- injection laser, optical gain, saturation behaviour 4−71559
- injection laser, spatial distrib. of light intensity 4−74506
- injection laser, spontaneous power and coherent state, theoretical relation 4−59433
- molecular gas laser, electron distrib., theory 4−51554
- molecules, radiating, strongly coupled to resonant field, thermodynamics 4−81294
- momentum-translation approximation, validity for bound states in radiation field 4−55457
- monomode, photon density matrix, kinetic eqns. 4−62821
- monomode laser model, quantum statistics 4−69033
- multi-mode laser, thermodynamic limit is model for interacting waves in non-thermal equilib. 4−71511
- multimode laser beam, transverse distrib. *(French)* 4−62852
- negative ion resonance, detailed balance anal. electron bombard. 4−65894
- noise, freq., intensity and field fluctuations 4−43279
- noise, rel. to atomic spontaneous emission in intense field 4−47855
- nuclear levels pumping by X-rays from laser plasma, γ-ray emission 4−69035
- one-dimensionally inhomogeneous media and resonators, spontaneous and stimulated emission theory *(Russian)* 4−77642
- optical pumping inhomogeneity effects, self-excitation due to distributed feedback *(Russian)* 4−62824
- optical self-saturation gain 4−43276

laser theory continued
optothermodynamics concept *(Russian)* 4−71523
organic solutions, intermolecular interactions effect, emission threshold 4−70324
oscillator with spatial dispersion, boundary conditions 4−62819
plane optical resonator and waveguide with semitransparent wall, theory *(Russian)* 4−71564
population inversion effects in dynamics, single mode solid state laser 4−81318
principle of operation, physics of coherent light *(German)* 4−51545
quantum flow lasers, law of energy conservation 4−51552
Raman lasers, electronic, Stokes-anti-Stokes coupling 4−74508
recombination laser with electron beam generated supercooled plasma 4−59400
relaxation in single quantum systems 4−62736
review of optical coherence theory 4−69028
Scully-Lamb laser master eqn., modifications 4−71521
self-focusing, control 4−74517
single mode, coherent optical field props., theory 4−55455
single mode laser, frequency shifts, semiclassical equations analysis 4−74482
single-mode laser radiation, polarisation, stability theory 4−71519
singular oscillator excitations and even and odd coherent state 4−62817
solid-state laser obliquity factor 4−43316
spectral characteristics calc. for Stepanov's relation deviation case *(Russian)* 4−47331
spectral line width in multimode laser 4−77641
spin laser, optically pumped, noise effects on linewidth 4−59380
stability, working, of monoimpulse lasers using telescopic system *(Russian)* 4−47333
stimulated Raman scattering due to rot. transitions 4−77718
thermodynamics of adiabatic processes, heating and cooling 4−81292
travelling wave combinational laser excited by nonmonochromatic radiation, linewidth *(Russian)* 4−62823
two channel generation in spectrally heterogeneous media, correlated freqs. *(Russian)* 4−65891
two channel generation in spectrally heterogeneous media, line width *(Russian)* 4−65892
two-level atoms, time correlation functions, appl. of projection operator method 4−81293
two-mode strong coupling limit laser stability boundaries 4−71520
ultrashort laser pulses, processes of formation 4−69032
ultrashort light pulse propag. in nonlinear laser medium 4−71579
undamped many-wave systems, natural spectral line widths 4−65936
Zeeman ring laser, general formalism 4−51614
He, nuclear-radiation-induced excitation population inversion 4−81311
DF-CO_2 pulse profile and intracavity conditions, numerical procedure 4−74491
HCl chemical c.w. laser, theoretical performance 4−47340
HF, chemical laser, kinetic rate eqns., analytic soln. 4−62825
He-Ne, stabilisation method investigation for twin-modex generation *(Russian)* 4−43310
Nd^{3+}:YAG crystal field analysis of optical spectra 4−67169

laser transitions
see also laser theory
Dicke-Haken-Lax laser, dynamical system, laser and superradiant phase transitions 4−81295
gas laser with rapidly decaying lower level, interaction of longit. oscill. modes 4−51562
gas lasers, bistable, field fluctuations 4−55467
gas lasers, emission from $J=1\rightarrow J=0$ transition, polarisation and statistical properties 4−71537
inert gas ions, radiative lifetimes meas. 4−77650
injection lasers, single-mode and single freq., review 4−51609
methanol gas waveguide resonator, new 1.217 mm transition 4−74512
polymethine dye laser, N_2 laser excitation, emission up to 9500 Å 4−47348
rhodamine 6G (B), dimer emission, superradiant t.w. laser 4−71555
rhodamine 6G in ethanol soln., stimulated emission on refl. from self-induced mirror 4−51593
ruby, absorption spectrum, $^2A_1\rightarrow{}^4A_2$ transition, 29425 cm^{-1} 4−76265
ruby, excited by external light pulses, spectral and kinetic emission features 4−51603
ruby, spike structure of laser emission rel. to population inversion inhomogeneous depletion 4−51602
ruby element laser resonator, optical homogeneity rel. to stimulated emission losses 4−51617
single-mode laser radiation, polarisation, stability theory 4−71519
Ar, pulsed discharge, transient gain detection 4−74079
As, vap., i.r. lines obs. in pulsed discharge 4−77651
Ba, pulsed emission, reson. to metastable level transitions 4−69050
Ba vapour in He buffer gas, stimulated emission at 1.2478 μ 4−51566
CO, laser plasma, small signal gain, vibr. distrib. 4−71530
CO, pulsed stimulated emission due to vibr. transition, CO-Xe-He laser mixture 4−77660
CO_2, 9.6 μ laser transition probability and optical broadening cross-section 4−43283
CO_2, i.r. lasing emission investig., emissivity, radiancy calc. *(French)* 4−65900
CO_2, rot. relax. effects on sequentially Q-switched transitions 4−65896
CO_2, rotational relax. in vibrational laser levels 4−51551
CO_2, TEA double discharge, anomalous gain coeffs. 4−77648
CO_2, vibr.-rot. line selection by diffr. grating in resonator 4−69049
CS_2, i.r. spectrum, hot bands, laser assignments 4−72182
Ca vapour in He buffer gas, stimulated emission at 0.3737 μ 4−51566
$CuSO_4$:gel, X-ray laser expts., theoretical model, possible wavelengths 4−47332
$CuSO_4$:gelatin, expt. attempts to confirm X-ray lasing 4−43278
DF, pulsed laser, 2.6 to 4.2 μ range emission 4−51567
H_2, high power, u.v., transverse discharge pumped, stimulated emission at 160 nm 4−81310
H_2, simple low-divergence laser at 160 nm, short-lived self-terminating transitions 4−59397
HF, pulsed laser, 2.6 to 4.2 μ range emission 4−51567
HF, TE chemical laser, time resolved spectroscopy 4−43300
He-Cd, electronic collision induced CdII transition, $4d^95s^2$ config. 4−65898
He-Cd laser discharge, perturbation spectroscopy 4−59395
He-Ne, $3s_2$-$2p_4$ and $2s_2$-$2p_4$, coupled laser mode locking 4−71534
He-Ne, lasing line shapes in $^3S_2$-$^2P_4$ and $^2S_2$-$^2P_4$ transitions 4−77658
He-Ne, stimulated emission due to 0.63 μ, 1.15 μ coupled transitions 4−51564
He-Ne, stimulated emission spectrum rel. to resonator tuning 4−51563
He-Ne, with active medium placed in mag. field, energy characts. of competing transitions *(Russian)* 4−59404
He-Ne laser, sharp resonances in two-freq. lasing regime investig. 4−71536
He_2 excited states, recombining afterglow of electron-beam discharge in He at 3 atm. 4−43287
KCl, stimulated emission from F-centres, new type i.r. laser 4−51598
Mg vapour in Ne, He buffer gas, stimulated emission at 0.9244, 0.9218 μ 4−51566
N_2, high power, u.v., transverse discharge pumped, stimulated emission at 337.1 nm 4−81310
N_2, transversely excited laser, time-resolved analysis 4−51558
NO, photoexcited, $C(^2\pi)\rightarrow A(^2\Sigma^+)$, $D(^2\Sigma^+)\rightarrow A(^2\Sigma^+)$ 4−47338
NO_2, photoexcited, $C(^2\pi)\rightarrow A(^2\Sigma^+)$, $D(^2\Sigma^+)\rightarrow A(^2\Sigma^+)$ 4−47338
Nd:$Gd_3Ga_5O_{12}$, meas. spectral absorpt. intensity, Judd-Ofelt intensity parameters 4−81321
Nd:$Y_3(Al_{1-x}Ga_x)_5O_{12}$, new intermediate gain material, 1.06μ laser transition 4−51596
Nd^{3+}:NdP_5O_{14}, emission cross-section and fluoresc. efficiency 4−51595
Ne, $2S_2$-$3P_4$, collision broadening meas. method 4−77659
Ne, 4218, 5403, 7699 nm, amplification coeffs. 4−62826
Sr vapour in He buffer gas, stimulated emission at 0.4305, 0.4162 μ 4−51566
YAG:Nd, $^4F_{3/2}\rightarrow{}^4I_{15/2}$, fluoresc. quenching by multiphonon relax. 4−74503
Y_2SiO_5:Nd^{3+}, $^4F_{3/2}\rightarrow{}^4I_{11/2}$, $^4F_{3/2}\rightarrow{}^4I_{13/2}$ 4−51600

laser velocimeters
anemometry, filter bank signal processor application 4−77329
biophysics protoplasmic streaming in algae cells, laser Doppler shift obs. 4−71270
contactless flow rate meas. by laser Doppler velocimeter 4−68859
convective velocity and heat transfer measurements in water 4−43968
cross-beam, effect of atm. turbulence 4−80339
differential interferometer for vel. meas. of reflecting and diffusely scatt. surfaces 4−58826
Doppler, coherent detection 4−68858
Doppler, signal processing for 4−46995
Doppler, three dimens., for gravity wave study in shallow water, design consideration 4−50409
Doppler, three-dimens. scalar system with directional ambiguity 4−74194
Doppler, under expanded free jet meas. 4−71296
Doppler, using diffraction gratings and white light 4−51237
Doppler anemometer, for turbulence meas. in fluids *(French)* 4−51244
Doppler direction sensitive velocimeter with polarised beams 4−59015
Doppler measurement in nonuniform flow, error estimates 4−74189
Doppler technique, fluid vel. meas., review 4−77320
Doppler velocimetry, turbulence intensity meas. 4−81100
gas flow velocities in high current arc discharges 4−62654
position, velocity and acceleration measurement, time-resolved measurements 4−54826
shock wave velocity measurement, improved laser-schlieren system 4−71297
shock wave velocity measurement, using laser Doppler arrangement plus schlieren system 4−74190
supersonic free jet investigation by laser anemometer 4−74191
trailing vortices in water, meas. 4−72286
velocity measurement, laser Doppler velocimeter, appl. to sloping beach wave motion 4−46134
wind tunnel, turbulence, photon correlation analysis 4−46997

lasers
see also gas lasers; laser beams; liquid lasers; Raman lasers; ring lasers; semiconductor lasers; solid lasers
conference, Washington, USA, Spring (1974) 4−46624
demonstration for students, beam split into multiple rays using collection of microscope slides 4−54795
electro-optics conference, Montreux, Switzerland, (1974) 4−43281
far i.r., review 4−77640
gamma ray, difficulties in design possible induced emission of Cu Kα line, excitation sources *(Hungarian)* 4−81291
graser, or gamma-ray laser, review 4−55459
h.f. Q-switching, using pulse shaping circuit 4−74080
meter standard, possible replacement to ^{86}Kr lamp *(German)* 4−58735
modulation by acousto-optical devices, principles and methods 4−43339
modulator, using Pockels-cell 4−46705
monoimpulse, working stability using telescopic system *(Russian)* 4−47333
principles, construction, and applications, lasers as energy sources *(German)* 4−51545
principles, types, applics., review 4−62820
properties and advantages, miniaturization of optical systems *(Italian)* 4−81296
pulse formation, ultrashort, role of active medium nonlinearity *(Russian)* 4−51546
Q-switching, pulsive prism system *(Bulgarian)* 4−54955
regenerating optical quantum amplifier characts. on 3.39 μm line *(Russian)* 4−59382
spectrum, laser with additional mirror, longit. mode freq. splitting 4−65924

- **lasers** continued
  - stabilized by Lamb dip, suitability as light source for length measurement *(German)* 4–73970
  - stabilized by Lamp-dip or Zeeman effect, appl. to length meas. techniques *(German)* 4–73977
  - systems, for chemical and isotope separation applic., review 4–45932
  - types, and applications, review *(Spanish)* 4–51547
  - waveguide laser array, electronically scanned 4–69038
  - X-ray, optical pump requirements and proposed approaches 4–43282
  - X-ray, possible induced emission of Cu $K\alpha$ line, excitation sources *(Hungarian)* 4–81291
- **latent heat**
  - *see also heat of fusion; heat of sublimation; heat of vaporisation*
  - atomic clusters, struct., vibr. props., melting investig., mol. dynamics simulation method 4–66804
  - 5α-cholestan-3β-yl ω-phenylalkanoates, microscopy and scanning calorimetry measurements 4–69720
- **latent heat of adsorption** *see heat of adsorption*
- **latent heat of combustion** *see heat of combustion*
- **latent heat of crystallisation** *see heat of crystallisation*
- **latent heat of dissociation** *see heat of dissociation*
- **latent heat of formation** *see heat of formation*
- **latent heat of fusion** *see heat of fusion*
- **latent heat of mixing** *see heat of mixing*
- **latent heat of reaction** *see heat of reaction*
- **latent heat of solution** *see heat of solution*
- **latent heat of sublimation** *see heat of sublimation*
- **latent heat of transformation** *see heat of transformation*
- **latent heat of vaporisation** *see heat of vaporisation*
- **latent image** *see photographic process*
- **lattice constants**
  - binary alloy, order, comp. and correlation parameters depend. *(Russian)* 4–60430
  - cubic semiconductor, rel. to energy gap 4–44848
  - electron beam heating, correction for effect on Kossel pattern lattice spacing results 4–78865
  - halides and complex halides, data collection 4–60464
  - III-V compounds mixing ratio yielding a fit to lattice constants of $A_{III}B_V$ substrates *(German)* 4–75498
  - protective coatings, diffusion aluminide, nondestructive methods 4–50072
  - pseudo Kossel technique, lattice consts. and orientation of noncubic crysts. determ. *(German)* 4–48472
  - pyridino-anthraquinones, unit-cell parameters and space groups 4–82168
  - type II/1, superconductor, temp. depend. 4–72896
  - Bi, thin films, investig. of lattice parameter changes 4–67131
  - $Cd(NO_3)_2$, polymorphism and thermal expansion by X-ray diffraction method *(French)* 4–63799
  - Co-(7 wt.%)Fe, decrease near first order phase transition 4–52892
  - Cs, f.c.c., lattice volume, continuous s-d transitions, neutron diffr. obs. to 43 kbar, 298K 4–44826
  - Cu-Cr eutectic alloy, unidirectionally solidified, crystallography of phase interfaces 4–82858
  - Cu_9Al_4, unit cell dimensions derived by extrapolation technique and curve fitting procedure 4–69696
  - $Cu_{2-x}S(Se)$ and solid solns., lattice struct. and consts., X-ray investig. 4–48575
  - GaAs:Te, solid soln., lattice const., elec. props., Te interstitial and vacancy conc. 4–44531
  - $MgFe_{2-x}Al_xO_4$ spinel ferrites for magnetic bubble domain memory 4–57308
  - Ni-Fe-C, C impurity and Fe conc. effect on props. 4–45111
  - $Sn_{1-x}Pb_xTe:Se$, lattice const. change with impurity conc., local environment characts. 4–44557
- **lattice defects** *see crystal defects*
- **lattice dynamics**
  - *see also crystal surface and interface vibrations; Gruneisen coefficient; lattice localised modes; lattice phonons; nonpolar crystal lattice vibrations; polar crystal lattice vibrations; vibrational states in disordered systems*
  - alkali halides, Hugoniot curves, Gruneisen parameter, high press., lattice model calc. 4–72545
  - alkali halides, second neighbour interaction, rel. to dielec. props. 4–64322
  - alkali metal, thermal and electrical resistivities 4–64059
  - alkali metal halide, diatomic molecule props. 4–66400
  - anharmonic crystal, nonlinear wave propag., weak dislocation potential effects, infinite set of conservation laws 4–72535
  - anharmonic crystal, weak dislocation potential effect on nonlinear wave propag. 4–60562
  - anharmonic treatment of quasielastic scatt. for materials with structural transition 4–69880
  - anharmonic two-dimensional crystal, ergodic properties, energy distrib. 4–60566
  - atomic eigenvector calc. from isotope shifts of normal mode frequency 4–56830
  - benzene, crystalline, vib. spectra under high press. rel. to I-II transform. 4–79717
  - bond charge classical model, electrostatic interaction 4–56836
  - Bravais lattice, rhombohedral, quasiharmonic lattice dynamics, thermal expansion calc. 4–79118
  - Bravais lattice, rhombohedral quasiharmonic lattice dynamics, short range central forces, phys. mech. 4–79117
  - Bravais lattices, quasiharmonic lattice dynamics, mechanism in central force models 4–79116
  - chalcogenide crystals, rigid-layer modes, Raman scatt. meas. 4–44624
  - correlated-effective-field theory, statistical approach for anharmonic lattice vibrs. 4–63867
  - cubic crystal, Anderson-Gruneisen parameter, delta, from third order consts. 4–75558
  - diamond, bond charge model, phonon and X-ray scatt. spectra 4–52834
  - diamond, vibr. spectra, 5032 Å transition, symmetry breakdown 4–79755
- **lattice dynamics** continued
  - diatomic elastic dielectrics, long-wavelength approx. 4–75584
  - diatomic mixed crystals, CPA for lattice vibrs. 4–52835
  - 11,11-dimethyltricyclo $[4,4,1,0^{1,6}]$ undeca-2,4,7,8-tetraene, thermal motion, lattice dynamical anal. 4–56846
  - dipole-lattice interacting system, exact isolated and isothermal susceptibilites 4–60571
  - dislocation line as vacancy (interstitial) sink increased efficiency when oscillates 4–72471
  - displacive phase transformations, lattice vibrations, inelastic light scattering, temperature dependent 4–63880
  - distortion by point defects, phenomenological force model 4–75583
  - dynamical theory of scattering, WKB method 4–56821
  - electron gas, one-dimens., Kohn anomaly, single-particle states and pairing fluctuations 4–57022
  - electron polarisability time dispersion, eqns. governing lattice vibrations 4–56843
  - f.c.c. and b.c.c. crystals, static lattice Green's function and its asymptotic behaviour 4–63822
  - ferroelectric, displacive, below T_c, Raman measurements 4–67541
  - ferroelectrics, transverse mode, influence of charge carriers 4–82675
  - ferroic phase, group theory, faintness index 4–44641
  - fluorescent emission probability, vibroelectronic models *(French)* 4–61218
  - force constant and mass disorder in vibr. systems, coherent pot. approx. 4–44627
  - glass transition, statistical mech. 4–63768
  - graphite, analytical two-body potential, thermodynamic props. 4–67007
  - graphite, pyrolytic, magnetothermal cond. meas. 0.36 to 4.2K, electronic and lattice contribs. 4–60813
  - guanidinium aluminium disulphate hexahydrate, and hexadeuterate, infrared absorption *(French)* 4–70290
  - hard and soft vibrational mode condensation, faintness index for ferroelectricity and ferroelasticity 4–79134
  - harmonic solids, time autocorrelation functions determ. from Gaussian quadratures 4–75582
  - heat pulse propag. in cryst. mol. dynamical calc. 4–56816
  - hexachlorobenzene, single crysts., intramol. pot. function model 4–56852
  - hexamethylenebenzene, l.f. Raman spectra 4–57525
  - inert gas crystal, high order multipole long range interactions between atoms 4–79110
  - instability of lattice near solid-solid phase transition points, obs. techniques 4–48726
  - inter- and intramolecular forces incorporation, energy calc. 4–63783
  - intermolecular force constants, self-term derivation 4–44607
  - ion scattering, estimates of angular and energy distributions of reflected ions 4–64462
  - ionic crystal, effective charge parameter, three-body-force shell model 4–78944
  - $Li_4Si(Ge)O_4$, $Li_6Si(Ge)_2O_7$, vibr. spectra 4–67566
  - liquid crystal, nematic, optic soft modes 4–63881
  - magnetic bubble lattice, excitation spectrum, dispersion relation 4–76112
  - melting point, most effective vibr. mode determ. 4–48742
  - metal, band struct. effect on collective modes 4–72730
  - metal, b.c.c., atomic vibration amplitudes 4–75603
  - metal, h.c.p., internal equilibrium exam. 4–82229
  - metal, hexagonal, total energy and shear modulus calc., role of three-body interactions 4–48718
  - metal, pseudoatom form factor 4–79256
  - metal, white tin structure, lattice harmonics 4–69862
  - microscopic theory, local field corrections 4–60559
  - molecular crystal, inelastic neutron scatt., selection rules 4–75598
  - molecular crystal, phosphoresistence, heat pulse modulation obs. 4–76294
  - molecular crystal, vibr. absorpt. spectra, theory *(Russian)* 4–73124
  - molecular crystals, force consts., pot. energy expansion 4–56842
  - monatomic material, two-body interatomic potentials and elastic consts., relationship 4–44608
  - multicomponent replacement solid solutions, statistical theory, short range order *(Russian)* 4–67004
  - multivalley cubic crystal, F-centre theory 4–75827
  - one dimensional electron phonon system, reflectivity, giant Kohn anomaly 4–73106
  - 1,3,4-oxadiazole, ^{14}N n.q.r. obs. 4–79632
  - paramagnetic crystal, thermal phonons, resonant scattering 4–60576
  - periodates with ordered perovskite struct., synthesis, vibr. spectra, force consts. 4–53420
  - phase transformation, metallurgical, lattice wave description 4–64537
  - pyridine-N-oxide, lattice Raman spectrum 4–53427
  - pyrite, force field calcs. 4–82233
  - quartz, shear mode vibrs., rod piezoelectric transducers 4–48722
  - quartz, structural phase transitions, lattice dynamical theory 4–75627
  - rock salt type crystal, antiferroelectric ordering, interband vibronic interactions 4–70261
  - rocksalt and zinc blende struct. crysts., optical mode props., strain effects 4–45277
  - semiconductor, rel. to influence of temp. on energy gap 4–48906
  - semiconductors, photoionization of deep repulsive impurity centres 4–64039
  - semiflexible molecules, monolayer, free energy, phase equilib. *(French)* 4–52893
  - shell model, antisymmetric charge distortion, deform. coupling X-ray scatt. factors 4–82228
  - soft mode anomaly device applications 4–63883
  - soft mode i.r. activity, ferroelectric transitions 4–69882
  - solid solution, cubic, atomic force const. determ., expt. 4–44616
  - structural phase transitions, 2 types, soft acoustic modes, f.c.c. and h.c.p. crystals 4–63879
  - thermally excited forbidden X-ray reflection prediction 4–44430
  - thermodynamic dielectric and optical properties of solids, book 4–63874
  - time reversal invariant projection operators, harmonic approx. 4–63864
  - trajectories instability, cubic nonlinearity 4–69861

lattice dynamics continued

- transition metal, h.c.p., modified Bhatia's model 4−52833
- transition metal oxides, three-body force shell model 4−67000
- X-ray diffraction, Riemann method, quadratic displacement field 4−60384
- $[Co(NH_3)_6]X_2$ crystal, X=Cl, Br, I, BF_4, ClO_4, PF_6, vibrations, i.r. and Raman spectra 4−64380
- $[Ni(NH_3)_6]X_2$ crystal, X=Cl, Br, I, BF_4, ClO_4, PF_6, vibrations, i.r. and Raman spectra 4−64380
- $[Pt(NH_3)_4X_2]$,$^{2+}$, $[Pt(NH_3)_2X_4]$ X=Cl, Br, I, cis and trans isomers, vibrational spectra 4−53429
- $[Pt(NH_3)_6]^{4+}$, $[Pt(NH_3)_5X]^{3+}$, X=Cl, Br, $[Pt(NH_3)_3Cl_3]^+$, $[Pt(NH_3)Cl_5]^-$, vibrational spectra 4−53428
- Ag, Umklapp processes and phonon assisted defect scattering of electrons 4−44895
- Ag-Cd(Mg)(Zn), Morse potential appl. 4−44617
- Al, Born-von Karman force constant model 4−79111
- Al, correlation and exchange effects calc., pseudopot. technique 4−63870
- Al, localised defects (vacancies), elastic continuum model improvement using interatomic forces 4−63828
- Ar, matrix calcs. *(Russian)* 4−44629
- Au:^{57}Fe, recoilless reson. γ-ray emission or absorption probability, force constant change determ. 4−61084
- $BCl_3(Br_3)(I_3)$, vibrs., Raman and i.r. spectra obs. 4−67568
- $Ba(N_3)_2$, polarised i.r. and Raman spectra, internal vibr. and N_3^- asymm. 4−76247
- $BaTiO_3$, cubic phase, lattice dynamic theory dispersion curves calc. *(French)* 4−75586
- Bi-Sb alloy, Raman spectra interpretation 4−79727
- BiSeI, transverse anharmonicity of chain-like crystals, thermal expansion coeff. 4−79133
- Br_2 crystal, intermol. pots. and lattice dynamics 4−79119
- CO_2, molecular crystal, intermol. pot. energy and Gruneisen parameter, lattice Raman spectra 4−56845
- CaAl alum:Ti^{3+}, Jahn-Teller coupling of Γ_{5g} state to Γ_{3g} vibrational mode, quasi Γ_8 ground state 4−79299
- $CaTiO_3$, soft mode in i.r. vibr. spectra meas., potential ferroelec. material 4−57555
- $CeH_{1.98}$, CeH_2, $CeH_{2.72}$, inelastic neutron scatt., lattice dynamical approach 4−75593
- $CeH_{1.98}$, $CeH_{2.72}$, polycryst., inelastic neutron scatt. meas., lattice dynamics investigation 4−69873
- Cl_2 crystal, intermol. pots. and lattice dynamics 4−79119
- Cr, freq. distrib. function, phonon dispersion 4−72538
- CsH_2AsO_4, Raman spectrum, ferroelec. mode, mol. struct. 4−79728
- $CsZrCl_6$:U^{4+}, cubic cryst., relative intensities in vibronic Zeeman effect 4−73114
- Cu, comparison of anharmonicity theories for thermodynamic props. calc. 4−44639
- Cu:^{57}Fe, recoilless fraction calc. using lattice dynamics 4−79649
- Cu-Al(Zn), Morse potential appl. 4−44617
- Cu_3Au, disordered, atomic force const. determ., expt. 4−44616
- CuCl, anharmonicity, meas. of elastic, dielec. and piezoelec. constants 4−60532
- CuCl, asymm. anharmonic vibr. of Cu atom, neutron diffr. 4−69754
- CuCl, Raman scatt. meas., temp. depend., 7 to 295K, uncoupled and coupled-mode theories 4−61160
- Cu_2UBr_6, cubic cryst., relative intensities in vibronic Zeeman effect 4−73114
- $DyTiNbO_6$, rel. to i.r. spectrum, 30-1500 cm^{-1} *(Russian)* 4−79737
- α-Fe, Debye-Waller factors using lattice dynamical models 4−67005
- Fe, lattice dynamical anal. of Mossbauer effect of ^{57}Fe 4−61075
- α-Fe:^{57}Fe, recoilless fraction calc. using lattice dynamics 4−79649
- α-Fe_2O_3:Sn, ^{57}Fe, ^{119}Sn Mossbauer obs. *(Russian)* 4−67499
- GaS, Raman and i.r. spectra, vibrational assignment 4−53432
- $GdTiNbO_6$, rel. to i.r. spectrum, 30-1500 cm^{-1} *(Russian)* 4−79737
- $Gd_2Ti_2O_7$, vibr. anisotropy, Mossbauer spectra, Goldanskii effect 4−70242
- Ge, anharmonic vibrs., X-ray and neutron diffr., (2,2,2) reflection 4−60462
- Ge, central-force-nearest-neighbour model, rel. to u.s. nonlinearities and elastic consts. 4−52803
- Ge, flexural vibr., Bragg case neutron diffr. 4−60573
- HCl, crystalline, lattice dynamics in low temp. phase for complete Brillouin zone 4−79115
- Hg_2Cl_2, Hg_2Br_2, first-order Raman scatt., intermolecular vibrs. 4−57554
- $HoTiNbO_6$, rel. to i.r. spectrum, 30-1500 cm^{-1} *(Russian)* 4−79737
- InSb crystals, u.s. absorption meas., lattice interaction theory 4−56820
- K, angular forces, normal vibrations, model 4−72537
- K, low field Hall coeff., temp. depend. 4−64060
- KCl, H- and V_k-centres, macroscopic length changes due to elastic dipole alignment 4−60494
- KCl, lattice dynamics approach to theory of diatomic elastic dielectrics 4−75584
- KH_2AsO_4, Raman spectrum, ferroelec. mode, mol. struct. 4−79728
- KH_2PO_4 type ferroelectrics, soft acoustic mode, pseudo spin-phonon coupled model 4−82254
- KI, lattice dynamics approach to theory of diatomic elastic dielectrics 4−75584
- KI:Cl^-, far i.r. absorption spectrum, pair mode 4−61163
- KMF_3, M=Mg, Ni, Co, Zn, Mn, interatomic force constants investigation using elastic constants and lattice parameters 4−60563
- $KMnF_3$, dynamic form factor temp. depend., u.s. attenuation obs. 4−72567
- $K_2Pt(CN)_4Br_{0.3}.3H_2O$, lattice anharmonicity, first and zero sound vels. 4−69879
- $KTa_xNb_{1-x}O_3$, anisotropy in paraelectric vibrational amplitudes 4−69865
- $KTaO_3$:Na(Li), Raman scatt. from impurity soft modes 4−73119
- Kr, solid, Mossbauer recoilless fraction calc. using lattice dynamical method 4−57442
- Li, angular forces, normal vibrations, model 4−72537
- LiBr, 3-body force shell model, charge transfer incorporation 4−82232
- LiD, 3-body force shell model, charge transfer incorporation 4−82232

lattice dynamics continued

- LiI, 3-body force shell model, charge transfer incorporation 4−82232
- $LiNO_3$, cryst., Raman spectra, normal coordinate anal., force consts. determ. 4−67567
- ^{7}LiH, ^{7}LiD, specific heat meas., 5 to 320K, vibr. freq. spectra calcs. 4−52901
- $LuPO_4$:Ce^{3+}, electronic and vibronic spectra 4−45352
- $LuPO_4$:Ce^{3+}, zero-phonon and vibronic lines obs. in near u.v. luminesc. spectra 4−61215
- MO, Debye-Waller factors using lattice dynamical models 4−67005
- $Mn_3Al_xR_{2-x}Ge_3O_{12}$, (R=Cr or Fe), i.r. spectra 4−49366
- MnF_2, i.r. lattice-vib. spectra 4−82696
- MnF_2, lattice dynamical models 4−56831
- $Mn_3G_xFe_{2-x}Ge_3O_{12}$, i.r. spectra 4−49366
- $Mn_3Ga_xR_{2-x}Ge_3O_{12}$, (R=Al,Cr,or Fe), i.r. spectra 4−49366
- Mo:^{57}Fe, recoilless fraction calc. using lattice dynamics 4−79649
- N_2, molecular crystal, intermol. pot. energy and Gruneisen parameter, lattice Raman spectra 4−56845
- α-and γ-N_2 crystals and aggregates, LCAO calcs., electronic and dynamical props. 4−69744
- N_2 solid, computer study of classical quadrupole solid 4−75604
- $NH_4H_2PO_4$, vibrating cryst., X-ray diffr. 4−82230
- Na conduction electron spin-lattice relaxation, 13K to 600K, normal and umklapp processes 4−64263
- $NaB^{II}PO_4$, (B^{II}=Co, Fe, Mn, Cd), vibr. spectra and structure type *(French)* 4−75500
- NaCl, lattice dynamics approach to theory of diatomic elastic dielectrics 4−75584
- NaCl, low temp. dislocation drag. rad.-damping model 4−69813
- NaF, anharmonic controls to Debye-Waller factors 4−67003
- NaF crystal, deformable shell model calcs. 4−69868
- NaI, lattice dynamics approach to theory of diatomic elastic dielectrics 4−75584
- $NaLnTiO_4$, vib. spectra, struct., Raman and i.r. spectra 4−64379
- $NaNO_3$, group theoretical selection rules and lattice mode determ. by neutron scatt. 4−79122
- NaX and NaY zeolites, i.r. absorption spectra of interionic vibrs. 4−57553
- Ne, matrix calcs. *(Russian)* 4−44629
- Ni, Debye-Waller factors using lattice dynamical models 4−67005
- Ni:^{57}Fe, recoilless fraction calc. using lattice dynamics 4−79649
- Ni(001), attenuation, inner potential and lattice dynamics in LEED 4−75672
- $Pb_3(CO_4)_2$, α and β phases, Raman spectrum, ferroelastic transition 4−67592
- $PbMg_{1/3}Nb_{2/3}O_3$ crystal, i.r. and Raman vibr. spectra obs. in ferroelec., paraelec. phases 4−79730
- Rb, angular forces, normal vibrations 4−72537
- RbH_2AsO_4, Raman spectrum, ferroelec. mode, mol. struct. 4−79728
- $RbMF_3$, M=Mg, Ni, Co, Zn, Mn, interatomic force constants investigation using elastic constants and lattice parameters 4−60563
- Si, and dielec. screening matrix, calcs. 4−44626
- Si, anharmonic vibrs., X-ray and neutron diffr., (2,2,2) reflection 4−60462
- Si, bond charge model, phonon and X-ray scatt. spectra 4−52834
- Si, flexural vibr., Bragg case neutron diffr. 4−60573
- SiO_2, flexural vibr., Bragg case neutron diffr. 4−60573
- SiO_2, thermal expansion and phase transition 4−63884
- Sn(IV) complex, dimethyl(IV)bis acetylacetonate, Mossbauer, Raman spectra, mol. dynamics struct. investig. 4−76196
- $SrCl_2$, thermal vibr. amplitudes, Debye-Waller factors 4−72546
- $SrTiO_3$, dynamical struct. factor central peak, hydrodynamic theory 4−67015
- $TbTiNbO_6$, rel. to i.r. spectrum, 30-1500 cm^{-1} *(Russian)* 4−79737
- Th chalcogenides, optical-phonon freq. determ. by neutron scatt. 4−79114
- Th pnictides, optical-phonon freq. determ. by neutron scatt. 4−79114
- TiO_2, i.r. reflection spectra investigation of lattice dynamics 4−79729
- TlN_3, mode coupling and press. induced phase transition 4−73123
- U chalcogenides, optical-phonon freq. determ. by neutron scatt. 4−79114
- U pnictides, optical-phonon freq. determ. by neutron scatt. 4−79114
- UCl_4, absorpt. spectra assignment, struct. parameters 4−76262
- V, phonon dispersion, freq. spectrum and sp. ht. calcs. 4−72531
- V_3Si, elastic shear modulus, lattice instability and struct. transition calcs., pressure depend. 4−61447
- W, Debye-Waller factors using lattice dynamical models 4−67005
- W, localised defects (vacancies), elastic continuum model improvement using interatomic forces 4−63828
- W:^{57}Fe, recoilless fraction calc. using lattice dynamics 4−79649
- YPO_4:Ce^{3+}, electronic and vibronic spectra 4−45352
- YPO_4:Ce^{3+}, zero-phonon and vibronic lines obs. in near u.v. luminesc. spectra 4−61215
- ZnS-type compounds, deformable bond approx., lattice dynamics calcs. *(French)* 4−72530
- $Zn^{32}S(^{34}S)$, atomic eigenvector calcs. from isotope shifts of normal mode frequency 4−56830
- $Zr_{0.80}Nb_{0.20}$, β to ω instability, neutron study 4−64538

lattice energy

- *see also binding energy*
- alkaline earth halides, cryst., interionic forces, ionic polarisation cryst. struct. calc. 4−82142
- crystal packing, energy parameters determ. procedure 4−48537
- cubic spinel structures, Madelung consts. and local pots. calc., field strengths determ. 4−69748
- diatomic molecular solids, structure anal. 4−66856
- inert gas crystal, high order multipole long range interactions between atoms 4−79110
- inert gas crystals, anharmonic contribs. to zero point energy 4−44638
- inter- and intramolecular forces, packing and vibr. calc. 4−63783
- ionic compounds, Van der Waals potentials and crystal energies 4−44507
- metallic structures, relative cohesive energies 4−60426
- molecular crystals, force consts., pot. energy expansion 4−56842

lattice energy continued
- n-body repulsive potentials, Heitler-London scheme, for many-mol. systems 4−63498
- Cu, rel. to third- and fourth-order elastic consts., calc. 4−66957
- KMF_3, M=Mg, Ni, Co, Zn, Mn, interatomic force constants investigation using elastic constants and lattice parameters 4−60563
- Kr, solid, cryst., mech. stability rel. to lattice parameters, free energy investig. *(French)* 4−56643
- NH_4IO_3, cryst., Raman spectra, lattice dynamics investig. 4−57507
- $RbMF_3$, M=Mg, Ni, Co, Zn, Mn, interatomic force constants investigation using elastic constants and lattice parameters 4−60563

lattice gas *see lattice theory and statistics*

lattice localised modes
- alkali iodates, vibrational spectra of OI_3^- ion 4−45296
- alkali metal halide, exciton dissociation on defects of cationic sublattice *(Russian)* 4−72726
- crystal defect, vibr.-rot. absorpt. spectra of hindered rotator 4−67617
- cubic crystal with impurity relax. time of lattice waves calc. 4−75599
- defect-induced resonance modes, zero-freq. limit, isotope effects and amplitude patterns 4−79128
- diatomic molecule, vibr. relaxation in dense medium 4−60577
- diatomic molecule in solid rare-gas matrices, non-radiative vib. relax. 4−56267
- dilute alloy, f.c.c., phonon self-energy in high symm. directions 4−79127
- force constant and mass disorder in vibr. systems, coherent pot. approx. 4−44627
- hydrogen bonds, proton vibrations investig., cryst. system *(German)* 4−66849
- impurity absorption, vibr. assisted electronic absorpt. band shape, calc. 4−67620
- inert gas crystal, distortion of ion free orbitals, localised formalism 4−44631
- ionic crystal, distortion of ion free orbitals, localised formalism 4−44631
- ionic crystal, multiphonon absorption in wings of internal vibr. modes of impurities, theory 4−82701
- metals, cubic Mossbauer fraction meas. using ^{57}Fe, force const. changes and localised modes 4−49279
- resonance modes, defect-induced, zero-freq. limit, isotope effects and amplitude patterns 4−79128
- semiconductor, small-polaron effects on d.c. cond., thermoelec. power, density of states 4−64086
- semiconductor, zinc blende type, mode freq. calc., isoelectronic impurities 4−60578
- substrate-film system, localised mode freqs. 4−79229
- substrate-thin film system, general method for localized modes determ., mean-square amplitudes calc. 4−75600
- surface phonons, simple method for study *(French)* 4−52831
- wedge, acoustic phonon modes at small angle apex 4−44622
- Al-Cu, force constant ratio evaluation 4−82248
- $Al_{0.1}Cu_{0.9}Cl$, coherent potential approx. 4−52841
- Ar solid, CO mol. vibr. relaxation 4−60577
- $Cs_3MnCl_5{:}MnCl_4^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72541
- $Cs_2ZrCl_6{:}IrCl_6^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72542
- GaAs:$^{n,m,n+m}$Si, (n=28,30), i.r. absorpt. 4−57514
- GaAs:Si, Fermi level effect on Si site distrib. 4−60753
- $Gd_3X_5O_{12}{:}B^{3+}$, X=Fe, Ga, local vibr. modes obs., i.r. absorption spectra 4−69876
- KBr, i.r. obs. of localised vibr. spectra of coupled H^- and D^- pairs 4−76255
- KBr, NO_2^- and NO_3^- ionic impurity concs., rel. to impurity vibrational spectra intensities *(Russian)* 4−48723
- KBr:SCN^-, i.r. absorpt. spectra, vibr. freqs., anharmonic and force consts. *(Russian)* 4−53485
- KCl, i.r. absorpt. of H^-H^-, D^-D^-, H^-D^- coupled local mode oscills. 4−45338
- KCl, i.r. obs. of localised vibr. spectra of coupled H^- and D^- pairs 4−76255
- KCl, KI, i.r. vibr. absorption by mol. centres 4−79771
- KCl, molecular model calc. of U centre (H^-H^- and D^-D^-) pairs 4−82245
- KCl:H^--Na^+-H^-, cryst., localised modes of complex impurity, Green's function method 4−72540
- KCl:Li^+, lattice resonant modes, negative isotope effect 4−44630
- $K_3Co(CN)_6{:}Cr$, polarised luminesc. spectrum of $Cr(CN)_6^{3-}$ ion, internal and lattice mode assignments 4−67642
- KI, i.r. obs. of localised vibr. spectra of coupled H^- and D^- pairs 4−76255
- KI, molecular model calc. of U centre (Cl^-Cl^- and Na^+Na^+) induced pair-modes in gap 4−82245
- KI:Na^+, Cl^-(Br^-), far i.r. spectra, localised pair modes investig. 4−70333
- KI:Rb^+, molecular model calc. of resonant mode frequencies 4−82246
- KI:S_2^- (Se_2^-), zero-phonon absorpt. transitions 4−79741
- K_2PtCl_6:T, $^{4+}$(T=Re, Os, Ir) phonon density of states and impurity vib. spectra 4−79126
- LiF:H(D), U band absorption, isotope shift rel. to local mode frequency for U centre 4−79761
- NH_4IO_3, vibrational spectra of IO_3^- ion 4−45296
- $(NH_4)_{0.1}K_{0.9}Cl$, coherent potential approx. 4−52841
- NaBr, NO_2^- and NO_3^- ionic impurity concs., rel. to impurity vibrational spectra intensities *(Russian)* 4−48723
- NaCl, i.r. obs. of localised vibr. spectra of coupled H^- and D^- pairs 4−76255
- NaCl, NO_2^- and NO_3^- ionic impurity concs., rel. to impurity vibrational spectra intensities *(Russian)* 4−48723
- Ni-^{57}Fe dil. system, force constant ratio calcs. 4−82247
- Pb based alloy film, search for localised phonon modes, supercond. tunnelling obs. 4−45060
- RbCl i.r. obs. of localised vibr. spectra of coupled H^- and D^- pairs 4−76255
- Si, Raman spectra, ion implantation effect 4−57541
- Si:[B^-(s)-Li^+(i)], electron irradiation damage, i.r. local mode absorption meas. 4−82200

lattice localised modes continued
- Si:B, line shapes of localised impurity phonon modes, Raman scatt. cross section meas. 4−67589
- Si:B, Raman spectra, interaction between localised vibrs. and electronic excitations investig. 4−64390
- Si:C and diffused ^{18}O, electron irrad., i.r. absorption meas. of local vibr. modes of defects 4−82203
- 6H-SiC:Ti, vibr. gap mode, isotope substitution effect, ABC luminesc. 4−61220
- Tl alloys, localized phonons, lattice order transformations, superconductive tunnelling 4−64157
- $Y_3X_5O_{12}{:}B^{3+}$, X=Fe, Ga, local vibr. modes obs., i.r. absorption spectra 4−69876
- ZnS:Mn, cryst. struct. depend., zero-phonon and phonon-assisted emission 4−70349
- ZnSe:Be, i.r. lattice absorpt. spectra, localised mode sidebands 4−49403

lattice mechanics *see lattice dynamics*

lattice phonons
- A_3B compounds, critical scattering theory at structural transitions 4−72566
- absorption effect on directional emission of electrons and positrons from crystals 4−49531
- acoustic wave propagation in crystals with helical spin ordering 4−73008
- alkali halide mixed crystals, Urbach-Martienssen rule for excition spectrum, coherent pot. approx. 4−53068
- alkali halides, i.r. absorption, temp. depend. in transparent regime multiphonon density of states 4−67590
- alkali metal alloys, dilute, phonon spectrum and transport theory 4−82385
- alkali metals, temp. variation of resistivity in free-electron approx. lattice dynamical model 4−48958
- alkyl ammonium cadmium chloride, 2-dimens. layer, for i.r. optical phonon spectra 4−73110
- alkyl ammonium copper chloride, 2-dimens. layer, for i.r. optical phonon spectra 4−73110
- amorphous solids, model for Brillouin scattering 4−64383
- anharmonic crystal, contributions to self energy to O(λ^4) 4−56834
- anharmonic crystal, temp. depend. of elastic moduli, self-consistent phonon theory 4−56798
- anharmonic crystal, with impurities, lattice thermal cond., theory 4−75607
- anharmonic crystal with impurities, theory of lattice thermal conductivity 4−67011
- anharmonic lattice, nonequivalence of correlations and clusters in phonon systems 4−71436
- anisotropic crystal, electron-polar phonon interactions, phenomenological theory 4−72536
- anthracene, mean free path, heat propag. at He temps. 4−82250
- antiferromagnet, spin wave damping, contrib. of magnon-phonon interactions, relax. processes 4−70174
- antiferromagnet, uniaxial, nonresonance absorption of sound in strong mag. fields, magnon-phonon interactions 4−76133
- antiferromagnetic resonance linewidth, influence of magnon-phonon interactions 4−76167
- b.c.c. lattice, force constants derivation from phonon eigenfreqs. 4−44614
- BCS mechanism and phonon softening in one-dimensional systems 4−79430
- benzene crystal, absorpt. spectrum analysis 4−64402
- benzophenone, weak exciton-phonon interaction, rel. to i.r. absorpt. spectra interpretation *(Russian)* 4−67595
- p-benzoquinone (-d_4),(-h_4), vibr. assignment, ground state fundamentals 4−48019
- binary alloy, harmonic vibrations, Friedel sum rule 4−53024
- bounded crystal, phonon Green's function 4−56844
- coherent inelastic neutron scatt., selection rules 4−75597
- collision-broadened phonon line shape in overdamped or hydrodynamic regime 4−48720
- conduction and amplification, focussing effects in hexagonal crystals 4−52836
- crowdion-phonon interactions, quantum theory based on defecton model 4−52755
- cryolite and elpasolite compounds, lattice vibration analysis 4−48715
- diamond, bond charge model of lattice dynamics, phonon spectra 4−52834
- diamond, phonon scatt. by impurity N_2 platelet precipitate, aggregation investig. 4−63837
- p-dichlorobenzene, mol. cryst., absorpt. spectra exciton-phonon interaction effect 4−49379
- dielectric, elasticity theory and interaction of coherent acoustic waves with phonons 4−69859
- dilute alloy, f.c.c., phonon self-energy in high symm. directions 4−79127
- dilute alloys, nonmagnetic, effect of Umklapp process and phonon drag on low-temp. conductivity 4−53077
- dislocation drag, flutter mechanism 4−66923
- dispersion curves, book 4−63874
- dispersion curves, rel. to lattice distortion, phenomenological force model 4−75583
- dispersion law in simple tetragonal crystals *(Russian)* 4−60560
- dispersion relation, rel. to I-D crowdion propag. 4−69802
- elastic surface wave attenuation by anharmonic interactions 4−79231
- elastically isotropic plate, spectral density of acoustical phonons determ. 4−69872
- epoxy resin/powder composite, acoustic phonon obs. in powder-resin interface 4−53835
- e.p.r. saturation under phonon bottleneck conditions *(Russian)* 4−79580
- e.s.r. theory under phonon bottleneck conditions 4−57345
- e.s.r. wings saturation, theory of phonon bottleneck 4−57346
- exciton-phonon pulse propagation in 1-dimens. mol. chain, Heisenberg eqns. of motion 4−52839
- ferrites, spinel struct., propag. of heat energy 4−67072
- ferromagnet, magnon-phonon mixing, nonlinear effects 4−79565
- film, dimensionally quantised, reson. instability of phonons *(Russian)* 4−75585

lattice phonons continued
film, quantum wave interactions with LO phonons, dispersion law *(Russian)* 4−72533
gas/solid energy transfer, close-coupling anal. 4−56962
p-GaSb, phonon cond. and scattering by bound holes, thermal cond. calc. 4−82239
generation at point junction due to supersonic electron drift velocities 4−52838
heat motion in crystals and phonon concept *(Norwegian)* 4−44609
heat pulse propagation in dielectric crystals *(Russian)* 4−52948
hexamethylbenzene single cryst., phonon sidebands of localized excitons rel. to methyl torsions 4−56827
hexamethylenetetramine, Raman spectrum, TO-LO splitting 4−57524
hydrodynamics, review 4−67001
III-V semiconductor, phonon line broadening with polishing, surface refl. Raman scatt. obs. 4−44625
imperfect crystal, force constant changes, defect induced freq. shifts 4−56825
impurity phonon scattering. by two-level impurities appl. of thermodynamic Green's functions 4−82375
n-InSb, effect of uniaxial stress on longit. magnetophonon oscills. 4−49009
insulator, Raman scatt., electron and exciton-phonon couplings investig. 4−70303
insulator, transport eqns., sound absorption 4−56817
internal optic mode dispersion curves and freq. distrib. curves, mol. dipole model 4−56826
ionic crystal, multiphonon absorption in wings of internal vibr. modes of impurities, theory 4−82701
ionic crystal, temp. genesis of light absorption and dispersion curves in exciton region 4−57566
ionic crystals, comparison of polarisable models having effective many body interaction, review 4−52828
ionic-crystal slab, optical properties, macroscopic theory 4−49361
i.r. absorption, frequency depend. of multiphonon processes 4−49359
i.r. absorption spectra of free polarons, phonon-correlation effects 4−45303
Ising system, spatial degrees of freedom, magnon-phonon system, partition function evaluation 4−81247
Kramers system, two-phonon processes contrib. to spin-lattice relax. 4−70209
linear chain crystal, phonon dispersion and instability 4−44623
martensitic transformations, phonon nucleation concept 4−52853
metal, dynamics effect on electron lifetime, mass renormalisation and supercond. transition 4−72685
metal, electron-phonon interaction purity effects, u.s. absorpt. 4−52840
metal, LO phonon spectrum, effect of electron-phonon interaction *(Russian)* 4−79125
metal, narrow-band, localised superconductivity description, phonon exchange vertex calcs. 4−49103
metal, phonon conductivity, influence on thermal magnetoresistivity tensor 4−72754
metal, plastically deformed, anharmonic effects of dislocation energy on volumetric expansion *(French)* 4−48716
metal, rel. to glide and Peierls stresses, comment 4−75526
metal, rel. to glide and Peierls stresses, reply to comment 4−75527
metals, cubic Mossbauer fraction meas. using ^{57}Fe, force const. changes and localised modes 4−49279
microscopic theory, phonon spectra, optic modes, acoustic sum rules 4−60568
model ferroelectric, comparison of mean-field theories, equilib. properties 4−67538
molecular crystal, Herzberg-Teller interaction, vibronic coupling, phonon-assisted exciton transfer 4−82238
molecular crystal excited states, book contrib. 4−63452
molecular crystals, two-exciton absorption of light, exciton-phonon coupling 4−76259
molecular organic crystal, charge transfer excitons transformation to molecular excitons 4−48935
molecular solid, opt. spectra and relax. mechanisms, review 4−64364
multiphonon absorption due to anharmonicity, freq. and temp. depend. 4−44618
multiphonon transitions, static coupling scheme, quantum-efficiency 4−79773
naphthalene:diarylethylenes, phonon wing struct. in fluorescence spectra 4−73187
naphthalene, near i.r. absorpt. spectrum, vibronic struct. investig. 4−76249
napthalene: azulene, cryst., thermal broadening and shifts of impurity zero-phonon bands investig. 4−76283
negative heat pulse technique, decrease in phonon population in low temp. solids 4−69866
nylon, lattice thermal cond., 0.2-5K, dislocation-phonon scatt. 4−75608
one dimensional crystal, rel. to perturbation expansions for thermal cond. 4−52849
one dimensional electron phonon system, reflectivity, giant Kohn anomaly 4−73106
one-photon scattering cross section, of neutrons, i.r. beam irradiation of crystal 4−82237
paramagnetic crystal, thermal phonons, resonant scattering 4−60576
phonon-impurity centre bound states theory *(Russian)* 4−69875
photoelectron interaction under high electric fields 4−70396
piezoelectric crystals, Brillouin scattering *(German)* 4−45253
plasmon-assisted phonon excitation 4−69874
polar solids and gases, phonon broadening of X-ray photoemission linewidths 4−82788
polyethylene, free and under load, half-widths of bands due to skeletal vibrs. 4−78546
polyethylene, lattice thermal cond., 0.2-5K, dislocation-phonon scatt. 4−75608
polymer, free and loaded, nonlinear vibrs. theory 4−43895
propagation, weakly bounded charge carriers as detectors 4−56839
pyrene, cryst., absorpt. fluoresc., props., vibr. relax. investig. 4−64422

lattice phonons continued
quantum crystal, phonon Green function mass operator derived, adiabatic, isothermal elastic const. investig. 4−63850
α- quartz, dispersion of surface and bulk phonon-polaritons by attenuated total refl. 4−48927
quasi-one-dimensional electron-phonon systems, dynamic props. 4−75589
Raman scattering, nonequilib. optical phonon generation and detection, review 4−57552
Raman scattering, scatt. matrices in cubic crysts. calc., appl. to Cu$_2$O 4−70306
Raman scattering, scatt. tensors rel. to cryst. Clebsch-Gordan coeffs. investig. 4−70305
Raman scattering, spontaneous and stimulated, by optical phonons 4−77715
Raman scattering induced by highly nonequil. phonons *(Russian)* 4−73125
rare earth monosilicides, B20 struct., freq. distrib. 4−60534
rare-earth ethyl sulphates, virtual phonon exchange 4−63865
rutile-structure difluorides, Gruneisen parameters of optical modes calc., rigid ion model 4−75592
scattering by static strain fields, elasticity theory 4−56829
semiconductor, doped, LO phonon spectrum, effect of electron-phonon interaction *(Russian)* 4−79125
semiconductor, nonpolar, magnetophonon struct. in longitudinal magnetothermal emf investig. 4−64104
semiconductor, polar, uniaxial, spatial dispersion of optical phonons effect on e.m. wave propag. 4−70042
semiconductor, Urbach's tails, hot phonon contrib. 4−57624
semiconductor, wurtzite-type, rel. to anisotropy of piezoelec. scatt. 4−57118
semiconductor, zero-gap, symmetry-induced, elastic electron scattering by phonons 4−82364
semiconductor with diamond struct., bond-charge model of phonon dispersion 4−69870
semiconductors, polar-optical phonons, decay mechanism investig. 4−63871
semimetallic one dimensional charge transfer salt, Peierls transitions 4−57044
shear transformations, strain triggering by stress field of unstable lattice vibr. modes 4−75613
single configurational coordinate model, multiphonon relaxations 4−49431
soft-mode spectroscopy in structural phase transitions, review of exptl. studies 4−56851
spectra derivation by slow neutron inelastic scatt., role of coherent effect *(Russian)* 4−82244
spin-lattice system, phonon broadened absorption spectrum 4−67433
spodiosite analogues, vibr. spectra assignments and cryst. struct. effects 4−64378
static field splitting of zero-phonon lines in Jahn-Teller systems 4−75797
structural phase transitions, 2 types, soft acoustic modes, f.c.c. and h.c.p. crystals 4−63879
superconductor, strong coupling, eqn. for zero temp. energy gap 4−57206
surface, adsorbed monolayer of f.c.c. cryst., energies, polarisations calc. 4−63966
surface, simple method for study *(French)* 4−52831
surface energy calcs. 4−60680
surface energy calcs. 4−60681
symmetry, description by space group diagrammatic representations 4−56823
p-terphenyl:2-phenyl-1-monoazaazulene, cryst., thermal broadening and shifts of impurity zero-phonon bands investig. 4−76283
thermal conductivity generalised dispersion equation using group and phase vel. 4−48725
thiourea, elastic stiffness constants meas. by Brillouin scatt. 4−44585
transition metal, h.c.p., dispersion relns., calc. using modified Bhatia's model 4−52833
transition metal, superconductivity and first principles understanding of phonon struct. 4−49105
transition metal oxides, disperson relns., three-body force shell model 4−67000
transport-phase-transition, simplified extended Peierls-Boltzmann eqn. 4−75614
TTF-TCNQ, semimetallic one dimensional charge transfer salt, Peierls transitions 4−57044
two-phonon Green's function for anharmonic crystal, poles in high temperature limit 4−60564
uranyl complexes containing ^{18}O, Raman spectra, factor group analysis of vibrs. *(Russian)* 4−79738
vacancy migration on one-dimensional lattice, double-time Green's function methods 4−56736
wedge, vibr. edge modes, small angle apex localisation 4−44622
zero vibrations, high electric fields, interactions with optical polarons 4−75874
zinc blende stressed lattice, two-phonon transitions, Raman and i.r. selection rules 4−45308
Ag, phonon dispersion relns. by modified Sharma-Joshi model 4−56838
Ag, thermal resistivity and phonon spectrum, free electron approx. 4−48954
AgBr, recomb. luminesc. of free indirect exciton phonon participation 4−57622
AgCl(Br), obs. of second order scattering, two phonon dispersion calcs. 4−49358
AgGaS$_2$, rel. to sharp-line and broad-band emission, 4.2K 4−53496
Al, phonon dispersion, effective interionic pot. and liquid resist. 4−44615
Al, phonon viscosity, rel. to u.s. attenuation 4−66997
Al, superconducting foils and rods, thermal phonons reson. scatt. by dislocations 4−64164
Al$_{0.1}$Cu$_{0.9}$, local modes, CPA for polyatomic cubic crystals 4−52841
Al$_{1-x}$Ga$_x$As, lattice reflection spectra calc. by modified random-element-isodisplacement model 4−61157
Al$_x$Ga$_{1-x}$P, epitaxially grown, donor-acceptor pair and bound exciton recomb. 4−73179
Al$_2$O$_3$, anharmonicity in several-polar-mode crystals 4−66998

lattice phonons continued
Al_2O_3, corundum, i.r. absorpt., 77-2075K *(French)* 4−73111
α-Al_2O_3, phonon spectrum, mixed photon-surface phonon excitations theory 4−82231
α-Al_2O_3:Ti^{3+}, zero phonon transitions and interacting Jahn-Teller phonon energies determ. 4−49429
p-AlSb, lattice thermal cond. investigation at low temp. 4−67010
As_2S_3, press.-Raman effects, vibrs. scaling laws 4−70304
As_2S_3-As_2Se_3 glasses, multiphonon absorption, mol. model 4−73122
Au, dispersion relations, calc. 4−75594
Au, thermal resistivity and phonon spectrum, free electron approx. 4−48954
Be, hexagonal, phonon dispersion curves in modified Sharma-Joshi model 4−44610
Be, phonon frequencies obs. by slow neutron inelastic scatter 4−82240
Bi, crystal, separation of electronic and lattice thermal conductivities 4−82249
Bi, electron tunnelling obs. of supercond. phase 4−60927
Bi, estimating chemical purity and quality *(Russian)* 4−66903
Bi, mutual drag effect on propag. of strong e.m. waves 4−70029
CO_2, cryst., two-phonon absorpt. spectrum 4−70311
$CaCO_3$, bound and dissociating two phonon states under Fermi reson. conditions 4−79732
CaF_2:Er^{3+}, low temp. luminesc., vibronic sideband 4−64418
CaF_2:Eu^{2+}, vibronic fluorescence calc. at 4130 Å, Jahn-Teller problem 4−57621
CaF_2:Ho^{3+}, 4f to 5d transitions, phonon structures, absorpt. spectra obs. 4−64412
$CdGeP_2$, phonon dispersion, polarised i.r. refl. spectra obs. 4−45293
$Cd_{0.25}Hg_{0.75}Te$, magnetophonon oscillations of transverse magnetoresistance 4−57114
CdI_2, single crystal, Raman spectra anal. 4−57529
$CdIn_2S_4$:Cr^{3+}, impurity effect on thermal cond., phonon scatt. 4−56922
CdS, I_1 luminesc. line as phonon spectrometer 4−79788
CdS, piezoelectric coupling of exciton to acoustical phonons 4−67531
CdS, with acoustoelectrically amplified phonon flux, time evolution of freq. spectrum 4−79719
CdS luminescence at 1.3 K due to radiative decay of exciton-impurity complexes and associated acoustic phonon 4−48941
$CdSe_xTe_{1-x}$ mixed crystals long wavelength optical phonons, random element isodisplacement model 4−76254
$CdSiP_2$, Raman scatt. and reststrahl meas., optical phonons obs. 4−57537
CdTe, fundamental vibrs., i.r. spectra 4−53408
n-CdTe, plasmon phonon interaction and free carriers obs. i.r. reflectivity meas. 4−53443
CdTe:Be, impurity-induced far i.r. absorpt. spectra, perturbation model calcs. 4−64414
$Ce_2Mg_3(NO_3)_{12}.24H_2O$, ballistic phonon propagation 4−56832
Co, dispersion relations, specific heat 4−56835
Co-Ni, equiatomic, phonon dispersion relations, longitudinal and transverse branches 4−82235
Cr, freq. distrib. function, phonon dispersion 4−72538
Cs halides, u.s. attenuation, phonon viscosity, drag coeff. 4−66994
CsI, HS^- impurity ion vibr. absorpt. bands, phonon wings obs. 4−79765
Cu, phonon dispersion, modified de Launay 4−56824
Cu, phonon dispersion relns. by modified Sharma-Joshi model 4−56838
Cu, plastically deformed, anharmonic effects of dislocation energy on volumetric expansion *(French)* 4−48716
Cu, thermal resistivity and phonon spectrum, free electron approx. 4−48954
Cu, thermodynamic props. calc., improve self-consistent phonon theory, comparison with other theories 4−44639
CuCl, one phonon-two phonon interactions in Raman scatt. 4−73113
CuCl:S, exciton luminesc., phonon assisted spectrum 4−57620
CuI, zone-boundary phonon freqs., theoretical approach 4−56837
Cu_2O, dispersive Raman modes, phonon dispersion and exciton mass 4−45300
Cu_2O, LO phonon screening, Haken's criterion 4−57056
Dy film, GHz phonon generation through excitation of normal magnetoelastic modes and parametric processes 4−76131
DyFe garnet, far i.r. spectrum, line assignment 4−76248
EuS, ferromagnetically ordered phase, anomalous LO phonon scattering, Raman scattering meas. 4−82698
EuS(Se)(Te), sintered, thermal cond., 4-25K 4−44718
$Fe_2(CO)_9$, Mossbauer effect of ^{57}Fe, correl. with Raman data 4−64295
$FeCl_2$, acoustic phonon dispersion curves obs. by inelastic neutron scatt. 4−67002
$FeCl_2$, magnon temp. renormalization and magnon-phonon coupling 4−57297
FeF_2, magnon and phonon interactions, external mag. field effects, theory 4−57296
Fe_3O_4, magnetite, temp. depend. light scatt. obs. of Verwey transition, optical phonons 4−75802
Fe_3O_4, magnetite, Verwey ordering as cooperative Jahn-Teller transition 4−82374
FeS_2, resonant Raman scatt. from A_g phonon 4−45310
n-GaAs, depletion region, Raman spectra of LO and TO phonons 4−67591
GaAs, effect of extended defects on thermal cond. 4−48808
GaAs, electron-optical phonon coupling, wave-vector depend. 4−56841
GaAs, high non-thermal equilib. population of optical phonons 4−56840
GaAs, obs. of anomalies in transmission electron diffr. patterns 4−52669
GaAs, tunnelling obs. of TO phonon hole interaction 4−53145
GaAs, ultrasonic attenuation and velocity 4−60557
GaAs:B, defect. activated first order Raman scatt. from phonons obs. 4−67586
GaAs:Te, thermal cond., dislocation-phonon interaction investigation *(French)* 4−75654
GaN, i.r. absorption spectra, phonon-plasmon modes 4−67573

lattice phonons continued
p-GaP, lattice thermal cond. investigation at low temp. 4−67010
GaP, one and two phonon Raman spectra up to 128 kbar 4−57533
GaP, selective resonant enhancement in two-phonon Raman spectrum 4−57551
p-GaSb, lattice thermal cond. investigation at low temp. 4−67010
GaSb, tunnelling obs. of TO phonon hole interaction 4−53145
GaSb, zone-boundary phonon freqs., theoretical approach 4−56837
GaSe, interaction with holes, effect on Hall mobility and energy gap 4−75893
GdGa garnet, microwave phonon attenuation, temp. and freq. depends. 4−79102
$Gd_2(MoO_4)_3$, anomalous damping of acoustic phonons near phase transition, Brillouin linewidth meas. 4−67588
GdTe, phonon dispersion relation, 300K, neutron diffr. obs. 4−79121
Ge, bond-charge model of phonon dispersion 4−69870
Ge, deformed, rel. to thermal cond. below 1K 4−79456
p-Ge, film, mobility of carriers scatt. by acoustic phonons, temp. depend. 4−72877
Ge, hole scattering, cyclotron resonance obs. 4−64021
Ge, phonon anharmonicity, 80-880K, neutron diffr. obs. 4−79120
Ge, Raman second order reson. scatt., E_1, $E_1+\Delta_1$ edges 4−61162
Ge, Raman transmission spectra, obs. of electronic line broadening 4−53448
p-Ge, rel. to elec. cond. in strong mag. field, deform. potential const. depend., calc. 4−60818
Ge:Sb, phonon cond., phonon-scatt. calcs. 4−63951
Ge-Si, impurity modes, coherent pot. approx. 4−44621
H, f.c.c. metallic, phonon motion, low temp. thermostatics 4−75606
H_2, solid, Raman spectra, press. depend. *(French)* 4−49336
HD, solid, effect on thermal cond. of one phonon scatt. 4−52850
He, solid, neutron scattering, anomalous features including apparent phonon frequencies 4−44734
^3He bcc crystal, phonon dispersion calc. 4−60673
HgI_2, red and yellow phases, Raman scattering 4−53431
HgTe, contrib. to dielec. function, reflectivity meas. between 8-300K 4−53442
HgTe, ultrasonic attenuation and velocity 4−60557
Ho, h.c.p., phonon dispersion curves in modified Sharma-Joshi model 4−48712
IBr, far-i.r. spectra assignments 4−64367
In-Tl alloys, lattice softening and martensitic transform. 4−79921
InAs, acoustic deformation pots. calc. 4−64024
n-InAs, Raman scatt. by wave-vector-dependent LO-phonon-plasmon modes 4−79726
InAs, zone-boundary phonon freqs., theoretical approach 4−56837
$In_{1-x}Ga_xAs$, rel. to thermal diffusivity and thermal cond., 300-750K 4−56850
InP, zone-boundary phonon freqs., theoretical approach 4−56837
InSb, acoustic deform. pot. calc. 4−64024
InSb, cyclotron phonon reson., three phonon absorption 4−79734
iNSb, free carrier absorption, two-phonon process contrib. 4−45302
p-InSb, lattice thermal cond. investigation at low temp. 4−67010
InSb, multiphonon absorption, far i.r. obs. using Fourier transform spectrometer 4−53445
InSb, reson. Raman scatt., obs. of stress induced splitting 4−53444
n-InSb, resonant Raman scattering of 2LO phonon mode near E_1 transition 4−67587
K, phonon dispersion curves, frequency spectrum and specific heat 4−48717
K halide crystals, HS^- impurity ion vibr. absorpt. bands, phonon wings obs. 4−79765
$K_3Ag(CN)_4$, polar phonon modes directional dispersion and assignments 4−63872
KBr, cryst., second-order polarised Raman scatt. calc. 4−70307
KBr, phonon spectrum, microscopic calc. 4−79123
$KBrO_3$, internal optic mode dispersion curves and freq. distrib. curves, mol. dipole moment 4−56826
$K_3CU(CN)_4$, isotopic mode polariton coupling 4−63873
KCl, effect of multiphonon processes on i.r. absorpt. 4−53449
KCl, multiphonon absorption, quantum treatment of Morse potential 4−49387
KCl, phonon spectrum, microscopic calc. 4−79123
KCl:CN^-, neutron inelastic scattering from coupled defect-phonon modes 4−69871
$K_3Cu(CN)_4$, polar phonon modes directional dispersion and assignments 4−63872
KF(Cl)(I), film, phonon broadening of X-ray photoemission linewidths 4−82788
$K_2FeCl_5.H_2O$ and $K_2FeCl_5.D_2O$, laser Raman spectra, vibr. assignments 4−64376
KH_2PO_4, paraelectric phase, Raman spectra temp. depend. 4−57509
KI:Na^+, $Cl^-(Br^-)$, far i.r. spectra, localised pair modes investig. 4−70333
KI:Rb^+, molecular model calc. of resonant mode frequencies 4−82246
$KMnF_3$ soft mode structural phase transitions, neutron scatt. studies 4−82255
$KNbO_3$, orthorhombic, ferroelec. transition, acoustic and optic branches 4−67536
$KNbO_3$, orthorhombic, polaritons and phonon assignment, using Raman spectra, rel. to dielectric constants 4−64382
K_2PtCl_6:T, $^{4+}$(T=Re, Os, Ir) phonon density of states and impurity vib. spectra 4−79126
$KTaO_3$, energy press. depend. at Brillouin zone crit. points, Raman scatt. 4−60574
$KTaO_3$, i.r. absorpt. spectra obs. 4−49352
$KTaO_3$, vibr. props. at Brillouin zone crit. points, differential Raman and fluoresc. meas. 4−61161
$KTaO_3$ soft mode structural phase transitions, neutron scatt. studies 4−82255
$K_2[Pt(CN)_4]Br_{0.3}.3H_2O$, Frohlich collective phonon mode from far i.r. reflection meas. 4−53452
Kr, solid, phonon dispersion curves, inelastic neutron scatt. obs. at 10 K 4−44628
$La_2Mg_3(NO_3)_{12}.24H_2O$:$Ce^{3+}$, phonon-limited resonant two-phonon relax. process, conc. depend. at 4.2K 4−76155
Li, divergent enhancement of forbidden X-ray edges 4−61247

lattice phonons continued
- Li halides, lattice dynamics and anharmonic self-energies determ. 4−48721
- LiD, phonon dispersion, charge transfer effect 4−82232
- LiF, lattice thermal cond. obs. from 300 to 1100K contrib. of optical phonons 4−56924
- LiF, phonon-induced second-order Raman scatt. obs. at room temp. 4−49362
- $LiIO_3$, powdered and polycryst., Raman spectra from oblique phonons 4−49364
- Li_2MoO_4, thermal cond. and lattice parameter meas., 300-700K 4−72593
- Lu thermal cond. obs., 0.7 to 5K 4−48961
- Mg hexagonal, phonon dispersion curves in modified Sharma-Joshi model 4−44610
- MgF_2, lattice dynamics 4−69867
- $MgF_2:Fe^{2+}$, near i.r. absorption spectra, multiphonon sideband anal. 4−49407
- MgO, cryst., second-order polarised Raman scatt. calc. 4−70307
- $MgO:Cr^{2+}$, phonon scatt. cross section 4−61148
- $Mg_4Ta_2O_9$:Mn, fine structure in the low temperature luminescence 4−64425
- $MgZn_2$, phonon dispersion curves obs. 4−60565
- MnO, group theoretical anal. of phonon spectrum 4−72539
- Mn_5Si_3, rel. to transport processes, spin inhomogeneity scatt. 4−60773
- MoS_2, second order Raman spectrum, phonon density of states curve 4−45311
- α-N_2, phonon-libron spectrum, self-consistent calcs. 4−79112
- β-N_2, self-consistent phonon calcs. and α-β transition 4−79113
- NH_4Br, i.r. absorpt. bands, temp. depend., one, two-phonon vibr. 4−49351
- NH_4Br, phase transforms., Raman scatt. temp. and press. depend. 4−79715
- $(NH_4)Cl_{1-x}Br_x$, mixed cryst., lattice modes obs. by far i.r. and Raman spectroscopy 4−57536
- $(NH_4)_2FeCl_5.H_2O$, laser Raman spectra, vibr. assignments 4−64376
- NH_4IO_3, cryst., Raman spectra, lattice dynamics investig. 4−57507
- $(NH_4)_{0.1}K_{0.9}Cl$, local modes, CPA for polyatomic cubic crystals 4−52841
- $(NH_4)_2SO_4$, Brillouin scatt. in paraelec. phase near T_c *(French)* 4−67562
- Na, force constants derivation from phonon eigenfreqs. 4−44614
- Na, rel. to thermoelec. power, press. depend., up to 3 kbar, 5-14K 4−79333
- NaCl, cryst., second-order polarised Raman scatt. calc. 4−70307
- NaCl, effect of multiphonon processes on i.r. absorpt. 4−53449
- NaCl, i.r. absorption, temp. depend. in transparent regime multiphonon density of states 4−67590
- NaCl, multiphonon absorption, quantum treatment of Morse potential 4−49387
- NaCl and NaF, single phonon X-ray scattering 4−63866
- NaCl-type crystals, i.r. absorpt., quasiselection rule for two phonon process 4−49360
- $NaClO_3$, i.r. absorpt. bands, temp. depend., one, two-phonon vibr. 4−49351
- $NaClO_3$, phonon behaviour and disorder mechanism, dielectric constant anal. 4−67012
- NaF, i.r. absorption, spectrum decomposition into N-phonon spectra series 4−53441
- NaF-liquid ^{4}He interface, phonon reflection on solid side 4−60661
- $NaHF_2$, i.r. absorpt. bands, temp. depend., one, two-phonon vibr. 4−49351
- NaN_3, internal optic mode dispersion curves and freq. distrib. curves, mol. dipole model 4−56826
- $NaNO_2$, in phase transition regions, Brillouin scatt. obs. 4−45288
- Na_xwo_4, soft mode instability enhancement of supercond. transition temp. 4−72895
- Nb, superconducting, anisotropic heat conduction at very low temp. 4−49129
- Nb:H, scattering of slow neutrons, obs. of one phonon excitations, and defecton mechanism of diffusion 4−48803
- $NbSe_2$, layer type compound, Raman active mode freqs. determ. 4−57550
- Nb_3Sn, effect of soft phonons on superconductivity 4−49120
- Ni, phonon spectra derivation by slow neutron inelastic scatt., role of coherent effects *(Russian)* 4−82244
- $(Pb,La)(Zr,Ti)O_3$, ceramics, vibr. modes, Raman and i.r. spectra 4−61145
- Pb, supercond. film, quasiparticle recomb. and decay effects 4−57218
- Pb, superconducting, anisotropic heat conduction at very low temp. 4−49129
- Pb, thermal cond., 0.04-1.5K, phonon scatt. by dislocations 4−79455
- Pb films, strain-free, tunnelling parameters 4−45066
- -n- PbSe, obs. on free carriers, calcs. involving lattice oscillator 4−48719
- $PbTi_{1-x}Zr_xO_3$, soft mode behaviour, Raman scatt. obs. 4−57549
- $Pb(Zr,Ti)O_3$, multimode struct., noncollinear three phonon interactions 4−64332
- Pd, phonon dispersion relations using angular forces models 4−52829
- $PdH_{0.03}$, in-band vibr. modes, neutron spectrum 4−44620
- PdH(D), PdAgD, supercond. mech., electron-phonon coupling 4−53175
- $PrAlo_3$, struct. transition at 118.5K soft mode driven, Brillouin scatt. data 4−72572
- Rb, phonon frequency as function of temp. and volume 4−69869
- $RbClO_3$, polar isotope modes, TO and LO phonons 4−60572
- $RbMnF_3$, rel. to Jahn-Teller effect in Mn^{2+} triply degenerate states 4−69987
- ruby, resonant stationary coherent phonon emission 4−82241
- S_8, press.-Raman effects, vibr. scaling laws 4−70304
- Sb, mutual drag effect on propag. of strong e.m. waves 4−70029
- $SbS_xSe_{1-x}I$, ferroelectric semiconductor, optical and dielectric props. 4−67563
- Sc, h.c.p., phonon dispersion curves in modified Sharma-Joshi model 4−48712
- Se, fundamental vibrs., i.r. spectra 4−53408

lattice phonons continued
- Se, trigonal, phonon dispersion curve meas. by neutron inelastic scatt. at 77 and 298K 4−66999
- Si, bond charge model of lattice dynamics, phonon spectra 4−52834
- Si, influence of boundary scatt. on thermal cond., 200-300K 4−48809
- p-Si, lattice thermal cond. investigation at low temp. 4−67010
- Si, selective resonant enhancement in two-phonon Raman spectrum 4−57551
- Si:B, line shapes of localised impurity phonon modes, Raman scatt. cross section meas. 4−67589
- Si:B, Raman spectra, interaction between localised vibrs. and electronic excitations investig. 4−64390
- Si:Li, Si:Li-O, thermal cond. meas. rel. to temp., phonon scatt. investig. 4−63950
- Si:Li, thermal cond., 1.2-50K, phonon scatt. mechanism 4−60567
- SiC, polytypes, phonon dispersion 4−82236
- SiO_2:Al, smoky quartz, paraelectric. reson., phonon bottleneck 4−64320
- α-Sn, dispersion spectrum, using dielec. function 4−57038
- α-Sn, vibr. spectra, pseudopotential perturbation theory 4−48713
- $SrTiO_3$, i.r. absorpt. spectra obs. 4−49352
- $SrTiO_3$ soft mode structural phase transitions, neutron scatt. studies 4−82255
- Sr_2ZnTeO_6, lattice vibration analysis, force constant calc. 4−48715
- Ta, superconducting, phonon thermal cond., below 1K 4−72906
- Ta, thermal cond., 0.04-1.5K, phonon scatt. by dislocations 4−79455
- Ta-Nb alloys, superconducting, phonon thermal conductivity, below 1K 4−72906
- $Ta_{1.6}Se_{0.4}(pyridine)_{1/2}$, thermal cond., 0.5-7K 4−82293
- Tb, h.c.p., phonon dispersion curves in modified Sharma-Joshi model 4−48712
- TbFe garnet, far i.r. spectrum, line assignment 4−76248
- Th chalcogenides, optical-phonon freq. determ. by neutron scatt. 4−79114
- Th pnictides, optical-phonon freq. determ. by neutron scatt. 4−79114
- TiO_2, anharmonicity in several-polar-mode crystals 4−66998
- TiO_2, Raman active phonons, uniaxial stress depend. 4−45306
- TiO_2, rutile, pressure induced mode softening 4−48665
- TiO_2, temp. depend. of 3 and 9 GHz ultrasound attenuation 4−44605
- Ti_2O_3-V_2O_3, Raman obs. of phonon mode symmetry at semicond. metal transition, temp. depend., 80-700K 4−53446
- Tl alloys, localized phonons, lattice order transformations, superconductive tunnelling 4−64157
- Tl hexagonal, phonon dispensions curves in modified Sharma-Joshi model 4−44610
- U chalcogenides, optical-phonon freq. determ. by neutron scatt. 4−79114
- U pnictides, optical-phonon freq. determ. by neutron scatt. 4−79114
- V, lattice dynamical model, phonon dispersion curves 4−72531
- VO_2, metallic, Debye-Waller factors meas., evidence for soft modes, rel. to metal-insulator transition 4−79132
- V_3Si, selective phonon mode softening, temp. depend. of resistivity 4−67199
- Xe, cryst., zero-sound elastic consts. from phonon dispersion data 4−60533
- Xe, phonon dispersion investigation 4−82242
- Xe, phonon dispersion relns. determ. at 10K by neutron inelastic scatt. 4−75595
- Y, h.c.p., phonon dispersion curves in modified Sharma-Joshi model 4−48712
- YAG:Nd, microwave phonon attenuation, temp. and freq. depends. 4−79102
- YAG:Nd laser, $^4F_{3/2}\rightarrow{}^4I_{15/2}$, fluoresc. quenching by multiphonon relax. 4−74503
- $YAlO_3:Er^{3+}(Eu^{3+})(Ho^{3+})(Pr^{3+})$, radiationless relax., depend. on mediating phonon energy 4−53499
- $Y_3Al_5O_{12}:Er^{3+}(Eu^{3+})(Ho^{3+})(Pr^{3+})$, radiationless relax., depend. on mediating phonon energy 4−53499
- Zn, phonon spectra, first-principles generalized pseudopotential calc. 4−52832
- Zn, phonon struct. factors determ. 4−63869
- $ZnGa_2O_4$, spinel, i.r. and Raman spectra anal. 4−53435
- $ZnGeP_2$, phonon dispersion, polarised i.r. refl. spectra obs. 4−45293
- ZnO, phonon dispersion curves determ. by inelastic neutron scatt., shell model calcs. 4−75596
- ZnS, cubic, interpret. of Raman spectrum, theoretical lattice dynamical model 4−64381
- ZnS, polytypes, phonon dispersion 4−82236
- ZnS, ZnTe, zincblende crysts., phonon dispersion and density of states, Debye temp. determ. 4−60561
- ZnS:Mn, cryst. struct. depend., zero-phonon and phonon-assisted emission 4−70349
- $ZnSiAs_2$, optical phonons, Raman and i.r. spectra 4−73120
- Zn_2SiO_4:Mn, fine structure in the low temperature luminescence 4−64425
- Zr, h.c.p., phonon dispersion curves in modified Sharma-Joshi model 4−48712

lattice structure, crystals *see crystal atomic structure*

lattice theory and statistics
- *see also Ising lattices; X-Y model*
- anharmonic lattices, Korteweg-de Vries eqn. use in limit of long waves 4−52842
- Ashkin-Teller model, phase transitions 4−43179
- asymptotic behaviour of correlation functions within scaling regime 4−77565
- atomic ordering in magnetic field, thermodynamical and statistical approaches *(Russian)* 4−67363
- b.c.c. lattice, lattice Green's function evaluation at arbitrary points 4−81244
- Bethe lattice, localisation criteria 4−74425
- bond percolation, crit. probability estimation 4−52845
- Brownian motion of isotopic impurity particle in linear diatomic chain 4−43187
- classical quadrupole solid, Monte Carlo calcs. 4−52847
- classical quadrupole solid, Monte Carlo calcs. 4−75604

lattice theory and statistics continued
- clusters of atoms, continuous two-dimensional medium, percolation calc. by Monte Carlo method 4−74421
- clusters of atoms, long range interaction coupling in continuous medium, Monte-Carlo methods 4−51469
- coherent potential approximation for random lattices, concepts and applications 4−52848
- continuous system, rigorous props. in high activity region 4−47228
- copper formate tetrahydrate, dimer models for antiferroelectric transition 4−57480
- correlated-effective-field theory, statistical approach for anharmonic lattice vibrs. 4−63867
- correlation functions and structure factors for lattice in viscous medium 4−77563
- critical phenomena, dynamic, renormalisation group theory 4−71438
- critical phenomena, renormalized perturbation theory, scaling law corrections 4−43188
- crystal, statistical theory of equilibrium elastic and thermal properties 4−56849
- decorated lattice gas, coexistence curve properties, critical behaviour 4−51468
- disordered systems, cluster approx. 4−72543
- droplet model, Fisher's, three dimens., Monte Carlo calc. 4−74445
- dumbbell arrangements on 2 × n array of compartments, exact formulae 4−47230
- dumbbell-shaped molecules on decorated square and Kagome lattices, orientational phase transitions 4−75610
- eight-vertex lattice model, soln. without elliptic functions 4−71429
- eight-vertex model on honeycomb lattice, phase transition temp. and order of transition 4−59304
- expandable-lattice theory of melting 4−69899
- f.c.c. lattices with nearest neighbour interaction, Green's functions 4−59305
- f.c.c. systems, three-state Potts model, transition props. 4−71432
- Fermi liquid, spatial correlations and sum rules 4−74416
- ferroelectric ice model on triangular lattice, all temperatures 4−74422
- finite model, multiplicative approximation, free energy *(Russian)* 4−60579
- fixed length spin system extended to negative spin dimensionality 4−71437
- FKG inequalities, generalisation to include continuous spins 4−43178
- FKG inequalities, generalisation to probability distributions, expectation values 4−43177
- fluid with extended interaction, anal. of phase transitions 4−67074
- Fokker-Planck equation, Rubin model of heavy particle in harmonic lattice 4−71434
- free energy, inequalities and estimates using perturbation theory with variational parameter 4−68984
- free energy in systems with separable interactions 4−68979
- glass-like disorder, chain vibration model, frequency spectrum calc. comparison 4−72544
- hard sphere lattice gas, boundary tension calcs. using modified exact finite method 4−55381
- harmonic crystals, isotopically disordered, heat conduction and sound transmission 4−59309
- high temperature series for B-site spinel and diamond lattices rel. to universality 4−52844
- instability of trajectories of lattice with cubic nonlinearity 4−68957
- irreversible occupation of linear arrays, kinetics and statistics 4−43185
- isotropic mixture of fermion and bosons, lattice space props. *(Russian)* 4−65822
- Kagome lattice, spontaneous magnetis. and correl. functions *(Russian)* 4−67320
- lattice gas, hard-core, with residual degrees of freedom at close packing 4−71435
- lattice sums in 2, 4, 6, 8 dimensions, exact results 4−71430
- Lifshitz Theory, equivalence with perturbation theory 4−71421
- magnetic systems, extra selection rules due to anti-unitary symmetry 4−43183
- many-boson systems, velocity and phase operators 4−62742
- Mayer cluster theory, anal. of repulsive and weak, long range pots. for lattice gas 4−47232
- molecular crystals, dielec. susceptibility, theory and appl. to simple point-dipole lattice 4−73064
- molecular crystals, force consts., pot. energy expansion 4−56842
- molecular dynamics, singlet and pair distrib. functions, hard-disc and hard-sphere solids 4−52846
- monatomic lattice, surface calc. formalism 4−72622
- multicomponent replacement solid solution, short range order, elastic distortions *(Russian)* 4−67004
- multiphase solid, spatial correl. functions, expt. meas. 4−76527
- n-vector model, anisotropic, crossover exponent 4−43186
- nearest neighbour degeneracy, dumbbells on one-dimensional lattice 4−71433
- nonlinear lattice problems, exponential lattice and continuum approx. 4−62747
- occupation statistics by dumbbells of 2 × N array, exact recursion relations 4−47233
- one-dimensional diatomic lattice with arbitrary end-springs, normal mode calc. 4−47225
- one-dimensional lattice fluids and solns., radial distrib. functions, explicit solns. 4−62748
- Ornstein-Zernicke systems with extended-core potentials, random-walk theory 4−77564
- particle in harmonic lattice, exact nonequilib. density matrix 4−68959
- percolation probabilities for pairs of closely similar lattices 4−59306
- phase transition, lattice gas with third nearest neighbour exclusion, square lattice 4−74423
- phonon systems, nonequivalence of correlations and clusters, in anharmonic lattice 4−71436
- plane square lattice hard sphere problem 4−55380
- polar lattice thermodynamics 4−79130
- Potts model, configurational studies 4−65830
- Potts model, mean field theory 4−55384
- quantum gas, convexity of pressure 4−47227

lattice theory and statistics continued
- quantum lattice systems, equivalence of KMS condition and variational principle 4−77557
- renormalised crossover exponent for anisotropic cubic systems 4−81245
- scattering parameters in critical regions, for Ising-like system 4−77566
- second-order transition, critical exponent self-consistent screening calc. 4−65833
- self-avoiding walk, average span 4−65831
- self-avoiding walk, self consistent soln. 4−55377
- self-avoiding walks, average span for cubic, f.c.c., triangular and square lattice 4−51467
- self-avoiding walks, average span for cubic lattice 4−51466
- self-avoiding walks, average span on two- and three-dimens. lattices 4−74424
- soft sphere lattice scattering, inclined barrier potential, second approx. for normal incidence *(Russian)* 4−51472
- solution, binary, multilayer lattice model approach to conc. profile and mol. distrib. 4−83035
- stochastic model of electron system with dynamical interactions 4−65832
- sum, two dimensional, phase modulated, evaluation with Jacobi theta functions 4−47229
- sums, evaluation with zeta and beta functions 4−47231
- sums in two dimensions, simple approach, results for triangular lattice 4−51470
- thermodynamic functions, series calculation method 4−60584
- three-state Potts model, high-field expansions, critical isotherm study 4−71432
- Toda lattice, existence of integrals 4−47235
- Toda lattice, integrals for periodic lattice of n particles 4−47234
- Toda lattice, inverse scattering solution, N-soliton formula, constants of motion 4−55387
- trajectories instability, cubic nonlinearity 4−69861
- triangular lattice site problem, percolation probability 4−55383
- two phase solid, correl. functions, elastic moduli 4−76529
- two phase solid, correl. functions, thermal cond. calc. 4−76530
- two phase solid, spatial correl. functions, empirical construction 4−76528
- two-component lattice gas model, phase behaviour 4−68958
- vacancy migration on one-dimensional lattice, double-time Green's function methods 4−56736
- Van der waals' crystal soln. of Bogolyubov chain 4−68960
- CO$_2$ molecular crystal, thermodynamic props., Monte Carlo, cell model and quasiharmonic calcs. 4−52843
- CuFe$_{2-2x}$Ga$_{2x}$O$_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
- CuFe$_{2-2x}$Zn$_x$Ge$_x$O$_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
- CuFe$_{2-2x}$Zn$_x$Ti$_x$O$_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
- NaF crystal, deformable shell model calcs. of props. 4−69868

lattice vibrations *see lattice dynamics*

Laves phases *see alloys*

lawrencium
- atom, ground state electronic config., orbital calcs. 4−72023

lawrencium compounds
- No entries

LCAO calculations
- atomic charges in molecules, definition conserving charge and dipole moment 4−52050
- benzene chromium carbonyl, multi- elec. dipole moment matrix and semi-empirical MO models 4−56182
- bicyclo [2.2.1] heptane and [2.2.2] octane, SCF−LCAO−MO calcs. of electronic struct. 4−56149
- carbazole, SCF LCAO MO calcs., electronic structure 4−52088
- chemisorption, adatom density of states 4−48857
- chemisorption, microscopic theory, role of steric, overlap and correlation effects 4−72635
- chemisorption theory review 4−60690
- conjugated radicals and radical ions, e.s.r hyperfine structure, pi-electronic SCF MO LCAO CI calc. 4−78493
- cubic crystals, electron velocity, acceleration, angular momentum, standing LCAO wave functions calc. 4−82345
- SH-dibenzo(a,d)cycloheptene heterocyclic derivs., electronic spectra and conforms., MO calcs. 4−78446
- dinitrogen complexes, chemical bond theory 4−69468
- DNA, charge and excitation migration, discrete jump model 4−52310
- formaldehyde, non-planarity of $^1A_2$ and $^3A_2$ states, LCAO-MO-SCF calcs. 4−63403
- 2-furanaldehyde, rot. isomerism using ab initio calcs. *(Italian)* 4−72121
- glass, alkali silicate and aluminosilicate, quantum chem. analysis of structural units 4−60413
- graphite, X-ray and photoemission calc. 4−49489
- halomethanes, core electron binding energies and ESCA shifts, ab initio calcs. 4−56103
- Hartree-Fock equations, derivation, introducing LCAO formalism into SCF eqns. 4−47922
- heteroatomics, LCAO-MO-SCF π calcs., influence of effective nuclear charge *(French)* 4−56087
- Huckel theory for N and B in diamond lattice 4−48926
- hydrocarbons, LCAO-MO-SCF π calcs., influence of effective nuclear charge *(French)* 4−56087
- ion-solvent cluster near electrode, semiempirical SCF model with image forces 4−61618
- mathematical basis and interpretation 4−56115
- methane, charge alternation from ab initio LCAO SCF MO wavefunctions and localized bond orbitals 4−56139
- photoionisation cross section, LCAO-SCF-MO calcs., comparison with photoelectron spectra band intensities 4−52237
- polyatomic molecule, photoionisation cross sections, plane and orthogonalised approx. 4−72235
- polyatomic molecules, single bond energies determ. using LCAO approximation 4−47931
- polymer, LCAO density matrix calc. precision 4−60138
- porphin molecules *(Russian)* 4−43785

LCAO calculations continued
SCF methods intermediate between INDO and NDDO schemes 4−52051
small molecules, photoelectron ang. distribs. orthogonalised plane wave calcs. 4−72237
small molecules, photoionisation cross sections, plane and orthogonal wave calcs. and obs. 4−72236
styrene, SCF LCAO calcs., mol. config., rot. barrier 4−56050
transition metal, theory of chemisorption of CO 4−48859
trimethyl fluoride, charge alternation from ab initio LCAO SCF MO wavefunctions and localized bond orbitals 4−56139
trinitrofluorenone, SCF LCAO MO calcs., electronic structure 4−52088
wavefunctions, lower-bound formulae for mol. potential 4−66391
Al_2O, ab initio versus CNDO potential surface calcs., mol. struct. 4−52053
BH, orbital exponent optimization calc. 4−81748
BH_3:NH_3, electronic struct. anal. using LCAO method, charge transfer, bonding investig. 4−52072
CO_2^-, orbital calcs. of mag. hyperfine interactions 4−81788
Cl_3, geometry, LCAO MO SCAF theory 4−72118
ClF_2, geometry, LCAO MO SCAF theory 4−72118
$ClF_2^\pm$, geometrical and elec. struct., SCF MO LCAO calcs. in CNDO approx. 4−69445
ClO_4^-, SCF LCAO MO calcs. for ground states 4−56112
H_2, (X=Li, Na, H and ions$^+$), valence energies and geometries, HF-Roothaan LCAO-SCF-MO calc. 4−56080
H_2^+ electronic structure, students computer program for LCAO-MO calculations 4−54789
HF, orbital exponent optimization calc. 4−81748
$(HF)_n$ chains, hydrogen bonding, mol. struct. calcs. 4−78426
H_2O_1 ab initio B^1A_1 excited state pot. energy surface calc. 4−60003
$(H_2O)_n$ chains and clusters, hydrogen bonding, mol. struct. calcs. 4−78426
H_3SiCl, d orbitals role, ab initio calcs. 4−78405
$HX+HD=DX+H_2$, X=Li, B, N, F, Cl, D, isotope exchange, corrections to Born-Oppenheimer approx., electronic effects 4−74957
$HX^+ + HD = DX^+ + H_2$, X=Be or C, isotope exchange, corrections to Born-Oppenheimer approx., electronic effects 4−74957
He_nH, He_nH^+, n=1,...4, ground state LCADO-SCF-MO calcs., He_2H^+ pot. energy surface, stabilities calc. 4−52032
KCl:Ag^+, absorption spectrum, molecular bonding effects 4−79762
KCl:Sm^{2+}, local single electron states calc. *(Russian)* 4−67174
K_2CuF_4, covalency effects by critical neutron scatt. 4−66857
LiH, orbital exponent optimization calc. 4−81748
Li_2O, ab initio versus CNDO potential surface calcs., mol. struct. 4−52053
Li_yX_z, (X=Li, Na, H and ions$^+$), valence energies and geometries, HF-Roothaan LCAO-SCF-MO calc. 4−56080
N-N bond, character, electronic struct. investig. for several compds., LCAO-SCF-MO calcs. *(French)* 4−56133
α- and γ-N_2 crystals and aggregates, electronic and dynamical props. 4−69744
NO_2, orbital calcs. of mag. hyperfine interactions 4−81788
Na_yX_z, (X=Li, Na, H and ions$^+$), valence energies and geometries, HF-Roothaan LCAO-SCF-MO calc. 4−56080
Ni nickel acetylacetonate complexes with isoquinoline, spin density distrib. 4−52085
OCC unstable intermediate, restricted HF LCAO-MO-SCF calcs. 4−56146
PO_4^{3-}, SCF LCAO MO calcs. for ground states 4−56112
POF_3, electronic struct., SCF LCAO MO calcs. 4−74954
PSF_3, electronic struct., SCF LCAO MO calcs. 4−74954
SO_4^{2-}, SCF LCAO MO calcs. for ground states 4−56112
Te crystals with vacancies 4−75809
VO, band structure cálc. by APW-LCAO method 4−75782
Xe, $^3\Sigma_u^+$ state, spontaneous decay investig. by particle-hole model, rate calc. 4−48072
Xe_2, $^3\Sigma_u^+$ state, spontaneous decay investig., at., mol. decay rate calc. 4−48072

lead
aerosol Pb in Rome atmosphere, dependence on meteorological and traffic parameters 4−80365
atom, $(6p7f)^3P^0_1$ state, impact approx. breakdown, Hanle effect, collision broadening 4−59930
atom, inner shell ionisation of $N_{6,7}$ level, electron induced, anomalous threshold behaviour 4−66330
atom, K hypersatellite line energy determ. 4−74841
atom, L-subshell ionisation, proton bombardment 4−59965
atom, metastable level excitation, population, ionisation mechanisms investig. 4−72050
atom, N+O+ shell photoelectric cross section of gamma rays 4−63345
cavitational damage, thermal action *(Russian)* 4−70481
co-adsorption, S, Pb on Cu, quantitative Auger electron spectroscopy 4−67100
Compton scattering, relativistic Hartree-Fock profile 4−66277
cosmic ray e.m. cascades in lead, 20-100 GeV region *(Russian)* 4−58186
determination spectrochemically using d.c. arc light source in mag. field 4−46963
diffusion of Zm in Pb, investig. rel. to temp. by radioactive tracer techniques 4−63945
dispersion strengthened, recrystallised, with 1 wt.% PbO, room temp. creep 4−80039
elastic constants, third order, calc. 4−73314
elastic energy state eqn. rel. to nonspherical deform. tensor *(Russian)* 4−61326
electrocrystallization on Cu faces, current density effects, mech. of growth 4−44796
electron beam therapy, high energy, field shaping blocks 4−46414
electron irrad. at 80K, yield stress behaviour *(Russian)* 4−53727
electron irradiated at 1.5K, isochronal annealing 4−79064
electron-photon cosmic ray shower, equilibrium spectra *(Russian)* 4−61968
film, damage mechanism with focused N_2 laser irradiation 4−51622
film, evaporated, positron trapping at defects 4−79060
film, Tomasch oscill. amplitude decay 4−79468
film, vacuum evaporated, He ion stopping cross-section 4−69839

lead continued
fine particles, supercond. transition temp. meas., size depend. 4−60905
foil, 3.3-165.8 keV photon attenuation, photoelec. cross sections 4−80985
gamma-ray infinite medium buildup factors including bremsstrahlung contribution 4−81701
islet film, morphology and struct. *(Russian)* 4−72649
liquid, electrical resistivity, depend. on model potential form factor, dielectric screening function and struct. factor 4−67201
liquid, freq. depend. friction const., single particle props. 4−63749
liquid, neutron diffractometry, method of two isotherms 4−48479
liquid, surface tension meas. by maximum bubble-pressure method 4−48830
liquid, use in fusion reactor blankets 4−69333
monolayer, adsorpt. and alloying on (111) and (110) faces of Au 4−52992
muonic atom, muon-neutron interaction 4−72106
neutron penetration through guides, space and energy distrib. 4−59821
nuclear reactor shielding for prevention of gamma ray streaming from steel liner 4−43702
particles in Vycor glass, neutron diffr. exam. of struct. and props. 4−48824
photoelectric cross section for 279.1 keV and 411.8 keV γ-rays 4−74857
photoelectron cross section, X-ray attenuation coeff. meas. 4−72068
pollution, occurrence in tuna 4−76985
positron scattering, large angle, Landau-Lifshitz anal. 4−49515
seawater pollution, biological effects *(Norwegian)* 4−50280
sediments at bottom of eastern tropical Atlantic, distrib. of Cu, Pb, V, Y, and Mo trace elements *(Russian)* 4−80306
solubility of GaAs, GaP, InAs and InP, 500-1200°C *(German)* 4−69895
stress relaxation in monotonic loading, mech. eqn. of state and grain boundary sliding 4−53704
superconducting, anisotropic heat conduction 4−49129
superconducting, thermal cond., phonon scatt. by dislocations, 0.04-1.5K 4−79455
superconducting film, mag. flux struct. at high current densities 4−76010
superconducting film, quasiparticle lifetime, laser beam effect 4−57218
superconducting film, strain-free, tunnelling parameters 4−45066
superconducting film, type I, voltage steps obs. in current induced resistive state 4−64163
superconducting film constriction, current induced mag. flux struct. 4−82526
superconducting films, two dimens., elec. cond. 4−75974
superconducting layer on PbTe, interface superconductivity, LEED obs. 4−45038
superconducting small particles, thermodynamic lattice and electronic props., size effects 4−45037
superconducting-normal transition, associated stress increment, 2.0-0.5K 4−72927
superconductor, mechanical pressure effects on critical transport props. 4−72912
superconductor, residual surface resistance at microwave freq. 4−49121
superconductor, strong-coupling, electron-phonon interaction const. calc. *(Russian)* 4−72904
surface, spreading of Hg under cathodic polarisation conditions 4−64712
thermal conductivity, elec. resist. and thermoelec power, 260-550K 4−48956
thermal softening investigation, plastic flow stress meas., 1.6 to 300K 4−76509
thick film, energy distrib. of inelastically reflected electrons 4−73231
two-band character of weakening effect during supercond. transition *(Russian)* 4−60899
Be on Pb and Pb on Be films electron bombarded, angular and energy distributions of inelastically reflected electrons 4−70388
Bi:Sn(Pb), mag. susceptibility meas. rel. to band structure, impurity effects 4−79281
Ca_2MnO_4:Pb, superstructure deform. due to Pb substitution, X-ray diffr. obs. 4−56683
Cu-Pb sandwiches, supercond. proximity effect 4−49110
KCl:Pb, spectral emittance meas., 3-15 μm 4−57556
KCl:Pb crystals, impurity induced Raman spectra 4−67570
Pb II, theoretical oscillator strengths and transition probabilities for some spectral lines 4−51950
Pb/SiO_2, solid matrix, discontinuities, dynamic behaviour *(German)* 4−73307
Pb + H^+(^{3}He ion) collision, L-X-ray production 4−63373
$Pb_4FeSb_6S_{14}$:Pb^{3+}, e.s.r. of $^2S_{1/2}$ state, hyperfine splitting constant 4−45180
$^{206}Pb/^{204}Pb$ and crustal evolution of Slave Craton at Ghost Lake, N.W.T. 4−80224
^{210}Pb in Gulf of California and eastern North Pacific, concentrations and residence times 4−70679
^{212}Pb, use in study of Aitken nuclei in lower troposphere 4−46031
YIG:Pb^{2+},Si^{4+}, film, elec. and optical props, liq. phase epitaxy 4−79420

lead alloys
see also lead compounds
rare earth intermetallics, $LnPb_3$, (Ln=Ce,Pr,Nd,Sm,Eu,Gd,Yb), mag. props. 4−70143
superconducting tunnelling into Pb based alloy film, search for localised phonon modes 4−45060
superconducting-normal interface, resistance meas. 4−67316
Al-Pb (5 wt.%) alloy, obs. of annealing of liquid Pb inclusions in Al matrix 4−70493
$AuPb_2$, de Haas-van Alphen effect, approx. sum rule, Fermi surface 4−48896
$AuPb_2$, high field magnetoresistance in oriented crystallites, open orbits obs. 4−48966
$AuPb_3$, energy gap, supercond. transition temp. 4−67315
Bi-Pb, structural changes on irrad. 4−66935

lead alloys continued
Mg_2Pb, small forbidden energy gap, rel. to props. *(Bulgarian)* 4-57031
Nb-Pb intermetallics prep. and characteriz. 4-53784
Pb-Ag, internal friction peaks obs., relaxation effects 4-66988
Pb-Ag, internal friction phenomena 4-66987
Pb-Ag aligned eutectic composite, thermal stability, temp. gradient effect 4-67927
Pb-Au, internal friction peaks obs., relaxation effects 4-66988
Pb-Au, internal friction phenomena 4-66987
Pb-Bi, liq. us. absorpt., vol. viscosity effects 4-67060
Pb-Bi solid solns., deform. and heating rate effects on melting behaviour *(Russian)* 4-49664
Pb-Bi thin film fabrication with spatially modulated concentration by evaporation techniques *(French)* 4-53011
Pb-Cu, internal friction peaks obs., relaxation effects 4-66988
Pb-Cu, internal friction phenomena 4-66987
Pb-Cu, thermodynamic props. 4-54089
Pb-Cu-Sb, thermodynamics of intermetallides 4-50214
Pb-In, dilute, solute-vacancy binding energies, theory 4-52751
Pb-In, supercond., microphotographs of flux distrib. *(Russian)* 4-70097
Pb-In system, creep deform. increase at supercond. transition temp., comp. depend. 4-57209
Pb-Sb and Pb-Cd-Sb, substruct. development and mech. props. improvement 4-45649
Pb-Sn, growth, eutectic range investig. 4-63779
Pb-Sn, lamellar eutectic, phase boundary sliding 4-61342
Pb-Sn, liq., surface tension and contact angle meas. by sessile drop technique 4-48832
Pb-Sn, pipe formation 4-45525
Pb-Sn, strain-rate sensitivity origin 4-45678
Pb-Sn eutectic, lamellar fault migration 4-82854
Pb-Sn eutectic, Young's modulus variations during superplasticity *(Russian)* 4-70519
Pb-Sn-Bi liquid, electroconductivity, Ziman's theory *(Russian)* 4-70007
Pb-Sn-Cd eutectic, solidification, direct obs. using surface relief contrast 4-45509
Pb-Sn-Zn liquid, electroconductivity, Ziman's theory *(Russian)* 4-70007
Pb-Sn(46 wt.%), gravity segregation during remelting of dendritic alloys 4-45556
Pb-Sn(9%) obs. of transition from class I to class II creep behaviour at low stresses 4-45700
$Pb_{0.75}Bi_{0.25}$, upper crit. field, strong coupling calc. 4-45039
PbIn irreversible superconductor, flux expulsion 4-45053
$Pb_{0.9}In_{0.1}$, supercond. mixed state, polarized μ^+ probe of vortex struct. 4-82521
PbTe-SnSe system, phase diag. 4-49644
Sn-Pb, eutectic, indentation creep 4-45620
Sn-Pb, off-eutectic, dendrite-composite transition 4-49658
Sn-Pb, superplastic aggregates, activated state obs. *(Russian)* 4-53676
Sn-Pb superplastic sheet, bulging rupture 4-49841
Sn-Pb(5-30 at.%), growth from melt and struct. 4-82131
$YbPb_3$, valency of Yb, elec. resist., mag. susceptibility, and Mossbauer obs. *(French)* 4-61074
Zn-Sn-Pb dil. soln., high Pb conc., thermodynamic props. *(Polish)* 4-67771

lead compounds
see also lead alloys
alkali-lead silicate glasses, viscosity meas. in softening region *(Japanese)* 4-70573
chalcogenide, stoichiometry effects on semicond. and dielec. props. 4-49021
chalcogenides, surface free energies 4-48834
dicalcium lead propionate, II-III transitions, critical points, dielectric constant meas. 4-82674
lead phosphate glass, prep., density, Young's modulus and viscosity 4-49968
oxide, Mossbauer effect of $^{57}CoCl_2$ deposited on surface 4-45221
oxides, $PbXO_3$-$PbX'_{1-\beta}X''_{\beta}O_3$, complex with perovskite struct., isomorphism substitutions 4-75633
PbO-SiO_2 system glasses, thermal expansion, comp. depend. 4-60630
p-PbSe, p-$Pb_{0.94}Sn_{0.06}Se$, mag. susceptibility anomalies, 78-440K *(Russian)* 4-67354
phthalocyanine, effect of O_2 on elec. props. 4-79344
phthalocyanine, triplet exciton and photocarrier generation 4-75832
solder glass film, Pb rich, photoemission in Ne and Ne-Ar mixture, obs. 4-57665
B_2O_3-PbO glasses, elastic consts. and Vickers hardness *(Japanese)* 4-70575
Bi_2O_3-PbO system, solid phase identification and evolution with temp. *(French)* 4-52859
CdTe-Pb system, equil. phase diagrams *(Japanese)* 4-67025
Ge-P-Pb system cross section, thermographic obs. 4-60591
$(Pb_{0.985}, Bi_{0.015}), (Zr_{0.53}, Ti_{0.42})O_3$, ferroelectric ceramic, reln. between thermoelectret and ferroelectric polarisation 4-67533
$(Pb,Ba)TiO_3$, 90° ferroelec. domain wall thickness meas. 4-61115
$(Pb,La)(Ti,Zr)O_3$, displacive ferroelectric below T_c, Raman meas. 4-67541
$(Pb,La)(Zr,Ti)O_3$, β-phase electro-optic ceramic, field induced microstructure 4-63829
$(Pb,La)(Zr,Ti)O_3$, ceramics, vibr. modes, Raman and i.r. spectra 4-61145
$(Pb,La)(Zr,Ti)O_3$, ceramics, polymorphic phase 4-63924
$(Pb,La)(Zr,Ti)O_3$, pyroelec. detector, radiation absorption 4-73109
$(Pb,La)(Zr,Ti)O_3$ ceramic, elec. controlled secondary phase 4-67540
$(Pb,La)(Zr,Ti)O_3$ ceramic, with diffuse transition region, phase relations and dielec. props. 4-70272
$(Pb,La)(Zr,Ti)O_3$:Nb,Fe, photochromic effect, transmission spectra 4-76233
Pb-Sn-Se ternary system, phase diagram and elec. props. of phases 4-60589
Pb^{2+} and Bi^{3+} in glasses, ultraviolet spectra 4-61181
PbB_4O_7, crystn. from melt, screw dislocation growth mech. 4-44499

lead compounds continued
$PbBi_2Nb_2O_9$, ferroelectric ceramic with layer struct., piezoelectric props. 4-82668
$PbBi_4Ti_4O_{15}$, ferroelectric ceramic with layer struct., piezoelectric props. 4-82668
$PbBr_2$, elec. dipole centres, props. 4-61105
$PbBr_2$, localised dipoles, dielec. relax. losses 4-67526
$PbBr_2$, luminesc., cation exciton localization, no V_k-centres *(Russian)* 4-73163
$PbBr_2$, photodecomp. mechanism, 270-360 nm *(Russian)* 4-73137
$PbBr_2$, spectral distrib. on photolysis *(Russian)* 4-68021
PbCl aerosol, coagulation in presence of water vapour 4-70585
$PbCl_2$, elec. dipole centres, props. 4-61105
$PbCl_2$, localised dipoles, dielec. relax. losses 4-67526
$PbCl_2$, luminesc., cation exciton localization, no V_k-centres *(Russian)* 4-73163
$PbCl_2:Sn^{2+}$, energy transfer mechanism *(Russian)* 4-79801
$PbCl_4$, liquid, field-dependent relax. and absolute nucl. shielding of ^{207}Pb 4-53329
$Pb(ClO_4)_2$ aq. soln., ^{207}Pb relax. field depend. rel. to hydration sphere penetrability 4-53332
PbF_2, broadband antireflection coatings for Ge in i.r. 4-61255
PbF_2, Raman spectra meas. rel. to press., phase transform., Gruneisen coeff. investig. 4-76246
PbF_2 solid electrolyte, ionic cond. 4-53102
$Pb(Fe_{0.5}Nb_{0.5})O_3$, magnetoresist. determin., 173-293K 4-53111
$Pb(Fe_{0.5}Nb_{0.5})O_3$-$BiFeO_3$, magnetic ferroelectrics, heat capacity meas. 4-82673
$PbFe_{12}O_{19}$, strip and bubble domains, Lorentz microscopy obs. 4-60971
$Pb_4FeSb_6S_{14}:Pb^{3+}$, e.s.r. of $^2S_{1/2}$ state, hyperfine splitting constant 4-45180
$Pb_3Ge_2O_7$, ferroelec. single cryst. props. 4-79669
$Pb_5Ge_3O_{11}$, ambidextrous crystals, appls. 4-53396
$Pb_5Ge_3O_{11}$, ferroelec. Curie temp., hydrostatic press. effect 4-57482
$(PbGeS_3)_n$, cryst., struct. determ. *(French)* 4-56658
$Pb_{0.995}Ge_{0.005}Te$, thermoelec. power, elec. cond., Hall effect, mobility 4-72770
$PbHPO_4$, $PbDPO_4$, ferroelectricity, transition temps., polarization 4-70260
PbI_2, adsorption of methane and krypton, interaction energies determ. *(French)* 4-44778
PbI_2, band edge photoluminesc., anisotropic polariton model 4-73180
PbI_2, charge density of valence electrons determ. from pseudo-wave-functions calc. 4-67147
PbI_2, electronic struct. and optical props., spin orbit interaction effects 4-44850
PbI_2, electronic transport props., 162, 192, 245 and 291°C 4-48974
PbI_2, photosystem, image contrast and add-on recording 4-51099
PbI_2, polytypism and photoluminesc. obs. at 4.2K 4-73189
PbI_2 uniaxial semiconductor, exciton polariton behaviour 4-64044
$Pb_{1-x}La_x(Zr_{0.65}Ti_{0.35})_{1-x/4}O_3$ ceramic, optical recording of digital data 4-67532
$PbMg_{1/3}Nb_{2/3}O_3$, electro-optical effect dispersion in visible spectrum 4-57574
$PbMg_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, light absorption obs., 0.39-0.8μ 4-64394
$PbMg_{1/3}Nb_{2/3}O_3$, optical radn. control, electro-optic effect 4-53397
$PbMg_{1/3}Nb_{2/3}O_3$ crystal, i.r. and Raman vibr. spectra obs. in ferroelec., paraelec. phases 4-79730
$Pb_3MgNb_2O_9$, 1:2 ordered perovskite, i.r. and Raman spectra 4-57520
$PbMoO_4$, hypersound scatt. and modulation by ultrasound *(French)* 4-66993
$PbMoO_4$ acousto-optic modulator, deflection efficiency, 442-1152 nm, wavelength and polarisation depend. 4-73099
$PbMoO_4:Nd^{3+}$, mag. susceptibility and Schottky sp. ht. cryst. field calc., 10-400K 4-76032
$PbMoO_4:Nd^{3+}$, stimulated emission due to $^4F_{3/2}$ to $^4I_{13/2}$ Stark multiplet transitions 4-53472
Pb_2MoO_5, flux growth and powder patterns 4-79871
$Pb_{0.9(1.0)}Mo_{5.1}S_6$, superconductor, d.c. and pulsed fields, 600 kG upper critical field meas. 4-82520
PbN_3 condensed explosive, initiation by rapidly compressed gas pockets 4-68005
α-$Pb(N_3)_2$, anisotropic thermal expansion, single crystal X-ray obs. 4-52913
PbN_6, film, pure and doped, effect of photodecomposition on near i.r. and u.v. spectra 4-76333
PbN_6, film, pure and doped, effect of photodecomposition on far i.r. spectra 4-79819
PbN_6, sensitization of photolysis by inorganic semiconductors 4-76617
PbO, investigation of traps in high resistivity photoconducting materials using electron beam contact 4-75878
PbO, tetragonal, isothermal oxidation in air 4-53801
PbO-$(Nb,Ta)_2O_5$-Al_2O_3, glass form., struct. 4-63764
PbO-B_2O_3, glass, thermal diffusivity 4-60651
PbO-B_2O_3 cryst. forming glasses, i.r. spectra, crystn. products identification *(Russian)* 4-61170
PbO-B_2O_3 flux, rare earth species, diffusion coeff., rel. to LPE growth of mag. garnet films 4-72647
PbO-B_2O_3 molten system, freq. depend. of elec. resist., struct. and comp. *(Japanese)* 4-50178
PbO-B_2O_3-SiO_2 system, phase separation in frits, i.r. refl. obs. *(Japanese)* 4-48514
PbO-GeO_2 glassy system, X-ray diffr., i.r. absorpt., dielec. const. and intrinsic absorpt. 4-44479
PbO-In_2O_3-GeO_2 system, physical properties 4-61156
PbO-SiO_2, glassy system, Raman spectra meas. 4-49344
PbO-SiO_2, molten glass, interdiffusion *(Japanese)* 4-52923
Pb_3O_4, electronic transitions, structural breakdown effect *(Russian)* 4-79772
$(PbO)_5.(GeO_2)_3$, growth from melt, optical and elec. props. 4-82829
$Pb_3(PO_4)_2$, α and β phases, Raman spectrum, ferroelastic transition 4-67592
$Pb_3(PO_4)_2$-$Pb_3(VO_4)_2$-$Pb_3(AsO_4)_2$ system, binary and ternary phase behaviour *(German)* 4-49877

lead compounds continued
$Pb_2P_2S(Se)_6$, $Sn_2P_2S(Se)_6$, and mixed crysts., growth and cryst. data 4−49567
PbPo, band struct. and characts., theory 4−79286
PbS, air-annealing change in dislocation distribution and hardness 4−79041
PbS, band struct. and characts., theory 4−79286
PbS, diode lasers, stripe-geometry, high c.w. output power 4−59431
PbS, epitaxial film, surface field effect 4−72843
PbS, etching soln. for revealing p-n junctions 4−45476
PbS, i.r. photocond. layer, prep. from PbO and S 4−72817
PbS, Monte Carlo calc. of hot electron mobility 4−67225
PbS, n- and p-type, anomalous magnetoresist. by Hall effect obs. 4−49010
PbS, PbS-CdS films, prep. by pulverization 4−67731
PbS, photodiode, quantum efficiency and impact ionisation 4−75957
PbS, polaron superradiance 4−53066
PbS, resist., high-field, He temps. 4−72785
PbS (100) surface, energy spectra of scattered helium ions *(Russian)* 4−67695
n-PbS film, adsorption of O_2, kinetic characteristics *(Russian)* 4−82319
PbS film, photocond. mechanism determ. 4−49095
PbS-GeS-GeS_2, glass form., struct. and props. 4−75461
$PbSO_4$:Sm, thermoluminescence glow spectra, changes in relative intensities of emission bands 4−68686
$Pb(SO_3F)_2$, i.r. spectra 4−49334
$PbS_{1-x}Se_x$, etching soln. for revealing p-n junctions 4−45476
$PbS_{1-x}Se_x$, single cryst. growth by sublimation 4−49614
$PbSb_2S_4$, photocond., 300 and 77k 4−49043
$PbSb_2S_4$, strong induced impurity photoconductivity obs. 4−67258
PbSe, alloying with Cu by diffusion from electrodeposited Cu surface layer *(Russian)* 4−72591
PbSe, band struct. and characts., theory 4−79286
PbSe, epitaxial, vapour deposition, carrier conc., mobility and Hall effect meas. 4−53614
PbSe, epitaxial film, galvanomag. meas., O_2 and H exposure effects 4−75979
n-PbSe, frequency-dependent electron relaxation time, i.r. magnetoreflectivity meas. 4−82699
PbSe, heteroepitaxy on PbTe, misfit dislocation form. 4−44799
n-PbSe, obs. of lattice vibs. and dispersion of free carriers 4−48719
PbSe, photodiode, quantum efficiency and impact ionisation 4−75957
PbSe, photoelectric spectra, 6-10 eV, struct. similarity with SnTe, PbTe 4−82786
PbSe electroreflectance band struct. and spin-orbit splitting meas. 4−73129
PbSe film, elec. cond. and photocurrent, Se atmosphere effects 4−75982
$PbSeO_4$, Raman and i.r. spectra anal. 4−57532
PbSiO:Fe_2O_3 glass, u.v. absorpt. temp. depend. *(Russian)* 4−45344
$PbSiO_3$ glass, i.r. spectroscopic investigation of microstruct. 4−48511
$Pb_{0.94}Sn_{0.06}Se$, p- and n-type, meas. of mag. susceptibility 4−49155
$Pb_{0.94}Sn_{0.6}Se$, photodiode, quantum efficiency and impact ionisation 4−75957
$Pb_{1-x}Sn_xSe$, epitaxial, p-n junction characteristics 4−75956
$Pb_{1-x}Sn_xSe$, epitaxial, vapour deposition, carrier conc., mobility and Hall effect meas. 4−53614
$Pb_{0.6}Sn_{0.4}Te$, single cryst. prep. and elec. characteriz. 4−67725
$Pb_{0.8}Sn_{0.2}Te$ solid soln., semicond., mech. strength and plasticity 4−52806
$Pb_{0.82}Sn_{0.18}Te$, mag. remanence and elec. props., 78-500K *(Russian)* 4−57116
$Pb_{0.82}Sn_{0.18}Te$, temp. depend. of intrinsic carrier conc. and mobility ratio 4−82415
$Pb_{0.83}Sn_{0.17}Te$, photodiode, quantum efficiency and impact ionisation 4−75957
n-$Pb_{1-x}Sn_xTe$, dielectric props. and band parameters determ. from magnetoplasma expts. 4−79667
$Pb_{1-x}Sn_xTe$, epitaxial film growth on BaF_2 4−73261
$Pb_{1-x}Sn_xTe$, film, negative resist., field intensity depend. *(Russian)* 4−60882
$Pb_{1-x}Sn_xTe$, liquid phase epitaxy, for laser heterostructures 4−64501
p-$Pb_{1-x}Sn_xTe$, mag. susceptibility and electrical props. obs. 4−57108
$Pb_{1-x}Sn_xTe$, single cryst., epitaxial vapour deposition on BF_2 4−67741
$Pb_{1-x}Sn_xTe$, Th and In doped, liquid phase epitaxy 4−64517
$Pb_{1-x}Sn_xTe$ crystal defect sources and their elimination 4−48625
$Pb_xSn_{1-x}Te$, epitaxial deposition on BaF_2, NaCl, Ge(111) substrates, multicathode sputtering 4−61291
$Pb_xSn_{1-x}Te$, superconducting transition temp. and crit. mag. field exam. 4−76001
$Pb_{1-x}Sn_xTe(Se)$, mag. susceptibility, band inversion effect 4−76051
$Pb_{0.3}Sr_{0.7}TiO_3$, $Pb_{0.95}Sr_{0.5}$. $Ti_{0.7}Zr_{0.53}O_3$, electron irrad. effect on permittivity *(Russian)* 4−67510
$Pb_{0.95}Sr_{0.05}Zr_{0.53}Ti_{0.47}O_3$-PbO, elec. cond., 250-500°C 4−64089
Pb_xTaS_2, metal layer intercalation in TaS_2, cond.-band form., n.m.r. investig. 4−64273
PbTe, band struct. and characts., theory 4−79286
PbTe, bulk and thin film thermodynamics, defect props., struct. correl. with elec. props. 4−79249
PbTe, film, high mobility, prep. by hot wall technique 4−73272
PbTe, Jones zone role in optical props. 4−61186
PbTe, mag. susceptibility, effect of Bi, Sb, Ag and Fe impurities, 80-400K *(Russian)* 4−82550
PbTe, n-type and p-type, nuclear spin-lattice relaxation time calc., metallic behaviour 4−49254
PbTe, photodiode, quantum efficiency and impact ionisation 4−75957
PbTe, photoelectric spectra, 6-10 eV, struct. similarity with SnTe, PbSe 4−82786
PbTe, polaritons, surface, high mag. fields 4−75948
PbTe, polycryst., semicond., mech. strength and plasticity 4−52806
PbTe, pseudopot. methods for band struct., comparison of optical and photoelec. expt. data with theory 4−48904

lead compounds continued
PbTe, single cryst., transmission electron microscopy obs. of microprecip. 4−79158
PbTe film, photovoltaic effect *(French)* 4−79418
PbTe film, refractive index singularity reln. to band gap, 25-300K 4−61127
PbTe film, struct. 4−82340
PbTe/M interface, M=Pb, In, Al, Sn, Tl epitaxial layers, superconductivity and LEED obs. 4−45038
PbTe-$AgSbTe_2$ solid soln., prep. and props. *(Bulgarian)* 4−57695
PbTe-Ge p-n heterojunction, elec. characts. and spectral response 4−53139
$PbTiO_3$, electrical conductivity mechanisms 4−64076
$PbTiO_3$, Mossbauer effect of ferroelectric transitions 4−45215
$PbTiO_3$, piezoelec. ceramic, resonant vibration 4−49306
$PbTiO_3$, reciprocal domain obs. and formation 4−64343
$PbTiO_3$ crystals, domain structure obs. 4−53382
$PbTiO_3$:Ce, static electric quadrupole interaction of ^{140}Ce and ^{204}Pb, PAC obs. 4−73061
$PbTiO_3$-$PbZrO_3$, elec. polarisation anisotropy of cubic paraelec. phase 4−79673
$PbTi_3O_7$, cryst., mol. struct., parameters determ., X-ray diffr. meas. 4−56672
$PbTi_{1-x}Zr_xO_3$, soft mode behaviour, Raman scatt. obs. 4−57549
$Pb_2V_2O_7$, determination of optical constants *(French)* 4−64357
PbX, (X=S,Se), matrix isolated i.r. spectra 4−52165
$Pb(Zn_{1/3}Nb_{2/3})O_3$, displacive ferroelectric below T_c, Raman meas. 4−67541
$PbZn_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, light absorption obs., 0.39-0.8μ 4−64394
$Pb(ZnW)_{1/2}O_3$, paraelectric-antiferroelectric transition temp., press. depend. 4−73083
$Pb(Zr, Ti)O_3$ type solid solutions, electrical properties 4−53091
$Pb(Zr,Ti)O_3$, ferroelec. ceramic, permittivity, field depend. 4−67513
$Pb(Zr,Ti)O_3$, ferroelec. ceramic, permittivity field depend. 4−70267
$Pb(Zr,Ti)O_3$, grain-size effects on ferroelec. props. 4−76222
$Pb(Zr,Ti)O_3$, multimode struct., noncollinear three phonon interactions 4−64332
$Pb(Zr,Ti)O_3$, solid soln., dielectric dispersion investigation in ferroelectric phase 4−64341
$Pb(Zr,Ti)O_3$ electro-optical modulators for 100 Mb/s holographic recording 4−46694
$PbZrO_3$, current-voltage characteristics and temperature dependence of electrical conductivity 4−53090
$PbZrO_3$, doped with ferric oxide, dielec. props. 4−67512
$PbZrO_3$, temp. depend. of elec. quadrupole interaction 4−76228
$PbZrO_3$: ^{89}Zr, electron capture decay lifetime rel. to antiferroelec.-paraelec. transition investig. 4−73081
$Pb(Zr_{0.40}Ti_{0.60})O_3$, current-voltage characts. in vicinity of phase transition 4−64077
$PbZr_{0.9}Ti_{0.1}O_3$, ferroelec., thermal expansion crit. behaviour 4−61119
$Pb(Zr_xTi_{1-x})O_3$, solid soln., X-ray exam. near morphotropic phase transition 4−76231

leak detection
heavy and light water, in nuclear power plants 4−81653
nuclear reactor coolant leakage detection system idealisation 4−47756
preventive radiation protection, IRR-2 experience 4−55979
seals, global leaktightness testing using thermal shocks 4−42764
testing of sealed Ra sources, group test procedure and storage scheme for minimum exposure 4−51142
vacuum bubbler as NDT tool 4−65408
He mass spectrometer leak detect., automatic testing system *(Japanese)* 4−74150
Na, from LMFBR, thermal ionization-type leak detector for vapor and aerosol 4−81568
^{226}Ra sealed sources, leak detection *(Italian)* 4−74116
T, leak determ. from waste container 4−51921

leakage, magnetic *see magnetic leakage*

leakage currents
solid-liquid interface, electric field distortion, Kerr cell obs. 4−44986
ventricular fibrillation thresholds rel. to electrical equipment leakage faults 4−73894

least squares approximations
aerofoil design by conformal mapping 4−48269
algorithms for least squares parameter estimation rel. to meas. errors 4−65330
astrophysics, optically thin extended sources, spatial spectroscopic diagnostics, Fredholm integral eqn. 4−58207
confidence intervals estimation, for nonlinear parameters, appl.. to cholesteryl nonanoate data 4−82103
cumulants analysis, intensity fluctuation spectroscopy appl. 4−63506
differential eqn. parameter estimation, Lobatto quadrature-collocation anal. 4−68864
finite element functions, discontinuous, local and global smoothing by least squares method 4−62681
flow, least squares finite element analysis of laminar boundary layer flow 4−81830
fundamental constants, 1973 least squares adjustment 4−68608
geodetic networks, local adjustment by least squares filtering 4−61645
geopotential, least squares collocation 4−68037
hydrides, stable diatomic, partition function logarithm calc., curve fit by least squares method 4−72110
ill-conditioned fitting problem, simultaneous parameter estimation 4−59076
iterative procedure of analysis of exchange-broadened e.s.r. spectra 4−53280
Lorentzian spectral lines, nonlinear computer fitting systematic errors 4−68874
macromolecular intensity fluctuation spectra, integration method 4−43894
molecular structure determ. by gas phase electron diffraction program for refining data by statistical least-squares method 4−52019

least squares approximations continued
- Mossbauer effect spectra fitting, least squares fit route 4−49269
- Mossbauer spectra in applied magnetic fields least squares fitting 4−46920
- partial differential equations, finite element analysis 4−59067
- plates with circular inclusions, thermal anal. by least squares boundary point matching method 4−81164
- Poisson equation, discrete, direct soln. on surface of sphere 4−59047
- polyatomic molecules electro-optical parameters calc. on computer *(Russian)* 4−43852
- polystyrene latex spheres mixture, intensity correlation 4−56335
- surface flatness, computer programs 4−60677
- Tokamak experiments, numerical estimation of plasma characteristics from e.m. signals 4−56517
- transport processes, one-dimensional transient problems 4−62750
- unit cell dimensions derived by extrapolation technique and curve fitting procedure 4−69696

leather *see materials*

Lee model
- asymptotic fields and S-matrix in lowest sector 4−81376
- dressing transformation construction 4−69125
- Hamiltonian with dilation analytic cutoff function, spectral properties 4−43385
- multichannel processes in V- and VΘ_i-sectors of extended Lee model 4−77731
- multichannel processes in VN- and VV-sectors of extended Lee model 4−77732
- Pauli-Kallen equation, soln. for stable and unstable particles 4−55569
- unstable particles and systems description in N-θ and V-θ sectors 4−59502

LEED *see low energy electron diffraction*

legislation
- environmental quality, remote sensing 4−50389
- ground vibration control *(Japanese)* 4−46528
- public use of radioactive devices, authorisation and safety standards 4−58610
- radiation leakage control of industrial microwave power devices 4−65279
- radiation protection conference, Jerusalem (1973) 4−55977

length measurement
- *see also micrometry*
- accuracy of fundamental metrology, improvement 4−46565
- acoustic-optical raster as grating for length meas. *(German)* 4−51012
- conference, Braunschweig (1973) 4−58734
- geometrical meas. with curved and plane surfaces related to wavelength *(German)* 4−62412
- heterodyne laser interferometer with acousto-optical modulator 4−80907
- inductive instruments *(German)* 4−50952
- interferometric, review *(German)* 4−58743
- laser, He-Ne, wavelength stabilization for length meas. *(German)* 4−62837
- laser and reference lamp wavelength comparison by movable-reflector interferometer 4−46668
- laser displacement-measuring system applications *(German)* 4−73977
- lasers, Lamb-dip-stabilized, for interferometric length meas. *(German)* 4−73970
- lasers, noble gas ion, use as standard *(German)* 4−59406
- meter, CCDM definition and ^{86}Kr standard lamp *(German)* 4−58735
- microwaves application *(German)* 4−51115
- object size, 0.02-0.20 cm, use of Ronchi grating 4−46560
- photoelectric measuring microscope, signal processing *(German)* 4−73975
- sample immersion in Hg to determine length damage 4−71157
- techniques achieved at Dresden Univ. reviewed *(German)* 4−73974
- tooth pitch, precision circle division using redundant interval meas. *(German)* 4−58744
- CO_2 laser radiation wavelength meas. for light velocity determ. 4−65366

length standards *see measurement standards*

Lennard-Jones and Devonshire theory *see liquid theory*

Lennard-Jones potential *see intermolecular mechanics*

lenses
- *see also aspherical lenses; electron lenses; electrostatic lenses; focusing; magnetic lenses; photographic lenses*
- apochromats, thin three-colour, made of three different glasses, basic characts. 4−68669
- chart for finding any two lens parameters from the other two 4−54783
- compensator, for reflection-type shadow and interference systems 4−46634
- conic axicon, singly refracting, imaging props., appls. 4−68662
- cylindrical, for modomode fibre to junction laser coupling 4−77684
- cylindrical surface generatrices, nonparallelism effect on anamorphic attachment aberrations 4−54873
- decentring and deform. testing during objective assembly 4−58789
- design, for optical Fourier transforms 4−46628
- design, Grey's program, optical interpretation of merit function 4−42788
- evaluation, IC mask photolithography method 4−77068
- fine-structure lenslet array, evaluation of integrated quality 4−46642
- Fourier transform holography, recording and reconstructing systems 4−58836
- Fresnel, primary aberrations 4−47322
- Fresnel lens production, simple vacuum evaporation technique *(French)* 4−46639
- grinding and polishing, rate depend. on lathe operating conditions 4−54876
- image degradation due to radial parabolic temp. distrib. 4−47323
- i.r. transmission of component and asembled systems, meas. 4−42774
- Jos. Schneider company developments review *(German)* 4−51019
- kinoform lens construction using c.r.t. circular plotter 4−46688
- laser beam focusing, beam waist shift 4−42821

lenses continued
- laser damage development, shock wave 4−77696
- laser products directory, (1974) 4−54865
- lasers, low-order modes 4−74085
- Moire technique, obs. of focusing errors in collimating lens or mirror 4−59345
- objective, decentring tolerances 4−51025
- objective, m.t.f. meas. instrument 4−46643
- optical system, defocused, low efficiency lens shutter effect on imaging props. 4−42782
- parabolic axicon, possible appl. 4−58776
- perfect, equivalent passband, closed form evaluation 4−65882
- photographic and photovisual astrograph objectives, aberrations compared *(Russian)* 4−80670
- photography of close objects, lens depth of field 4−58855
- precision lens centring and mounting, interferometric meas. 4−62453
- Raman spectroscopy, rotating surface scanning technique, lens system described 4−58800
- ring doubly-confocal unstable resonator with two positive lenses 4−59436
- specifications for manufacture optical, physical, environmental and economic, checklist 4−46621
- stepped lens, e.m. field in image space as function of lens profile 4−71509
- stereopsis using large aspheric field lens 4−46618
- symmetrical, stress and strain calcs. 4−46641
- telescope lens system testing, laser illuminated convergent ball bearing sources 4−42773
- testing, wavefront shearing interferometer 4−51063
- zone lens for multichannel laser beam splitting 4−80935

lepton-hadron scattering
- *see also electron-proton scattering*
- anomalous interactions, hypothesis for constancy of $e^+e^- \rightarrow$ hadrons cross section 4−47527
- deep inelastic, charged, parity violation anal. in weak current theory 4−74629
- deep inelastic, in scalar electrodynamics, eikonal approx. 4−74631
- deep inelastic, light cone approach to strange structure functions 4−47523
- deep inelastic, nonuniformity of Adler sum rule 4−59524
- deep inelastic, nucleon e.m. form factor, behaviour in neighbourhood of light cone 4−74600
- deep inelastic, parton model 4−81425
- deep inelastic, quark-antiquark pair contrib. 4−74607
- deep inelastic, quark-parton model relations 4−47487
- deep inelastic, three-quark bound state model for nucleons 4−47537
- deep inelastic cross section estimation in unified gauge theories, neutral current effects 4−47472
- deep inelastic electron scatt., φ^4 field theory 4−59564
- deep inelastic lepton-nucleon structure functions, gnome model 4−59576
- deep inelastic processes, duality 4−47525
- deep inelastic scattering with hadrons in final state, review 4−51705
- deep inelastic struct. functions and sum rules in asymptotically free gauge theories 4−59494
- deep inelastic structure function, test of scaling in asymptotically free theories 4−43393
- deep inelastic structure functions, q^2 dependence rel. to anomalous dimensions meas. 4−47432
- deep inelastic structure functions, scaling in unified field theories 4−47436
- inelastic, deep, anal. in relativistic quark parton model with pair correlation 4−71700
- inelastic, state-of-the-art 4−59574
- polarization effects, review 4−51714
- eN, evidence for existence of partons, analogy with liquid He-neutron scatt. 4−51720
- eN, inelastic, spin dependence, scaling and structure functions in quark parton model 4−47536
- eN, massive quark model approach to deep inelastic phenomena 4−59573
- eN deep inelastic collisions, reln. between nucleonic wave function and scaling function 4−59565
- μp, ep, highly inelastic, μ-e universality *(Russian)* 4−62942
- N-lepton deep inelastic scatt. scaling anal. using parton density distribs. 4−77837
- ν, deep inelastic scatt. on hadrons, scale-invariant parton model 4−55604
- νN and νN differential cross section sum, quark parton model 4−47536
- $\nu p \rightarrow \nu p$, effective coupling constants for neutral current, deep inelastic contributions 4−55590

lepton interactions
- *see also hadron leptoproduction*
- exotic interactions of charged leptons 4−71660
- lepton-nucleon deep inelastic scattering, quark-parton model, photon hadronic structure 4−62935
- radiative corrections to leptonic and semileptonic amplitudes, universal renormalization 4−43411
- $l^{\pm}N \rightarrow (\text{heavy lepton})^0 +$ anything, 50-500 GeV incident energy 4−74588
- $\nu_l l \rightarrow K\pi(KK, \pi\pi, K\pi\pi)$, analysis *(Russian)* 4−81404

lepton scattering
- *see also electron scattering; lepton-hadron scattering; muon scattering; neutrino scattering*
- complex nuclei, possibility of quark production 4−66055
- diffractive, consequence of composite structure 4−66045

leptonic decays
- *see also baryon leptonic decay; meson leptonic decay; muon decay*
- heavy leptons $L^{\pm} \rightarrow \nu(\nu) + l^{\pm} + \nu_l$, $L^0 \rightarrow l^{\pm} + l'^{\pm} + \nu_l$, 4−74588
- S-operator theory 4−47478
- $E^0 \rightarrow \nu\gamma$, decay rate of heavy electron in Georgi-Glashow model 4−59532
- $E^0 \rightarrow \nu\gamma$, radiative decay of excited neutrino on gauge models 4−55591
- $L^0 \rightarrow \nu_l\gamma$, heavy lepton in gauge theories of weak and e.m. interactions 4−55592

leptons
- *see also electrons; muons; neutrinos; positrons*
- classification, unified field theory 4−47419
- heavy, unified weak and e.m. interaction models achieving universality without use 4−62913
- heavy, weak inelastic production and leptonic decay 4−74588
- massive lepton pair production, final state interactions in Drell-Yan formula, decrease of cross section 4−77863
- massive lepton pair production, final state interactions in Drell-Yan formula, no change in cross section 4−77864
- massive pair production in hadronic collisions 4−63050
- pair production cross sections based on quark parton distributions in hadrons 4−71694
- review of particle properties, particle data group 4−51743

level control
- pneumatic transmitter application *(Czech)* 4−46982

level crossing (energy) *see energy level crossing*

level measurement
- Automatic Level Ni 025 4−46106
- liquids, gamma-ray backscatter applic., sensitivity, expt. 4−80832
- pneumatic transmitter application *(Czech)* 4−46982

level meters
- *see also power measurement*
- liquids, gamma-ray backscatter applic., sensitivity, expt. 4−80832
- neutron, ^{3}He(Br$_2$) filled Geiger counter applic. 4−81018

levels, energy *see energy levels*

librarianship *see information science*

library science *see information science*

LIDAR *see optical radar*

Lie groups
- *see also elementary particle symmetry*
- algebraic structure of observables and generators in classical and quantum mechanics 4−59027
- B_3 (SO(7)) algebra, explicit determ. of semisimple subalgebras and their inclusion relations 4−47027
- Bianchi universes admitting full groups of motions, topology 4−54363
- Bloch and Glauber coherent states, Lie algebra approach 4−71417
- Cauchy problems, singular, canonical sequences 4−68866
- classical mechanics, Fermi-like quantisation 4−71416
- cohomological obstruction to existence of bundles on compact varieties *(French)* 4−47006
- compact, torsion in unitary K-theory 4−81110
- compact connected, almost free actions on manifolds 4−42987
- complex Lorentz, analytic continuation of functions defined on subgroups 4−51726
- compound symmetry groups, spontaneous breakdown 4−81394
- conformal symmetry, kinematical and dynamical, discrete mass spectrum 4−47465
- de Sitter symplectic spaces, quantizations 4−77524
- dynamic algebra of unimodular variety *(French)* 4−47004
- dynamical nonrelativistic algebras with Galilei subalgebras, classification 4−55181
- Elliott's projection technique extended to compact semisimple groups 4−71308
- gauge fields, role of Lorentz group in framework of tetrad theory of gravitation *(Russian)* 4−55362
- generating relations for special functions 4−55175
- hadron mass shift due to weak interactions, light-cone algebra framework 4−55588
- Hamiltonian actions, existence conditions, complexification of induced Lie algebras of functions on phase space, critical anal. 4−47021
- heat equation, one dimensional, boundary-value problems, appl. of general similarity soln. 4−47247
- hypergeometric functions, treatment by six dimensional algebra of operators 4−51253
- hypergeometric functions generating function derivation using Lie theory 4−59051
- infinite-dimensional, unitary irreducible representations 4−51257
- inhomogeneous Lorentz group, spacelike representation in Lorentz basis 4−47461
- integrability of symmetry algebras in quantum field theory 4−47460
- Jahn Teller effect, octahedral complexes 4−60745
- K-theory of loop space 4−59030
- Lagrangian quantum theory, coordinate free formulation 4−74371
- Landau electron, free, relativistic problem *(French)* 4−55320
- Lie series perturbation solution to invariant bedding reflection equations 4−81529
- Lorentz group, 3 dimens., continuous basis, O(2,1) group 4−74376
- Lorentz group, 3 dimens., continuous basis, SU(1,1) group 4−71377
- Lorentz group, complete series of infinite-dimensional representations 4−47011
- Lorentz group, deformation of SO(2,C) subgroup 4−55183
- Lorentz Lie algebra, complex structures and representations of Einstein eqns. 4−81235
- lowering operators for $O^+(9)\rightarrow O^+(3)$ and $O^+(7)\rightarrow O^+(3)$ 4−71303
- noncompact algebraic approach to unitary representations of SU(1,1) 4−47018
- nonlinear transformations in vector spaces, colineation and conformal groups 4−47017
- nuclear shell model, boson like expansions without bosons 4−77976
- o(n), gauge theory patterns of symmetry breaking, Higgs scalars anal. 4−69142
- O(p,q), integrability of representations *(French)* 4−47000
- O-invariant U-cyclic Weyl systems, vacuum system properties 4−59031
- Poincare generators for free spin 3/2 field 4−74562
- Poincare group, covariant realizations of unitary representations 4−69108
- Poincare group, uniqueness of group extensions 4−59517
- Poincare group representations over massless fields, indecomposability, e.m. pot. quantisation problem 4−69128
- principal ideas and applications, book 4−62663
- projection operators, construction of lowering operators for groups SU(n) 4−59688
- pseudo-group of coordinate transformations in four dimensions, unitary representations 4−59029

Lie groups continued
- pseudogroups and infinitesimal pseudogroups, decreasing and increasing sequences *(French)* 4−47005
- pseudogroups and infinitesimal pseudogroups, extension kernel and range *(French)* 4−42989
- quantum mechanics, ordinary, algebraic methods 4−47152
- Regge trajectories, Lie algebra representations 4−59587
- relativistic unstable particles, Poincare group, indecomposable representation 4−74580
- Schwinger-Dyson eqns., homogeneous, invariance under arbitrary Lie groups 4−77739
- semisimple, boundary valves of holomorphic functions belonging to Hilbert spaces carrying analytic representations 4−51260
- semisimple, representation and differential geometry 4−65610
- separation of variables, Lie theory, groups SO(2,1) and SO(3) 4−74203
- separation of variables for eqn. $f_{tt}-f_{ss}=\gamma f$ 4−65607
- Sl(2), algebraically irreducible representations 4−47016
- SL(3,C) description of mag. moments of baryons within 27-plet 4−43408
- $SO_0(1,n)$, absence of trivial subrepresentations from tensor products of unitary representations 4−81393
- $SO_{n,1}\supset SO_{1,1}\otimes SO_{n-1}$ decomposition complete soln. to missing label and multiplicity problems 4−55179
- SO(N), rel. to Duffin-Kemmer-Petiau ring 4−42990
- SO(p,1), limit of most degenerate representation for large Lorentz transformations 4−55182
- spectrum generating algebras, minimal realisations 4−47009
- SU(p,q), maximal solvable subgroups, SU(2,1), all subgroups 4−71307
- symmetric spaces in relativity and quantum theories 4−51259
- symmetry groups for classical fields 4−51250
- u(p,q) algebra, integrability of discrete representations 4−51246
- undecomposable representations of algebras so(n, 1) and iso(n) 4−77334
- visual pattern recognition and apparent motion 4−58510
- Weyl group and nonrelativistic analogue, time and position operators construction 4−51414
- Weyl theory, conformal symmetry 4−74551

ligand field theory *see crystal field theory; molecular bonds; molecular orbitals*

light
- *see also airglow; optics; sunlight; zodiacal light*
- classical-corpuscular approach, applicability conditions *(Russian)* 4−51514
- gravitational deflection by Sun as function of solar distance 4−59284
- gravitational effects, induction of inertia, Einstein shift *(German)* 4−55350

light absorption
- *see also atmospheric optics; densitometry; light transmission; optical constants; optical films; optical filters; pleochroism; spectra*
- absorbing-emitting liquids, total band absorpt. models 4−49367
- accidine, absorpt. and fluoresc. spectra, pulsed tunable dye laser system 4−69515
- acetamide, cryst., i.r. spectra, normal modes, valence force field determ. *(French)* 4−43848
- acetones, halogenated, photochem., absorpt., emission spectra determ., radiative, nonradiative decay investig. 4−75008
- acetophenone anion in ethanol glass, absorpt. spectra at 4.2K 4−66418
- acetylene, i.r. spectra, integrated intensity of three bands meas. 4−66440
- adenine, and Na salt, deuterated derivs., i.r. and Raman spectra, band assignment *(French)* 4−57519
- alcohols, Raman fundamentals and i.r. overtones of O-H stretching vibrs. investig. 4−70289
- alkali borate glasses, Cu, Cl effects on colour, absorpt. spectra obs. 4−70335
- alkali halide phosphor, activated with Tl$^+$-type ions, dynamical Jahn-Teller splitting of B absorpt. band 4−53483
- alkali halides, F_a- and F_h-centre lifetimes investig. 4−69807
- alkali halides, Tl$^+$-like ions, line shape for B-band 4−82717
- alkali metal, 250-630 nm., expt. 4−45324
- alkali metal halide, calorimetric and spectral emittance meas. technique 4−68661
- alkali metaphosphates, glasses, interionic vibrs., glass transitions investig. 4−66832
- alkali silicate glass:Er^{3+} multiple sites evidence 4−45332
- alkali-borate glass:S^{2-}, blue binary, optical absorpt., emission and excitation spectra 4−70328
- alkali-TCNQ salts, 4000-20000 cm^{-1}, Bloch model 4−73115
- alkaline earth fluorides, radiolysis, obs. of coloration 4−66911
- alkaline earth metaphosphate glasses, interionic vibrs., glass transitions investig. 4−66832
- alkyl propionates, vibr. spectra, investig., mol. force constants determ. 4−72194
- amines, Raman fundamentals and i.r. overtones of N-H stretching vibrs. investig. 4−70289
- aminoanthroquinones-9,10, α- and β-, electronic absorpt. and π-electronic struct. *(Russian)* 4−47953
- anisotropic media, ratio of emissive to absorptive powers 4−51522
- anthracene, and substituted anthracenes, polarisation spectra, excited states, transition moments investig. 4−78439
- anthracene, cryst., hot band $S_0\rightarrow T_1$ transitions investig. 4−67639
- anthracene, cryst., two-photon transitions to highly excited states investig. 4−70321
- anthracene, in cyclohexane and methanol, pulsed laser photolysis, non-linear absorpt., photoionization 4−80199
- anthracene, i.r. spectra, Davydov doublet parameters, crystn. and temp. effects *(Russian)* 4−67594
- anthracene in carbazole, mixed mol. cryst., polarisation ratio, host-guest interaction 4−67616
- apatite halophosphates, Sb^{3+}, Mn^{2+} activated, extrinsic absorption bands, 140 to 190 nm, obs. 4−57605
- aromatic amines, absorpt., emission spectra, CNDO/2-CI calcs., electronic struct. rel. to mol. geometry 4−56261
- aromatic liquids, absorpt. cross section in vacuum u.v. 4−76264
- atmospheric dust, diffuse refl. meas., 0.3-1.1 μm 4−76680

light absorption continued
atmospheric extinction spectrum, water vapour pressure effect 4−54236
atmospheric gases, using ruby laser with multimode optical vessel in resonator *(Russian)* 4−43336
atmospheric monochromatic extinction of solar radiation by Dessens' droplets 4−54237
atom, optical and radiative collisions *(Russian)* 4−69435
avalanche ionisation by laser pulse, inhomogeneity effect 4−74519
azulene, vibronic effects in 7000 Å state 4−54057
benzene, phosphoresc., absorpt. spectra, lower electronic states, vibrs. investig. 4−66472
benzenediazonium ion, in frozen acidic solns., photodecomp., photoselection effects 4−80203
benzonitrile and mixtures with nitrobenzene, in soln., dielec. absorpt., relax. investig. 4−76331
benzophenone, i.r. absorpt. spectra of single crysts. in polarized light *(Russian)* 4−67595
benzophenone anion in ethanol glass, absorpt. spectra at 4.2K 4−66418
benzoyl halides, i.r., Raman spectra, vibr. assignments 4−74986
biacetyl, biacetyl-benzene(pyridine) mixtures, triplet states, energy transfer investig. by opto-acoustic spectroscopy 4−66463
biphenyl, solid, vacuum u.v. absorpt. meas. 4−57561
calcium metasilicate glass, i.r. spectra, structure and crystallisation *(Russian)* 4−66835
carbon tetrachloride, total band absorpt. models 4−49367
cell, optical device for increasing absorption 4−74053
ceramics, optical props. and areas of appl., review 4−70275
charge carrier in solid, interaction theory 4−57129
chemical relaxation induced by temperature jump, apparatus for meas. 4−55150
chlorofluoromethanes, vac. u.v. absorpt. spectra investig. 4−74983
chlorophyll-a, solution absorpt. and fluoresc. spectra, monomers, dimers and polymers 4−52122
circular dichroism, circularly polarised light absorpt. rate calc., quantum electrodynamic theory 4−61126
circular dichroism, induced, differential absorpt. rate calc., quantum electrodynamical method 4−67547
circular dichroism spectrometry, Fourier method for digital data smoothing 4−77073
colloidal particles, motion induced by light 4−47305
colour photographic subtractive dyes, optimum triple combinations rel. to peak wavelengths and absorption band breadths 4−54974
coloured materials, laser Raman spectroscopy, absorpt. corrections using backscatt. geometry 4−71188
condensed resonating media, interaction of light beams *(Russian)* 4−77720
cresyl violet perchlorate, excited singlet state, rel. to laser efficiency 4−64393
crystal, exciton absorpt. bands, contrib. of crystal temp. 4−49383
crystal, two-photon absorpt., polarisation depend. 4−74527
crystal defect, vibr.-rot. absorpt. spectra of hindered rotator 4−67617
c.w. laser beam propagation in resonant medium, instabilities 4−62862
cyanoacetylenes, vac. u.v. absorpt. spectra, band assignment using CNDO/2-CI calcs. 4−74982
cyclohexenyl radical, absorpt. spectra, pulse radiolysis, comparison to cyclopentenyl radical 4−72169
cyclohexyl radical, absorpt. spectra, pulse radiolysis, comparison to cyclopentyl radical 4−72169
cylindrical beam scattered by isotropic medium, optical thickness, albedo meas. 4−74469
diamond, GR1 doublet, effect of uniaxial stress 4−49404
diamond crystals, 4152 Å system, absorpt. and luminesc. meas., wavelength modulation technique 4−67608
diatomic crystal with heavy impurity centres, conc. depend. of i.r. absorption lines 4−70334
diatomic molecule, non-LTE spectral absorption coeffs. 4−43807
diatomic molecules, electronic band systems, non-LTE spectral absorpt. coeffs. derived 4−74979
p-dichlorobenzene, mol. cryst., vibronic struct. of absorpt. spectra 4−49379
dichroic spectra, linear, improved method of meas. 4−54933
dielectric mirror coating, effect on laser damage 4−55499
dimer coupled to cryst. lattice, absorpt. spectrum, model *(French)* 4−48936
o-o′-dimethylbiphenyl, solid, vacuum u.v. absorpt. meas. 4−57561
diphenylene oxide, in n-heptane frozen soln., centres of quasi-line absorpt. and fluorescence 4−67579
disordered semiconductor, exciton optics *(Russian)* 4−61174
disordered solid, exciton absorption, Franz-Keldysh effect 4−70317
disordered system, optical intraband absorption in presence of electron-phonon interaction 4−70287
dye, monolayer, energy transfer from fluorescing or phosphorescing dye 4−72209
dye laser, absorpt. cross sections of first excited singlet state at 3371Å 4−62839
EDA complexes, energy of charge-transfer spectra interpretation by MO calcs. 4−56203
electrode/solution interface, electrical double layer perturbation by light absorption investig. 4−54033
ethane, ν_9 fundamental, intensity, absorpt. meas. rel. to Jupiter and Saturn atms. 4−74993
ethanol glass, photoconversion of solvated electrons to trapped electrons at 6K 4−73439
ethers and thioethers, vac. u.v. absorpt., photoelectron spectra meas., comparison 4−74984
ethyl radical, prod. by Hg photosensitized reacts., optical absorpt. spectrum 4−47971
ferroelectrics, improper, energy gap temp. depend. in phase transition region 4−45257
ferromagnetic semiconductor, mag. field depend. electron-magnon interactions *(Russian)* 4−61134
fibre optic materials, transmission losses, ionising radiation effect 4−57492
film, necessary thickness for optical const. meas., refl. versus incidence angle method 4−49506

light absorption continued
filter, axially irrad. absorpt., in stationary state, temp. and stress distribs. *(German)* 4−80867
fluorescence, absorpt. and fluoresc. spectra, pulsed tunable dye laser system 4−69515
formaldehyde-d$_2$, i.r. spectrum, ν_2 vibr.-rot. band anal. 4−72200
free carriers in semiconductors, instability conditions 4−72808
garnet bubble films, optical sensing of bubble domains by reduction of Pb masking 4−53264
garnet film, ion bombard. effect, hard bubble suppression 4−67409
gas, definitions and dimens. of coeffs. *(Russian)* 4−43914
gas absorptivity in complete spectrum 4−43916
gas ring laser, nonlinear absorpt. and homogeneous broadening 4−74513
glass:Pr$_2$O$_3$, CoO, colorant effect on light absorpt. 50000 to 5000 cm^{-1} 4−49397
glass, by inclusions, laser surface damage mechanism 4−55492
glass, continuous meas., visible and i.r., calorimetric method 4−64365
glass, Pr^{3+} activated, cathodolum. and induced absorpt. bands *(Russian)* 4−53539
glass containing AgCl, u.v. induced darkening and fading *(Japanese)* 4−53484
glassy state, rare earth cations, extinction coefficients 4−57512
guanidinium aluminium disulphate hexahydrate, and hexadeuterate, infrared absorption *(French)* 4−70290
halide mixed crystal, exciton coherent potential approximation 4−48947
halogen molecular anion as V$_k$-centre, polarisation, band intensities 4−64411
HD 92964 and 147889, JHKL i.r. photometry of interstellar extinction 4−76842
heterocyclic nitrogen bases, nucleic acid constituents, u.v. absorpt., luminesc., mol. excitation investig. 4−75012
hexachloroacetone, cryst. T$_1$←S$_0$ absorpt., T$_4$→S$_0$ phosphoresc. spectra investig. 4−67633
hollow spherical particles, light scattering and absorption *(Russian)* 4−71500
4-hydroxy-benzophenone anion in ethanol glass, absorpt. spectra at 4.2K 4−66418
imidazolium quaternary salts, electronic absorpt. spectrum calc., fractional core charge model *(French)* 4−57562
inclusions, laser surface damage mechanism 4−55493
inorganic azides, e.s.r. and optical absorption of defects 4−76160
insulator, local field effects and low-optical-freq. dielec. response matrix, model 4−70245
interband magneto optical absorption, differential spectrum *(Russian)* 4−76240
interface of absorbing-transparent media, reflectance and transmission 4−47300
interstellar grains, extinction and refractive indices 4−71063
ionic crystal, temp. genesis of light absorption and dispersion curves in exciton region 4−57566
i.r., frequency dependence of multiphonon processes 4−49359
i.r. transmitting materials, failure due to absorbing inclusions 4−55507
i.r. window materials, multi-phonon theory 4−55530
laser damage threshold, short wavelength absorption influence 4−77697
laser mirrors, apparatus for optical absorptivity meas. 4−58844
laser window materials, Alphaphone i.r. meas. device 4−54961
lead phthalocyanine, triplet exciton and photocarrier generation 4−75832
localized centres, relation between Huang-Rhys-Pekar and the single-configuration-coordinate models 4−64426
magneto-optical materials with cylindrical domain struct., absorpt. spectra obs. 4−57576
metal with impurities, abs. coeff. in electron-phonon system 4−57579
methane, multiplet intensities, inert gas-broadened linewidth meas. in ν_3 fundamental 4−69506
methane, nonlinear absorbing gas, as delay line for He-Ne laser 4−46708
methanolic cryptocyanine soln., saturable absorpt., model *(German)* 4−51640
methyl iodide, CH$_3$I-CD$_3$I solid soln., exciton splitting, Fermi reson. 4−70297
methyl iodide crystal, exciton absorpt. features with Fermi reson. 4−49350
Mie two-layered particles, Fe core, concentric water film *(Russian)* 4−55448
molecular absorber, saturation, passive Q-switching criterion 4−46702
molecular crystal, exciton absorpt. features with Fermi reson., theory 4−49350
molecular crystal, vibr. absorpt. spectra, theory *(Russian)* 4−73124
molecular crystals, two-exciton absorption of light, exciton-phonon coupling 4−76259
molecular gases, absorbing capacity press. depend. *(Russian)* 4−60077
molecule in dense media, chem. substitution effect on absorpt. spectra and MCD 4−52112
monatomic crystal with heavy impurity centres, conc. depend. of i.r. absorption lines 4−70334
monosubstituted phenylazides, tetrachloromethane solution, antisymmetrical vibration absolution band intensity of azide group *(Russian)* 4−69497
m.o.s. capacitors, u.v. light illum. 4−70074
naphthacene in trans-stilbene, mixed mol. cryst., polarisation ratio, host-guest interaction 4−67616
naphthalene, cryst. growth, i.r. spectra rel. to struct. defects 4−73142
naphthalene, in n-pentane frozen soln., centres of quasi-line absorpt. and fluorescence 4−67579
naphthalene, i.r. spectra, Davydov doublet parameters, crystn. and temp. effects *(Russian)* 4−67594
naphthalene, near i.r. absorpt. spectrum, vibronic struct. investig. 4−76249
naphthalene anion radical, i.r., Raman spectral investig., band assignment, comparison with parent mol. 4−45287

- **light absorption** continued
  - naphthalenediols, i.r. spectra, vibr. assignments 4-74985
  - napthalene: azulene, cryst., thermal broadening and shifts of impurity zero-phonon bands investig. 4-76283
  - nitrobenzene and mixtures wih benzonitrile, in soln., dielec. absorpt., relax. investig. 4-76331
  - nitroethane, far i.r. absorpt. spectrum meas., internal rot. investig. 4-63428
  - nitronaphthalenes, electronic states and energy transfer 4-47941
  - nitropyridine N-oxides, anion radicals, e.s.r., u.v. spectra, meas., interpretation by semiempirical methods 4-43869
  - nitropyridines, anion radicals, e.s.r., u.v. spectra meas., interpret. by semiempirical methods 4-43869
  - nitrostyrenes, mols. and anions, geometry, electronic struct. determ., u.v., e.s.r. spectra 4-69482
  - non-dipolar liquids, far-i.r., temperature and dilution effects 4-45297
  - nonlinear exciton-magnon absorption coeff. for below threshold incident light wave amplitude *(Russian)* 4-53071
  - nuclear emulsion, heavy ion tracks, energy dose concept 4-71233
  - ρ Ophiuchi dust cloud, total to selective absorption ratio 4-73857
  - optical fibre, multimode, diffusion losses meas. *(French)* 4-69005
  - optical fibre materials, coeff. meas. *(French)* 4-69004
  - organic luminophors solns., amplification and induced absorpt. 4-47350
  - parametric oscillator, nonlinear absorber, investigation *(Russian)* 4-74525
  - perspex, absorption and scattering of u.v. light, implications for radiation dosimetry 4-80987
  - phenanthrene, triplet-triplet absorpt. spectrum polarisation investig. 4-76260
  - phosphate glass: Co(II), Ni(II), fictive temp. effect 4-76284
  - phosphosilicate glass, i.r. spectrum, water adsorption effect 4-44760
  - photometry, use of transdiode for transmission-absorbance conversion 4-62581
  - phthalimide solutions, substituted, induced singlet-singlet absorpt. in fluoresc. band region *(Russian)* 4-61228
  - pigments, Kubelka-Munk absorption and scatt. constants, meas. 4-54913
  - plasma, as means of determining atomic density *(French)* 4-69649
  - plasma, dense, near ω_p, CO_2 laser beam absorpt. anomaly 4-44307
  - polar ice and snow, spectrophotometer for meas. 4-68259
  - polaron, electron phonon induced cyclotron resonance 4-67190
  - poly-dispersed aerosols, scattering and absorption 4-76726
  - polyarylenalkyls, absorpt. band intensity for $\pi \rightarrow \pi^*$ transition *(Russian)* 4-81817
  - polycrystals, due to excitons *(Russian)* 4-79314
  - polymeric medium with impurity, nonlinear light absorpt. model *(Russian)* 4-51652
  - polymers, conjugated, optical absorpt., paramag. investig. 4-72264
  - polymers, use of dye molecules as probes to study crystallisation process 4-60423
  - protective glass compositions selection w.r.t. effect of electron displacements of ions on absorpt. spectra *(Polish)* 4-45837
  - pyrazine, benzene matrix, lowest singlet and triplet excited states 4-66421
  - pyrazine, electronic spectra and vibronic coupling 4-66422
  - pyrazolium quaternary salts, electronic absorpt. spectrum calc., fractional core charge model *(French)* 4-57562
  - pyrene, cryst., absorpt., fluoresc. props., harmonic approx. model 4-67632
  - pyrene, cryst., hot band $S_0 \rightarrow T_1$ transitions investig. 4-67639
  - pyrene, crysts., absorpt., fluoresc. props., vibr. relax. investig. 4-64422
  - quartz:Ge, colour centres, heating effects 4-73141
  - quartz, smoky, opt. absorpt. coeff., rel. to elec. dipole centres 4-61105
  - quartz i.r. attenuator with water-cooled Fresnel reflection cuvettes 4-54960
  - quartz small amorphous spheres, i.r. absorpt. meas. 4-68162
  - quinine sulphate, absorpt. and fluoresc. spectra, pulsed tunable dye laser system 4-69515
  - radiationless processes, vapour phase, optic-acoustic effect, model, apparatus 4-66470
  - rare gas, field induced translational absorpt. theory 4-81711
  - resonance Raman spectroscopy, absorpt. corrections and conc. optimisation for absorbing samples 4-71189
  - rhodamine 6G, ethanol soln., amplification and induced absorpt. 4-47350
  - rhodamine B, electronic absorpt. and emission spectra, effect of dimer form. 4-70345
  - ruled halftone screens, light intensity distrib. with partially coherent illumination 4-59344
  - S-polarized opt. props. of dielectric slab., effect of spatial dispersion 4-57491
  - sample cell, for optical absorpt. studies of frozen aq. solns., 68-300K 4-46660
  - selectively radiating coatings, visible spectrum, optical props. in vacuum 4-77064
  - semiconductor, degenerate valence bands, two photon absorption, exciton effect 4-64387
  - semiconductor, exciton effect influence on electroabsorpt. *(Russian)* 4-76238
  - semiconductor, exciton states in high mag. field, interpretation of magnetoabsorpt. meas. 4-44883
  - semiconductor, GaAs-type, deform. effect on polariz. of luminesc. and absorpt. in tunnel transitions 4-49453
  - semiconductor, interserial phototransitions of excitons 4-82710
  - n-semiconductor, intraband optical absorption in crossed d.c. electric and mag. fields 4-45274
  - semiconductor, Oje recomb. during intense excitation *(Russian)* 4-53524
  - semiconductor, polar, many photon absrpt. by cond. electrons, theory 4-71583
  - semiconductor, polarisation properties of many-photon interband absorption of light 4-55523
  - semiconductor, saturation of interband absorption with allowance for spatial field inhomogeneities 4-67558
  - semiconductor, thermal breakdown, light induced 4-52898

- **light absorption** continued
  - semiconductor film, amorphous-polycryst. transition influence 4-60709
  - semiconductor solid solution at band edge, comp. depend. *(Russian)* 4-67559
  - semiconductors, high-resist., cond., spectral and thermal depend., automatic meas. device *(Russian)* 4-65482
  - single crystal film, electron beam freq. modulation 4-79066
  - solid, optical absorption edge, photoemission edge distinction 4-60737
  - solid, vibr. assisted electronic absorpt. band shape of impurities, temp. depend., calc. 4-67620
  - spectrophotometry, errors in light absorpt. meas. caused by non-monochromatic light, calcs. 4-50946
  - spectrophotometry, errors in light absorpt. meas. using linear calibration curve, calcs. 4-50947
  - spectroscopy, direct absorpt., using rapidly tunable c.w. dye laser 4-65438
  - spectroscopy, i.r., of H-D exchange in biopolymers, rapid transfer apparatus 4-58808
  - specular reflection spectra, interpretation limitations 4-53458
  - Stark ladders in optical absorption, theory 4-82711
  - stimulated scattering of light from density, temperature and concentration fluctuations 4-74528
  - stratosphere molecules, photoabsorption cross-sections 4-61747
  - suspended particles, biological, medium, dispersion effect *(Russian)* 4-59359
  - p-terphenyl:2-phenyl-1-monoazaazulene, cryst., thermal broadening and shifts of impurity zero-phonon bands investig. 4-76283
  - tetracene film, anthracene doped, X-centre obs. 4-53508
  - thermally ionized gas, spectral characts., 5000-30000K 4-60317
  - thin atomic vapour, quasistatic theory 4-43722
  - thin clouds, monochromatic optical thickness from 0.65-13.5 μ meas. 4-54235
  - TMMC, line shape, antiferromag. Green function calc. 4-45301
  - tolane, in dibenzyl host matrix, polarised electronic absorpt. spectra investig. 4-74981
  - toluene, dihalogenated, near u.v. absorpt. spectra 4-43824
  - trace element analysis, human blood serum 4-71287
  - triglycine sulphate, γ-irrad., fund. absorpt. band edge obs. *(Russian)* 4-53406
  - trimethylamine-CO-BH_3 adduct, and deuterated derivatives, i.r. ^{11}B n.m.r. spectra, struct., bonding investig. 4-74987
  - TTF-TCNQ solution, charge transfer equilibria, absorption spectrum 4-76263
  - two-photon absorption, quantum statistics 4-47376
  - ultrashort pulses, break-up in a medium with resonant 2-photon absorption 4-47373
  - u.v. of phagic soln. type T_2, modifications as function of temp. 4-80695
  - vertical attenuation of irradiance, coefficients *(Russian)* 4-71501
  - water vapour, absorptivity in complete spectrum 4-43916
  - xanthydro derivatives, absorpt. spectra, effect of solvent and halogen substitution 4-43825
  - $[Cr\ urea_6]X_3$ complex single crysts., emission and absorpt. spectra, emission lifetimes, temp. depend. *(German)* 4-57631
  - $[Mo_6Cl_8]^{4+}$, mag. susceptibility and mag. circular dichroism spectra, ground state config. 4-63397
  - $[Ni(NH_3)_6]Cl_2(Br_2)(I_2)$ crystals, rotational jumps of NH_3 groups, i.r. band contour meas. 4-79709
  - $[^{64}Zn(^{92}MoS_4)_2]^{2-}$, and ^{68}Zn, ^{100}Mo analogues, i.r. spectra investig., isotope shifts, vibr. coupling 4-72203
  - Ag particles, electronic props., plasma resonance absorpt., opt.-consts., temp. depend. 4-64002
  - AgBrI, gelatin emulsion, transient absorptions of cyanine dyes 4-54071
  - AgCl, optical consts., Kramers-Kronig anal. 4-76235
  - $AgGaS_2$, as function of temp. and polarization 4-73098
  - $AgGaS_2$, linear optical props., absorpt. and optical consts. meas. 4-49370
  - AgI, absorpt. and luminesc. excitation spectra obs. 4-67651
  - β-AgI, pure and Cu-doped, optical emission and absorption obs. 4-57604
  - β-AgI, single crystals, h.p. phase transform., optical absorpt. obs. 4-63918
  - Al-MgF_2, light absorbing coatings on glass and metals, vacuum prod. method 4-68674
  - AlAs, free exciton impurity interaction, optical absorpt. obs., wavelength modulation technique 4-79764
  - Al_2O, i.r. absorpt. spectral investig. rel. to impurities in matrix 4-43847
  - Al_2O:^{18}O, matrix-isolated, i.r. spectra, isotope effects, diffusion anal., dimerisation investig. 4-69487
  - Al_2O_3, Al_2O_3:Fe, paramag. hole centre characterisation, optical and e.p.r. absorpt. meas. 4-70329
  - Al_2O_3, alumina, physical density meas. by optical method 4-59013
  - Al_2O_3, corundum, i.r. absorpt., 77-2075K *(French)* 4-73111
  - γ-Al_2O_3, with added iron oxide, i.r. absorpt. spectra obs. *(Russian)* 4-53457
  - Al_2O_3:Co^{2+}, defect struct. and mobility, obs. at high temps. 4-49886
  - Al_2O_3:Cr^{3+}, ruby, first nearest neighbour Cr^{3+} pairs, absorpt. and emission spectra obs. 4-57585
  - α-Al_2O_3:V^{3+}, absorpt. spectrum analysis, cryst. field parameters *(French)* 4-61192
  - Ar laser frequency stabilisation by saturated absorption or dispersion in I_2 4-65908
  - As-Te-Se system, binary glasses, exponential absorption edge 4-79345
  - As_2S_3, cryst., surface and bulk photoresponse, photocond. investig. 4-64118
  - As_2S_3, vitreous and crystalline, temperature dependence of absorption edge, electron-phonon interaction 4-64398
  - As_2S_3-Ag glasses, i.r. spectra, O impurity bands 4-61151
  - As_2S_3-As_2Se_3 glasses, multiphonon absorption, mol. model 4-73122
  - As_2SeTe_3, amorphous, extrinsic electroabsorption, 0.47-0.9 eV 4-61179
  - As_2Te_3, glassy, weak absorpt. region, effect of 10% O content 4-67624

light absorption continued
- Au, monolayer, energy transfer from fluorescing or phosphorescing dye 4−72209
- Au-Ge, Schottky barrier, photovoltaic effect in quantizing mag. fields 4−67277
- B, amorphous, 1.3-25μ 4−49020
- BAs, film, energy gap determ. 4−45456
- BCl_3, nutation effect *(Russian)* 4−69091
- $BCl_3(Br_3)(I_3)$, lattice vibrs., i.r. spectra obs. 4−67568
- $BaTiO_3$, spontaneous electrooptical absorption 4−76237
- Be, evaporated film, optical absorption 4−64458
- Bi, determ. using electron energy loss spectra 4−66952
- Bi_xGe_{1-x} film, amorphous, i.r., spectra 4−53163
- BiI_3, inverse H-like series in opt. spectra *(Russian)* 4−57577
- BiI_3, platelet cryst. growth by open flow sublimation technique, optical characteriz. 4−61283
- Bi_xSb_{1-x} evaporated layers, $0\leqslant 1-\leqslant 0.30$, absorpt. peaks, posn. and mag. rel. to comp. *(German)* 4−49374
- n-Bi_2Se_3, Burstein shift of absorpt. edge, reflectivity obs. 4−49382
- C_2N_2, vac. u.v. absorpt. spectra, band assignment using CNDO/2-CI calcs. 4−74982
- CO, prod. in O+CS react., vibr. levels investig. by intracavity laser technique 4−66408
- CO, solid, interpretation of specular reflection spectrum 4−53458
- CO_2, 001-100 band, 300-615K, CO_2 laser radiation 4−74988
- CO_2, absorbing capacity press. depend. *(Russian)* 4−60077
- CO_2, cryst., two-phonon absorpt. spectrum 4−70311
- CO_2, gas absorptivity in complete spectrum 4−43916
- CO_2, i.r. emission, 3000-8500K, investig. emissivities, absorpt. coeffs. determ. 4−72193
- CO_2-H_2O radiating mixture, total band absorptance, 2.7μ region, 300K 4−56208
- CO_3^-, radical, prep. in solid soln. in Ar, vibr. spectrum investig., struct. 4−48006
- CaF_2, coloration, and luminesc. in oxygenated samples and u.v. absorpt. 4−53520
- CaF_2, γ-irrad., colouring curves, obs. of absorpt. bands 4−53482
- CaF_2:Co^{2+}, optical absorption spectra pbs. 4−70332
- CaF_2:Ho^{3+}, 4f to 5d transitions, absorpt. spectra obs., 1280 to 1600Å 4−64412
- CaF_2:La, additively coloured, for ruby laser Q-switching 4−59425
- CaF_2:La,Er, absorption spectrum laser induced changes 4−61184
- CaO-CuO-P_2O_5 glass, i.r. absorp. spectra 4−61144
- $Ca_5(PO_4)_3F$:$Eu^{3+}(Nd^{3+})$, fluorapatite crystal, linear Stark splitting in absorpt. spectrum 4−79763
- CaS:Bi, Tm phosphor, i.r. spectrum, electron traps 4−70370
- $CaSO_4.2/3H_2O$, cryst. struct. *(Japanese)* 4−52744
- $CaWO_4$:Nd^{3+},Na^+, Czochralski-grown, characterization 4−67714
- $CdCl_2$:I^-, layer struct., localised exciton effect 4−57581
- $CdCl_2(Br_2)$:Cu^{2+}, vibronically allowed d-d transitions, i.r. spectra 4−64406
- CdF_2:Er^{3+}, Yb^{3+}, Tm^{3+}, Ho^{3+}, Tb^{3+} absorption and fluorescence spectra, obs. 4−57610
- $CdHfO_3$, melt grown, characterization as antiferroelec. *(Russian)* 4−53381
- $Cd_{0.15}Hg_{0.85}Se$, form of absorpt. edge, conformity to Urbach's rule *(Russian)* 4−82704
- CdO microcryst., i.r. absorpt. by surface modes *(Japanese)* 4−79710
- CdO-B_2O_3-SiO_2 glasses, photochromism 4−64408
- CdP_2, anisotropy of two-photon absorpt. 4−74530
- CdS, crysts. with nonparabolic cond. bands, one, two-photon absorpt., freq. depend. 4−76279
- CdS, dispersion abnormalities in exciton absorpt. region *(Russian)* 4−76282
- CdS, exciton spectra, high intensity excitation 4−75829
- CdS, obs. of elec. oscills. under uniform illum., existence of trapping centres 4−53126
- CdS_xSe_{1-x}, crysts. with nonparabolic cond. bands, two-photon absorpt., freq. depend. 4−76279
- CdSe, dynamical processes of high density single excitons and excitonic molecules, obs. 4−44877
- CdSe, electrical characts. of free surface determ. by method of electroabsorption 4−67266
- CdSe, electroabsorpt. and electrodispersion in exciton region, obs. at 90K 4−49384
- CdSe, exciton condensation evidence 4−76312
- CdSe, exciton condensation, optical spectra evidence *(Russian)* 4−82379
- CdSe single crystals, refl., absorpt. and luminesc. fine struct. obs., surface effects 4−73136
- p-CdTe, absorption spectrum, optical props. of donor-Cd vacancy complex 4−57587
- CdTe, far i.r. spectra, power coeff. 4−53408
- CdTe, spectral emittance meas., 3-15 μm 4−57556
- CdTe:Be, impurity-induced far i.r. absorpt. spectra, perturbation model calcs. 4−64414
- Co halides, u.v. spectra, transition assignment 4−49372
- CoO-MgO-Cr_2O_3-TiO_2SnO_2 system, spinel solid soln. form. and colour *(Japanese)* 4−49919
- Cr, 0.8-4eV, comparison with nondirect transitions calc. 4−53464
- Cr film, 0.1-1.1 μm range, thickness depend. *(Russian)* 4−53553
- $Cr_3B_7O_{13}Cl$, ferroelec., 2000-30000 cm^{-1}, 77-450K 4−76271
- Cr_2O_3, antiferromag., $^4A_2\rightarrow{}^2E$ optical exciton absorpt. spectrum, spin-rotation effect 4−49385
- Cr_2O_3, R-line intensity, temp. depend., calc. 4−64374
- Cs, density of saturated vapour meas. using resonance absorption of 8521 Å radiation 4−42761
- Cs:Xe(Kr), optical absorption threshold meas. 4−45336
- CsBr, V_k-centres, autolocalized holes in luminescing cryst. *(Russian)* 4−73204
- Cs_3CoBr_5, $^4A_2$ ground state obs. by Zeeman effect of optical absorption lines 4−76268
- Cs_3CoCl_5, $^4A_2$ ground states obs. by Zeeman effect of optical absorption lines 4−76268
- CsI_3, cryst., vibr. spectra, I_3^- ion config. investig. 4−73116
- $CsI.RI_3$ complex formation obs., R=Nd,Ce 4−56188
- $CsMnBr_3$, $CsMg_{0.92}Mn_{0.08}Br_3$, cryst., electronic spectra, powder, mag. suscept. investig. rel. to temp. 4−53461

light absorption continued
- Cs_3MnCl_5:$MnCl_4^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72541
- $CsMnF_3$, two photon absorption by Mn^{2+}, cross section meas. *(Russian)* 4−67614
- Cs_2ZrCl_6:$IrCl_6^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72542
- Cu, i.r. absorptivity, temp. depend. from 10 to 310 K 4−45299
- Cu-Ni(Co)(Fe) alloys, optical absorption due to alloying, virtual bound of states theory 4−79267
- Cu-Sb-S-I, vitreous, photomodulation absorpt., i.r. region *(Russian)* 4−79736
- $CuAlS_2$, synthesis, elec. and opt. props., doping effects 4−61210
- $CuAlS_2$:Fe, absorpt. peaks obs. at 1.3, 2.0 eV 4−53476
- CuB_2O_4, ferroelec., 2000-30000 cm^{-1}, 77-450K 4−76271
- $Cu_3B_7O_{13}Cl(Br)$, ferroelec. 2000-30000 cm^{-1}, 77-450K 4−76271
- CuCl:x$CuCl_2$, intervalency charge transfer explanation of optical absorp. band 4−45341
- $CuCl_4^{2-}$ ions, electronic absorpt. spectra, rel. to tetrahedra deformation *(French)* 4−56653
- $CuFeS_2$, absorpt. edge obs. due to charge transfer transitions 4−53476
- $CuFeS_2$, chalcopyrite type magnetic semiconductor 4−61319
- $CuFeS_2$, electronic struct. calcs., absorpt. band edge 4−53042
- $CuGaS_2$:Fe, absorpt. peaks obs. at 1.2, 1.9 eV 4−53476
- $CuGaS_2$:Fe, electronic struct. calcs., A and B absorpt. bands 4−53042
- CuI, optical consts. determ. in exciton absorpt. region, 1.2 to 3.54 eV 4−67546
- Cu_2O crystal, polarised light electroabsorpt. in yellow exciton series region, theory 4−67607
- D_2 collision induced fundamental band, temp dependence 4−66522
- $DGeCl_3$, gas phase i.r. spectra meas., force consts. determ. *(German)* 4−72201
- $D^{29}SiF_3$, gas phase i.r. spectra, force field calc. *(German)* 4−72202
- $DyTiNbO_6$, 30-1500 cm^{-1}, interpretation *(Russian)* 4−79737
- Er^{3+}, in germanate and tellurite glass, transition probabilities 4−45333
- Eu^{3+} in solution, absorpt. band intensity, anion depend. 4−53462
- EuO:Gd exchange optics, absorpt. and Faraday rotation meas., 13 eV to 250 μ 4−57568
- EuO(S)(Se)(Te), EuO:Gd, mag. semiconds., optical props., band struct. investig. 4−64400
- EuS single crystal, melt-grown, characterization 4−61289
- Fe halides, u.v. spectra, transition assignment 4−49372
- Fe I, reflected shock region, meas. of gf-values 4−43723
- Fe^{2+} aqueous solns., absorpt. spectrum in u.v. region, solvent effects *(Russian)* 4−79758
- $FeBr_4^-$ complex, in molten tetra-n-butylphosphonium bromide, absorpt. spectrum, ligand-field transitions 4−61171
- $Fe_yMn_{1-y}O_{1+x}$, visible and near i.r. absorpt., rel. to existence of miscibility gap 4−53092
- Fe_2O_3, refractive index, absorption coeff., i.r. region 4−53439
- $Ga_{1-x}Al_xSb$, optical absorption coeff. and photovoltage meas. near absorption edge *(French)* 4−82713
- GaAs, as-grown, effect of precipitate-like zone on opt. absorptivity 4−60491
- GaAs, bound exciton line origin determ. 4−44878
- GaAs, edge modification, hot electron effect 4−45322
- n-GaAs, free carrier light absorpt., 90-500K, 5-14 μm *(Russian)* 4−82702
- GaAs, saturation of interband absorption with allowance for spatial field inhomogeneities 4−67558
- n-GaAs, surface electric field influence on absorption coeff. 4−67612
- GaAs film, electroabsorption, influence of built-in electric field 4−67610
- GaAs film, in GaAs-$Al_xGa_{1-x}As$ double heterostruct., 1.4-2.2 eV 4−53549
- GaAs:Cr, excited levels of Cr centre in reson. with cond. band., optical absorpt. and photocond. obs. 4−48932
- GaAs:Cr, high resistivity, optically induced modulation of absorption 4−76287
- n-GaAs:Cr, optical absorpt. meas., extrinsic transitions localised levels investig. 4−64413
- GaAs:Ni, meas. of acceptor level ionisation energy 4−49408
- GaN, epitaxial, built-in strain effect on luminescence and absorption spectra 4−82740
- GaN, grown by vapour phase epitaxy, i.r. absorption 4−53425
- Ga_2O, Ga_4O_2, $GaIn_{4-x}O_2$, form., matrix isolated, i.r. spectra, force consts., struct. determ. 4−52157
- β- Ga_2O_3 vapour grown platelike crystals, absorption and reflection spectra 4−82719
- GaP, conduction band X_3 effective mass and spontaneous emission time of X_1 and X_2 conduction band transitions 4−60739
- GaP, ion-implanted, disorder obs. 4−61307
- GaP, N conc. determ. method 4−61313
- GaP crystals, luminesc. quality, optical techniques for characterisation, review 4−73194
- GaP:Cr, excited levels of G centre in reson. with cond. band, optical absorpt. and photocond. obs. 4−48932
- GaS_xSe_{1-x} solid solutions, exciton spectra 4−76273
- GaSe, hyperbolic exciton absorpt. spectra 4−76274
- GaSe, optical absorpt. edge press. depend. 4−45321
- GaSe(Te), layered crystals, optical properties in fundamental absorption band interior 4−76280
- $GdTiNbO_6$, 30-1500 cm^{-1}, interpretation *(Russian)* 4−79737
- Ge, absorption and optimum doping level for i.r. optics 4−46712
- Ge, cryst., electron-hole drops, optical props., absolute concs. determ. 4−76251
- Ge, exciton condensate density, absorpt. edge obs. 4−72734
- Ge, sub mm absorption and refraction, 293K, 12-50 cm^{-1} 4−73108
- Ge, valence band transitions, theory of optical absorpt. at low temp. 4−49365
- Ge film, heteroepitaxial, absorption edges broadening, amorphous and crystalline structures *(Russian)* 4−76337
- Ge:Sb, absorption edge in direct transition region 4−73145
- Ge-nitride, oxide and oxynitride, film, prepared by ion implantation 4−76396

light absorption continued
GeSe, cryst. and amorphous, far i.r. absorp., h.f. and l.f. dielec. consts. detn. 4–45289
Ge_xSe_{1-x}, glass, comp. and local struct. depend. 4–45304
GeTe, amorphous, energy band tailing, localisation of states 4–76269
H II regions, i.r. excess and dust grain absorption of trapped Lyman α photons 4–54567
H_2, oscillator strength, Lyman and Werner bands 4–43832
H_2, oscillator strength, Lyman, Werner, B′-X and D-X bands 4–43833
H_2 adsorption on Pt/Al_2O_3 catalyst, isotherm determ. by i.r., heat of adsorpt. calc. 4–44767
HCl-DCl, mixed crysts., lattice dynamics, absorpt. spectra estimate using negative eigenvalue theorem 4–75601
$HGeCl_3$, gas phase i.r. spectra meas., force consts. determ. *(German)* 4–72201
HNO, isolation in Ar and N_2 matrices, i.r. spectrum, band assignment 4–52142
HNO_3 vapour in atmosphere, 1700-2636Å 4–54188
$H^{30}SiF_3$, gas phase i.r. spectra, force field calc. *(German)* 4–72202
He II, plasma line broadening, relaxation theory 4–44171
He-Ne laser stabilised by saturated absorption in I_2 4–65907
He-Ne laser stabilised by saturated absorption in $^{127}I_2$, reproducibility 4–65909
HfP_2O_7, self-activated luminescence efficiency and emission energies, obs. 4–57638
$(HgI_2)_x(HgBr)_{1-x}$, temp. and comp. depends. 4–52868
$HoTiNbO_6$, 30-1500 cm^{-1}, interpretation *(Russian)* 4–79737
I_2-X mixtures, $X=O_2$, N_2 or aliphatic hydrocarbons, vapour phase contact charge-transfer spectra of u.v. region 4–43828
$^{127}I_2$ h.f.s. of R(127) line by laser saturated absorption 4–66427
$In_xGa_{1-x}As$ epitaxial film, optical absorpt. coeff. as function of x and Zn acceptors 4–45316
In_2O, In_4O, InOGa, form., matrix isolated, i.r. spectra, force consts., struct. determ. 4–52157
InP, bound exciton line origin determ. 4–44878
InP, oscillatory magnetoabsorption spectrum 4–73134
n-InSb, drag of cond. electrons by photons due to direct transitions between spin branches 4–57506
iNSb, free carrier absorption, two-phonon process contrib. 4–45302
InSb, mag. resolved fine struct. at E_1 edge 4–79748
InSb, multiphonon absorption, far i.r. obs. using Fourier transform spectrometer 4–53445
n-InSb, two-photon absorpt. and recomb. processes 4–82452
InSe, i.r. absorption cross section of nonequilib. carriers meas. at 300K 4–67593
K atom, trapped in Ar matrix 4–76285
K:Xe(Kr), optical absorption threshold meas. 4–45336
K_2AgI_3, absorpt. and luminesc. excitation spectra obs. 4–67651
$KAl(SO_4)_2.12H_2O:Cr$, electric field induced optical activity and circular dichroism 4–82687
KBr, γ-irradiated, correlated changes with flow stress 4–45340
KBr, spectral emittance meas., 3-15 μm 4–57556
KBr, Stark effect of the U-centre ultraviolet absorption 4–64409
$KBr:SCN^-$, i.r. absorpt. spectra, vibr. freqs., anharmonic and force consts. *(Russian)* 4–53485
$KBr:Tl^+$, A-band absorpt. spectra 4–53474
$KCL:Nd^{3+}$, absorption and fluorescence emission spectra 4–61193
KCl, 10.6 μm, temp. depend., absorbing pair dissoc. 4–67560
KCl, as laser window material, mol. ion impurities 4–65464
KCl, colouration obs. 4–69804
KCl, effect of multiphonon processes on i.r. absorpt. 4–53449
KCl, formation of impurity complexes associated with appearance of U-band 4–72725
KCl, i.r. absorpt. of H^-H^-, D^-D^-, H^-D^- coupled local mode oscills. 4–45338
KCl, KI, i.r. vibr. absorption by mol. centres 4–79771
KCl, optical extinction bands of K colloids, size distribution, Mie theory calc. 4–82718
KCl, polarised absorption of F_2-centre triplet state 4–69992
KCl, quantum yield for F-centre photoionization, room temp. 4–67619
KCl, Tl^{2+}, In^{2+}, Ga^{2+} centres, migration with charge transfer *(Russian)* 4–82286
KCl:Ag, colloidal particle size distrib. determ. 4–63834
$KCl:OH^-(OD^-)$ obs. of F-like paramag. and paraelec. defect, $H_2O^-(D_2O^-)$ 4–48943
KCl:Pb, spectral emittance meas., 3-15 μm 4–57556
$KH_2PO_4:CrO_4{}^{2-}$, electronic spectra obs. 4–70331
KI:Ag, absorpt. and luminesc. excitation spectra obs. 4–67651
KI:Ag, fine structure in absorption spectrum obs. 4–79770
$KI:Cl^-$, far i.r. spectrum, pair mode 4–61163
$KI:Na^+$, $Cl^-(Br^-)$, far i.r. spectra, localised pair modes investig. 4–70333
KI:Tl, kinetics of self-trapped holes, time resolved emission and absorpt. meas. 4–45356
KI:Tl, X-irradiated, investigation of 4.66 eV absorpt. band *(Russian)* 4–53479
$KMgF_3:Mn^{2+}$, exchange coupled Mn^{2+} pairs, phosphorescence excitation spectrum 4–73172
$KMnF_3$, two photon absorption by Mn^{2+}, cross section meas. *(Russian)* 4–67614
$KNbO_3$, orthorhombic phase characterisation 4–70248
$(KSO_3)_2NOH$, cryst., X-irrad., radical form, e.s.r., absorpt. spectra determ., struct, investig. 4–70203
$KTaO_3$ i.r. absorpt. spectra of powder samples 4–49352
$KZnF_3:Mn^{2+}$, exchange coupled Mn^{2+} pairs, phosphorescence excitation spectrum 4–73172
$K[PtCl_3(NH_3)].H_2O$, electronic absorpt. spectra *(French)* 4–53468
$K_2[ReCl_6]$ single crysts., low temp. absorpt. spectra, 14000-5000 Å 4–53421
La, film, energy depend. *(French)* 4–49502
Li, optical conductivity calcs. window for plasmon-induced absorpt. 4–73128
Li:Xe(Kr), optical absorption threshold meas. 4–45336
LiF, Li ion displacement by low energy electrons, absorpt. in I band 4–56777
LiF:Mg, i.r. and visible, complex capture centre *(Russian)* 4–73206

light absorption continued
^7LiD, absorpt. spectrum meas., vibr. levels investig., dissoc. energies determ. 4–60107
$LuPO_4:Ce^{3+}$, electronic and vibronic spectra 4–45352
$MgF_2:Fe^{2+}$, near i.r. absorption spectra, multiphonon sideband anal. 4–49407
MgO, double-hole V^0 centre absorpt. band obs. 4–45185
MgO, elec. field induced dichroism of V^--centre 4–73102
MgO, gaseous, absorpt., emission spectra, energy levels, bond dissoc. energy investig. 4–74977
MgO, one electron interpretation, molecular cluster and energy band representation 4–44847
$MgO:Fe^{2+}$, far i.r., first excited spin-orbit level nondegeneracy 4–57583
MgO/NO, i.r. investig. 4–67105
Mn, 0.8-4eV, comparison with nondirect transitions calc. 4–53464
Mn halides, u.v. spectra, transition assignment 4–49372
$Mn_3Al_xR_{2-x}Ge_3O_{12}$, (R=Cr or Fe), i.r. spectra 4–49366
$Mn(CO)_5X$, X=Cl, Br, I, MCD and absorpt. spectra 4–52128
MnF_2, u.v. absorption and refl. spectra 4–76281
$Mn_3G_xFe_{2-x}Ge_3O_{12}$, i.r. spectra 4–49366
$Mn_3Ga_xR_{2-x}Ge_3O_{12}$, (R=Al,Cr,or Fe), i.r. spectra 4–49366
Mo, rel. to refl. and dielec. function, 0.1-35 eV 4–79747
$MoO_3:V_2O_5$, e.s.r., i.r., X-ray diffr. investigs. rel. to composition, paramag. centre determ. 4–76146
N_2 adsorbed on SiO_2-supported Pt, i.r. absorpt. spectral investig. 4–80211
NH_3, liq., pulse radiolysis, transient u.v. absorpt. spectrum determ., solvated electron investig. 4–70609
NH_3, spectral absorpt. coeffs. around 40 μm 4–63429
NH_3 resonant absorber, coherent reshaping of N_2O laser pulses 4–74078
NH_4Br, i.r. absorpt. bands, temp. depend., one, two-phonon vibr. 4–49351
$NH_4Cl:Fe^{3+}$, electronic absorpt. spectra of ion 4–64404
$NH_4Cl:Tl$, absorpt., excitation and fluoresc. spectra 4–73178
NO, two-photon excitation of rot. levels of $A^2\Sigma^+$ state investig. 4–69481
NO $\delta(0,0)$ band, f-value by line absorption method 4–48000
NO_2 emission from chemical factory, remote meas., differential absorption technique 4–65284
Na, film, abnormal optical absorption bands, struct. depend. *(French)* 4–61259
Na, vapour, two photon absorpt., Paschen-Back effect 4–74848
Na:Xe(Kr), optical absorption threshold meas. 4–45336
Na-NH_3, Na-NH_3-NaI solutions, optical absorpt. spectra investig., rel. to solvated electrons 4–45939
NaCl, cryst., colour centres, conversion, annealing *(Russian)* 4–75523
NaCl, effect of multiphonon processes on i.r. absorpt. 4–53449
NaCl, γ-irradiated, kinetics and mechanisms of room temp. F-light bleaching 4–53475
NaCl crystals with colloid centres, optical activity and magneto-optical props., absorpt. obs. 4–67623
NaCl:NaOH, hardening and near u.v. absorption, flow stress from deformation meas. 4–79047
$NaCl:Nd^{3+}$, absorption and fluorescence emission spectra 4–61193
NaCl-type crystals, i.r., dependence on two phonon processes, quasiselection rule 4–49360
$NaClO_3$, i.r. absorpt. bands, temp. depend., one, two-phonon vibr. 4–49351
NaF, additive and electrolytic colouring, absorp. bands obs. 4–56737
NaF, i.r. absorption, spectrum decomposition into N-phonon spectra series 4–53441
$NaHF_2$, i.r. absorpt. bands, temp. depend., one, two-phonon vibr. 4–49351
NaI:Tl, kinetics of self trapped holes, time resolved emission and absorpt. meas. 4–45356
$NaNO_2:Tl^+$ crystal, spin-orbit interaction enhancement by heavy cation influence 4–73147
$Na_2O-B_2O_3$ glass, electron irrad. dose depend., colour centres 4–70330
$Na_2O-NaBr(Cl)-B_2O_3:Ni^{2+}$ glasses, Ni(II) optical absorpt. meas., ligand field theory 4–70327
$Na_2O-TiO_2-SiO_2$ glasses, i.r. absorpt. spectra rel. to composition 4–61137
Ni halides, u.v. spectra, transition assignment 4–49372
Ni-Cr alloys, 1.2-17 μm region characts. *(Russian)* 4–79739
$NiC_4O_4.2H_2O$, structure, X-ray and i.r. spectral study, mag. susceptibility 4–75491
α-$NiSO_4.6H_2O$, unpolarized spectrum, optical activity 4–53438
α-$NiSeO_4.6H_2O$, unpolarized spectrum, optical activity 4–53438
O_2, solid, pair approximation, transition theory 4–57560
$P_2O_5-Al_2O_3-MeO:MnO$, (Me=Be, Mg, Ca, Sr, Ba), glass, absorpt. spectra and e.s.r., depend. on Mn conc. 4–70326
$PbBr_2$, photodecomp. mechanism, 270-360 nm *(Russian)* 4–73137
$PbMg_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, temp. depend. of absorption coeff. 4–64394
PbN_6, film, pure and doped, effect of photodecomposition on near i.r. and u.v. spectra 4–76333
PbN_6, film, pure and doped, effect of photodecomposition on far i.r. spectra 4–79819
$PbO-GeO_2$ glassy system, i.r. and intrinisc absorpt., comp. depend. 4–44479
$PbO-In_2O_3-GeO_2$ system, physical properties 4–61156
Pb_3O_4, electronic transitions, structural breakdown effect *(Russian)* 4–79772
$(PbO)_5.(GeO_2)_3$, grown from melt, temp. depend. 4–82829
$Pb_{1-x}Sn_xSe$, far i.r. cyclotron absorpt. 4–75882
$Pb_{1-x}Sn_xTe$, far i.r. cyclotron absorpt. 4–75882
$PbZn_{1/3}Nb_{2/3}O_3$, ferroelectric with diffuse phase transition, temp. depend. of absorption coeff. 4–64394
Pr, film, energy depend. *(French)* 4–49502
Pr^{3+}, in aprotic solvents, fluoresc. and absorpt. spectra 4–53491
Pt cathode surfaces, optical absorption phenomena 4–61623
Pt compounds, L_3-absorpt. spectra, chem. shifts investig., MO approach 4–73126
Rb:Xe(Kr), optical absorption threshold meas. 4–45336
RbCl, Stark effect of the U-centre ultraviolet absorption 4–64409

- **light absorption** continued
  - RbCl:Sr, X-rayed sample, comparison with pure RbCl crystals 4−45335
  - RbI_3, cryst., vibr. spectra, I_3^- ion config. investig. 4−73116
  - $RbMnF_3$, Jahn-Teller effect in Mn^{2+} triply degenerate states 4−69987
  - SF_6, nutation effect *(Russian)* 4−69091
  - SO_2, $^3B_1$-$^1A_1$ transition, absorpt., emission spectra, Franck-Condon treatment, transition moments 4−52153
  - SO_4^{2-}, in textile plant sewage, laser pollution detector 4−62341
  - SbSI film, direct allowed transitions and band gaps, optical absorpt. meas. 4−76338
  - $SbS_xSe_{1-x}I$, ferroelectric semiconductor, optical and dielectric props. 4−67563
  - Se, amorphous film, polaron conduction, optical absorption 4−49097
  - Se, far i.r. spectra, power coeff. 4−53408
  - Se, liquid, photocond. and absorpt. 4−75920
  - SeO_2, rotational analysis and Franck-Condon calculations 4−66424
  - Si, 80 keV ion irrad., defect distrib., i.r. absorpt. obs. 4−57719
  - Si, amorphous, prep. conditions effect on props. 4−79888
  - Si, amorphous film, deposition conditions effect on props. 4−76407
  - Si, calc. of opt. absorpt. between surface states 4−57571
  - Si, exciton spectra, high intensity excitation 4−75829
  - Si, i.r. absorpt. obs. of 50 MeV electron irrad. damage *(Russian)* 4−82198
  - n-Si accumulation layers, energy levels and optical absorpt. at low temps. 4−82362
  - Si:Be, H, i.r. absorp., Be-H complexes obs. 4−49400
  - $Si:O_2$, second phase state of SiO_2 dispersed particles, elec. and optical meas. 4−73144
  - Si:Pd, heat-treated, acceptor levels, carrier density versus i.r. absorpt. meas. 4−75857
  - Si-As-Te, glasses, i.r. spectra, struct. anal. 4−79722
  - Si-Ge, i.r. spectrum, neutron and proton induced defects 4−61194
  - n-α-SiC, 6H, polytype, fundamental absorpt. edge, influence of impurities 4−61196
  - SiC film, produced by $^{12}C^+$ ion implantation of Si, i.r. and visible 4−45473
  - SiH_4, i.r. spectra, ground-state rot. consts. evaluated 4−63434
  - SiO_2-B_2O_3 glass, water adsorpt., i.r. absorpt. obs. 4−56967
  - $SrF_2:CeO_2$, radiation coloured, thermodiscoloration 4−73143
  - $SrTiO_3$, i.r. absorpt. spectra of powder samples 4−49352
  - $SrTiO_3$ single crystals, trapping levels, cond. and absorpt. meas. 4−79353
  - sulforhodamine B, electronic absorpt. and emission spectra, effect of dimer form. 4−70345
  - Ta, rel. to refl. and dielec. function, 0.1-35 eV 4−79747
  - $TaS_{1.6}Se_{0.4}$, intercalated layer compound, optical absorption and resistivity obs. 4−61178
  - $TaS_{1.6}Se_{0.4}$ (aniline)$_{3/4}$, intercalated layer compound, optical absorption and resistivity obs. 4−61178
  - $TaS_{1.6}Se_{0.4}$ (pyridine)$_{1/2}$, intercalated layer compound, optical absorption and resistivity obs. 4−61178
  - $TbTiNbO_6$, 30-1500 cm^{-1}, interpretation *(Russian)* 4−79737
  - TlCl, thin layers, exciton band, absorpt. obs. 340 to 390 nm 4−67679
  - Tl_2O-B_2O_3:CO(II), glass, coordination depend., ligand field 4−64396
  - UCl_4, absorpt. spectra assignment, struct. parameters 4−76262
  - UO_2, 13000-17000 cm^{-1}, Zeeman effect 4−45319
  - UO_2^{2+} ion, aq., photolytic form., excited state i.r. absorpt., lifetime, alcohol quenching 4−50190
  - V, 0.8-4eV, comparison with nondirect transitions calc. 4−53464
  - V, rel. to refl. and dielec. function, 0.1-35 eV 4−79747
  - V_2O_5-KPO_3 glass, evidence of hopping cond. among localized states 4−70021
  - $YAlO_3$, monocrystals, colour centre spectra when activated with transition metal ions 4−45339
  - $YAlO_3:Cr^{3+}$, absorpt. and fluoresc. spectra, 77-300K 4−53495
  - $Y_3Ga_5O_{12}:Bi^{3+}(Fe^{3+})$, absorption spectra up to 40000 cm^{-1} 4−45343
  - YIG, obs. in single crystals, bulk and films 4−49037
  - YIG:Pb^{2+},Si^{4+}, film, elec. and optical props, liq. phase epitaxy 4−79420
  - $YPO_4:Ce^{3+}$, electronic and vibronic spectra 4−45352
  - YbS(Se,Te), 0.4-1.1 μ, pressure effect, band gap change 4−61182
  - YbTe, thin film, low temp. meas. of optical absorpt. and diamagnetism 4−53551
  - Zn complex, binucl., of zinc chloride with zinc salicyal-n-toluidinate, spectral-luminescent props. *(Russian)* 4−53528
  - ZnO-$B_2O_3:Mn^{2+}$, devitrification process anal. 4−60417
  - ZnS, cubic, Cu^{2+} centre i.r. absorpt. and emission meas., Zeeman effect 4−67621
  - ZnS:Cr, trap for He-Ne laser emission *(French)* 4−46696
  - ZnS:Cu^{2+}, Jahn-Teller effect in $^2T_2$ state, near i.r. absorpt. and emission spectra 4−57584
  - ZnS-Se:Mn, investigation of Mn ion using luminescence, optical absorpt. and e.s.r. spectra 4−45360
  - ZnSe:Be, i.r. lattice absorpt. spectra, localised mode sidebands 4−49403
  - $ZnSe_xTe_{1-x}$, spectral emittance meas., 3-15 μm 4−57556
  - $ZnSiP_2$, vapour grown platelet, photoeffects 4−57133
  - $ZnSnSb_2$, spectral distrib., 300 and 77K 4−53460
  - ZrS_3 and $ZrSe_3$, X-ray photoelectron spectra, electronic structure 4−67700
  - $ZrSiO_4:U^{5+}$, zircon, polarised absorpt. spectra meas., 350 to 2500 nm. 4−53477
- **light amplifiers** *see image intensifiers*
- **light attentuation** *see light absorption*
- **light coherence**
  - *see also laser beams; lasers*
  - apertures, phase annular and annulus, resolution depend. on partial light coherence 4−47324
  - atmospheric modulation transfer function, 10.6 and 0.63 μm meas. 4−76679
  - change of coherence, general definition *(German)* 4−51518
  - complex degree of coherence, effect of phase term in Fraunhofer diffraction patterns 4−62795
- **light coherence** continued
  - defocused slit aperture, transfer function, longitudinal vibration 4−51516
  - dye lasers, effect of triplet state losses 4−74501
  - Fourier imaging, periodic object, spatial coherence effect 4−77628
  - Fresnel diffraction patterns, slit aperture, effect of temporal coherence 4−47296
  - image formation, partially coherent diffuse object 4−77627
  - injection laser, temporal coherence meas. by single pulse holography 4−80930
  - interaction of coherent e.m. wave in medium with relativistic electrons 4−69027
  - interference, multiple slit, with partially coherent light, general formula 4−43246
  - laser Doppler velocimeter, coherent detection 4−68858
  - laser photography, speckle reduction by coherence reduction 4−77113
  - microscopic partially coherent system, influence of condenser transmission characteristics 4−80902
  - mixture pulses of coherent and incoherent light, derivation 4−65884
  - multiple-beam interference, partially coherent light, interference pattern intensity distribution meas. 4−81278
  - optical equivalence theorem, for e.m. fields 4−43274
  - optical fibre, effect on mode pattern interference 4−59353
  - optical field mean intensities, estimation from photocount correlations using coherence functions 4−77630
  - optical processing spatial filters 4−71505
  - processing systems, constant background component reduction method of holograms 4−42815
  - pulse propagation through resonant atomic medium, inverse problem 4−47329
  - quantum and classical optical fields, Glauber coherence conditions, theory 4−55455
  - random media, depolarisation effects, perturbation theory 4−69015
  - random medium, Fourier optics, ambiguity function 4−74468
  - random medium, photon statistics, damped solns. 4−47306
  - random phase light, conversion to phase coherence by parametric amplification 4−62803
  - resolution of partially coherent objects, speckle interferometry appl., atm. turbulence effects 4−43254
  - review of optical coherence theory 4−69028
  - rhodamine 6G pulse dye laser, first-order coherence 4−59411
  - ruled halftone screens, light intensity distrib. with partially coherent illumination 4−59344
  - slit defocused aperture, partially coherent diffr. with image motion and transverse vibr. 4−59351
  - speckle effects in coherent optical fields, light scatt. at ground glass surface *(German)* 4−43243
  - speckle in coherent light, first-order probability density functions, finite aperture meas. 4−65886
  - speckle intensity, contrast var., partial coherence 4−77629
  - speckle intensity, space and wavelength dependence 4−71491
  - temporal, effects on first order statistics of speckle 4−81279
  - turbulent atmosphere, laser beam mutual coherence function 4−64901
  - turbulent medium, strong optical amplitude fluctuations, physical model 4−43251
  - two-level atom, Dicke state, coherent spontaneous and stimulated emission 4−59374
  - two-point Rayleigh resolution by annular aperture in partially coherent light 4−51541
  - ultrashort pulses, break-up in a medium with resonant 2-photon absorption 4−47373
  - Zernike phase gratings, defocused diffraction images of partially coherent phase objects 4−47319
  - He-Ne laser, natural spatial coherence governed by spontaneous emission *(Russian)* 4−71568
- **light communication** *see optical communication*
- **light cones**
  - *see also current algebra*
  - Adler sum rule evaluation in φ^3 approx. nonuniformity in deep-inelastic region 4−59524
  - algebra for currents transforming as (8,8), (1,8) and (8,1) of $SU(3)''\otimes SU(3)'$, form factor calcs. 4−66057
  - algebra in various quark models, application to interactions 4−62908
  - anomalous dimensions, measurement of high energies 4−47432
  - Bjorken limit, definitions, relation to singularity struct. of causal distribs. 4−81372
  - Bjorken scaling, modification of light-cone expansion to give consistent current algebra sum rules 4−47467
  - causality and metrical properties of matter in two-metric field theory of gravity 4−43165
  - causality and relativistic dynamics, time development of closed systems 4−43152
  - chiral symmetry theories, physical consequences 4−47459
  - current-current commutators, pion electroproduction test 4−77836
  - current-hadron scattering and scaling in a dual relativistic quark model 4−69170
  - deep inelastic phenomena explanation, failure in semi inclusive reactions 4−77785
  - dual vertex, connection between photon constituent and Neumann function forms 4−71707
  - electroproduction, deep inelastic, on polarised protons, sum rule derivation from quark light-cone algebra 4−59569
  - ep scatt. resonance levels and noncausal effect 4−77833
  - geometrical, stability in axiomatic approach to quantum gravity 4−68940
  - Haag-Ruelle-Hepp scattering formalism for essentially local non-localizable fields 4−65957
  - Kerr congruence, from light cone of complex Minkowski space, relativistic ang. momentum theory 4−47176
  - mass shift for hadron due to weak interactions, light-cone algebra framework 4−55588
  - meson-nucleon total cross sections, high energy behaviour based on light-cone algebra, scaling 4−63052
  - neutral current, deep inelastic contribution to effective coupling constants 4−55590
  - nonlocalizable fields, causality breaking 4−59478
  - photon deep inelastic structure functions, e^+e^- expts., parton model and light-cone algebra 4−59571

light cones continued
physical state projection operator construction in dual models 4−77867
quark materialisation anal. 4−81422
quasicanonical quantum field theory, Bjorken scaling and invariance under R-transformations 4−47434
scaling of nucleon e.m. structure functions, test of theory, review of data 4−77813
scattering, deep inelastic, light cone approch to strange structure functions 4−47523
sum rules for lepton-nucleon interactions, invalidity 4−47524
weak neutral current structure anal. 4−71649
$ep \rightarrow e\mu^+\mu^- + X$, calc. in light-cone limit 4−59562
N e.m. form factor, behaviour in neighbourhood of light cone 4−74600
pp inclusive reactions, anal. of massive muon pair prod. 4−74712

light diffraction
see also holography
acoustic waves, vector wave eqn. 4−43242
in anisotropic media, non-conducting, generalized theory 4−62805
anisotropic media, u.s. and hypersound effects 4−55445
annular aperture, aberration free, total illumination of diffr. pattern rings 4−47291
aperture, Fraunhofer pattern, Fourier transform calc. 4−71494
apodization with over-all transmittance, diffr. patterns with same Rayleigh resolution limit 4−77612
apodized apertures, diffr. eqn. soln. 4−62796
aspherical surface, null Ronchi test 4−71184
Bragg diffraction by standing sound wave 4−77615
Bragg nonsinusoidal reflection grating, diffraction efficiency 4−43240
coherent beam focal plane, e.m. field 4−47272
d.c. arc, free burning, temp. meas. by diffraction interference methods *(German)* 4−80906
defocused slit aperture, transfer function, longitudinal vibration 4−51516
dielectric medium, light diffr. by two orthogonal sound waves, theory 4−59349
Dow latex 642-6, particle diameter determ. methods 4−64654
dye laser, efficient, diffraction limited, ruby laser pumped 4−51589
ferroelectric, on ultrasound, photoelasticity meas. 4−61132
fibre diameter measurement by laser diffr. method 4−80100
Fourier optics, ambiguity function 4−74468
Fraunhofer diffraction pattern, effect of phase term in complex degree of coherence 4−62795
Fraunhofer diffraction with triangular aperture, student experiment 4−62379
Fresnel diffraction of gratings, near field props. 4−62802
Fresnel diffraction patterns, slit aperture, effect of temporal coherence 4−47296
Fresnel zone plate imaging, quantum noise 4−51008
garnet film, transparent, domain wall reson., optical diffr. obs. 4−64250
gratings of strips of alternating colour rel. to solar phenomena 4−54392
hologram, digital and optical image reconstruction from suboptical diffr. patterns 4−43264
holographic sinusoidal grating, diffraction anomalies, theory 4−43271
holography with evanescent waves, diffr. efficiency theory for s-polarised light 4−81287
image analysis, high-speed, optical power spectrum meas. 4−55451
image formation of coherently illuminated objects using spatial freq. amplitude filters 4−65880
images of truncated periodic objects using optical transfer function 4−65881
interferometer, long path length, phase and amplitude changes 4−71207
laser beam propag. in lower atm., weak scintillations, aperture averaging effects 4−43255
lens, radial parabolic temp. distrib. effect, image degradation 4−47323
lens diffraction pattern diffusion rel. to atmospheric refractive index structure constants determination *(Russian)* 4−54332
liquid, acoustically induced birefringent 4−73100
liquid crystal, cholesteric, theory of optical props. 4−56614
lunar occultation light curves rel. to random limb irregularities 4−54430
Marechal intensity criteria for Gaussian beams, scalar diffr. theory 4−77626
MBBA, nematic, transient laser phenomena in a.c. electric fields 4−63752
Moire patterns, obs. of focusing errors in collimating lens or mirror 4−59345
monochromators and polychromators, spread function calc. allowing for aperture stop diffraction 4−58781
open double-mirror resonators, diffr. losses calc. 4−71561
optic fibre, light diffr. on entrance face plane investig. 4−71496
phase determination, uniqueness and ambiguity *(German)* 4−47297
phase-profile realisation, quantification of phase information *(French)* 4−51088
photographs, laser, illustrating diffraction for students, how to make 4−54812
polymethine dye solutions, investigation of light beam interactions *(Russian)* 4−43313
quantum fluctuations in photon flux in vacuum, patterns from aperture 4−51543
quartz, light diffracted by acoustic surface waves, incidence angle and polarization depend. 4−61131
quartz/LiNbO$_3$, surface acoustic waves, optical detection 4−73918
rare earth garnet, film, Fraunhoffer diffraction by cylindrical mag. domain arrays 4−45144
rectangular aperture, diffr. obliquely incident wave beam 4−81283
ruled halftone screens, light intensity distrib. with partially coherent illumination 4−59344
scintillation saturation by strong turbulence, variance and covariance 4−43253
semiconductor, by acoustic wave, surface e.m. wave excitation 4−79387

light diffraction continued
slit defocused aperture, partially coherent diffr. with image motion and transverse vibr. 4−59351
sound waves, relativistic Doppler freq. shift 4−65871
speckle interferometry, object deformation determ. 4−51060
structural changes, contraction of cross-striated muscle fibre 4−83277
student experiment employing laser and liquid-filled tank 4−54803
sunburst aperture for diffraction suppression, Fourier transform solns. 4−77613
by surface acoustic waves, angular and freq. depend. 4−47299
system elements alignment, use of laser beam diffr. 4−58782
turbulent air, irradiance fluctuations, diffr. cutoff 4−46028
turbulent medium, strong optical amplitude fluctuations, physical model 4−43251
two-layer particles, energy distrib. when exposed to parallel light beam *(Russian)* 4−43258
two-point resolution with partially coherent light 4−80866
by ultrasound structure in liquid, description of apparatus 4−62804
wedge-mirror system, perfectly conducting, polarized wave *(French)* 4−62801
Zernike phase gratings, defocused diffraction images of partially coherent phase objects 4−47319
zone plate, ultrashort light pulse focusing *(Russian)* 4−65873
zone plate interferometer 4−51058
zone plates, composed, effect of errors *(German)* 4−80868
zone plates for X-rays and far u.v., phase reversal, performance 4−42791
p-azoxyanisole, liq. cryst., domain struct. investigation by light diffraction 4−78920
CdS, piezoelectric semiconductor, by electron wave accompanying acoustic wave *(Russian)* 4−67553
CdS phonon maser, polarisation effects 4−65889
CdS phonon maser with off-axis cavity struct., light diffraction 4−65890
CdSe, obs. of laser induced phase grating by free carrier generation 4−53547
LiNbO$_3$, laser scattering induced holograms, diffraction cones 4−68700
LiNbO$_3$, light diffracted by acoustic surface waves, incidence angle and polarization depend. 4−61131
LiNbO$_3$, Schaeffer-Bergmann diffraction patterns due to u.s. waves 4−57498
LiNbO$_3$, visualization of inverse phase velocity surfaces for bulk and surface u.s. waves, light diff. exam. 4−44746
LiNbO$_3$:Fe three-dimensional read-write phase holograms, diffraction efficiency 4−46692
NaCl, NaClO$_3$, by standing u.s. waves 4−53390
Ta$_2$O$_5$/quartz, surface acoustic waves, optical detection 4−73918
YIG, by laminar domains, magnetisation switching 4−79549

light diffusion
see also light scattering; reflectivity
displacement detection, speckeled image with auxiliary diffuser 4−80833
image optical processing by random diffuser 4−51537

light dispersion *see optical dispersion*

light emitting devices
see also light emitting diodes; light sources; luminescent devices
ZnS electroluminescent film sources, ageing mechanism and lifetime improvement *(Russian)* 4−79822

light emitting diodes
see also semiconductor lasers
blue, potential materials for, SiC and ZnS 4−49466
for display and optical communications, review 4−43329
electroluminescent, radiation in red range *(Czech)* 4−64438
electroluminescent materials and displays, progress review 4−70368
heavily doped semiconductor, low temp. luminesc. characts. 4−82752
i.r. up-conversion by rare-earth-doped vitro-ceramic materials 4−57612
optical pumping of Nd:YAG laser via solid cylindrical reflector 4−59424
photon extraction, random particle flux, random path model 4−62744
plasmascope applic., matrix of Langmuir probes connected to diodes 4−44395
pulsed laser holography, l.c.d. device for fault finding 4−58835
radiant flux and brightness meas. instrument calibration *(Czech)* 4−51026
solid-state devices, conference Munich, Germany (1973) 4−43328
vision experiment light sources 4−81065
Al$_x$Ga$_{1-x}$As heterojunction, operating life, rel. to lasing props. 4−73191
p-Al$_x$Ga$_{1-x}$As:Ge-n-Al$_y$Ga$_{1-y}$As:Te, electrolum. kinetics 4−76319
Al$_x$Ga$_{1-x}$As:Si, emission spectra in transition range between direct and indirect bandstruct. 4−67662
Al$_x$Ga$_{1-x}$As-Al$_y$Ga$_{1-y}$As, p-n heterojunction, on GaAs substrate, $(y>x)$, electrolum. characts. 4−49468
AlN, electroluminescence, technology and applications *(Czech)* 4−64439
CdS-CuGaS$_2$ heterostructure, prep. and props., green light emission 4−45452
CdSnP$_2$/InP heterojunctions, LPE growth from Sn soln. and props. 4−61304
GaAs:Si, fusion-epitaxial layer production *(German)* 4−49629
GaAs-AlAs heterojunction-based l.e.d.s 4−82753
GaAs$_{0.62}$P$_{0.38}$:Zn, ion implantation technique 4−49577
GaAs$_{1-x}$P$_x$ red emitting diode, uniaxial stress effects 4−53535
GaAs$_{1-x}$P$_x$:N, quasidirect recomb. and l.e.d. performance, cryst. comp. effects 4−70365
Ga$_{0.5}$In$_{0.5}$P, electrolum. 1.70 to 1.90 eV 4−76320
GaN, band struct., props., appl. as electroluminesc. diode 4−75783
GaN, electroluminescence, technology and applications *(Czech)* 4−64439
GaN:Mg point contact diodes, violet electrolum. 4−76316
GaN:Zn-In, metal-insulator-n-type diode, electrolum. model 4−70367
GaP, effect of dislocations during vapour phase epitaxy 4−57710
GaP, electrolum. spectra, 77-293K *(Russian)* 4−53537

light emitting diodes continued
  GaP, fabrication by heteroepitaxy on spinel substrate, props. 4−49624
  GaP, green emitting diodes, electrolum. decay time, quantum efficiency 4−64441
  GaP, green-emitting p-n junction lamps, nonradiative recomb. centres 4−64132
  GaP, laser machined monolithic electroluminescent display 4−43354
  GaP, thermally stimulated current meas., trap levels 4−49060
  GaP crystal growing, high pressure 4−57689
  GaP crystals, luminesc. quality, optical techniques for characterisation, review 4−73194
  GaP high-brightness yellow and green LED display prod. by vapour phase epitaxy 4−49630
  GaP:N, hydrostatic press. effect on photocond. and electroluminesc. 4−45365
  p-GaP:Zn,O, dope-dependent luminescence efficiency degradation, obs. 4−49465
  GaP:Zn,O(Te) p-n junctions, Zn and Te dopant parameters from C-T meas. 4−60850
  In-GaAs:Cr-In, recom., radiation, high-freq. instability in strong elec. fields *(Russian)* 4−73198
  InP-$CdSnP_2$ heterodiode, prep. by liquid phase epitaxy from Sn-soln. 4−57708
  ZnO, m.i.s., u.v. electrolum. obs., 100 and 300K 4−76317
  ZnSe:P, ion-implanted, p-n junction, injection electroluminescence 4−61231
  ZnTe-CdS heterojunction, emission mechanism, expt. 4−61232

light filters *see optical filters*

light guides *see optical instruments; optical waveguides*

light intensifiers *see image intensifiers*

light interference
  see also light interferometers; light interferometry
  3-dimensional object measuring using interference bands from two light sources *(Russian)* 4−54947
  birefringence in crysts. meas. using polarised beam interference in transparent region 4−74037
  coating thickness meas. with double-beam interference microscope, error sources and magnitudes 4−54822
  coatings, dielectric, interference, for 98% transmittance at specified wavelength 4−46632
  compensator, for reflection-type shadow and interference systems 4−46634
  computer deciphering of interference pictures *(Russian)* 4−58827
  dielectric interface, wave front distortion 4−71493
  diffuser in two parallel planes, relation between produced light intensities *(French)* 4−65872
  dispersing medium, diffusional stresses and optical development *(Russian)* 4−77620
  extraction of difference between two images *(French)* 4−80910
  Fresnel zone plates with various central phases, focusing behaviour 4−59352
  fringes, eight way classification, group theory survey 4−68692
  glycerine drops in castor oil, circulation patterns, shadowgraphic and Schlieren records 4−56459
  holographic, localization of fringe systems for lateral shifts of scatt. objects *(French)* 4−43267
  inhomogeneous optical film, interf. matrix *(Russian)* 4−67680
  interface of absorbing-transparent media, additional interf. term 4−47300
  Leitz transmission interference microscope, device for image interchange *(German)* 4−54942
  microscopy, dielec. interface wave propag. theory 4−71493
  Moire fringes, spatial kinematics 4−47298
  Moire pattern, theoretical interpretation 4−71495
  Moire technique, obs. of focusing errors in collimating lens or mirror 4−59345
  multiple slit, with partially coherent light, general formula 4−43246
  multiple-beam, partially coherent, interference pattern intensity distribution meas. 4−81278
  Newton's rings, prod. using two glass plates 4−65870
  optical fibre, mode patterns, source coherence depend. 4−59353
  polarised radiation beams 4−55436
  resolution, optimum gain, prolate spheroidal wavefunctions 4−43273
  rough surface, speckle patterns, roughness meas., two wavelengths *(French)* 4−59358
  speckle patterns, combined random sinusoidal waves, first order statistics 4−77616
  spectral modulation, quantum theory 4−77631
  sphere in interference pattern, light scatt., fringe anemometry 4−55442
  student experiment using ground glass twice photographed in laser light 4−62376
  two-beam fringe, cube-corner interferometer, phase and visibility meas. *(French)* 4−51059
  Al-MgF_2-Al-MgF_2-Al type, Fabry-Perot interference filter, transmission in far u.v. 4−58818
  MgF_2-Al alternate layers, interference coatings of low reflectance *(French)* 4−65412
  Sr vapour, saturated, refr. index determ. by interference method using Xe laser *(Russian)* 4−52339

light interferometers
  see also light interferometry
  acoustooptic lateral shearing collimated type 4−51055
  angular measurement, automatic, applic. 4−73981
  coherence interferometer for atmospheric transfer function meas. 4−58464
  compound system of Michelson and Fabry-Perot interferometers with Gaussian and Lorentzian lines sources 4−77089
  for concave hemisphere inspection 4−68697
  cube-corner, phase and visibility meas. of two-beam fringes *(French)* 4−51059
  differential interferometer for turbulent, free convective heat transfer coeff. meas. 4−46669
  double grating, with variable lateral shear 4−65454
  double pass SISAM interferometer, for high resolution i.r. spectrometer, 8 to 10 μ range 4−65427
  double-beam, three-plate, with polarizing elements 4−65455

light interferometers continued
  double-beam single modification, multiplicative noise reduction in far i.r. interferometers 4−46665
  Fabry Perot, scanned by elastic deform. *(French)* 4−80913
  Fabry Perot, with asymmetric surface defects, transmission profile 4−80912
  Fabry Perot etalons in series spacing ratio *(French)* 4−80911
  Fabry Perot laser, plasma density in nonstationary stream, meas. 4−77091
  Fabry-Perot, appl. to optical derivative spectroscopy 4−68683
  Fabry-Perot, laser wavelength meas., systematic errors 4−51082
  Fabry-Perot, tunable filter in astron. electronography 4−62469
  Fabry-Perot and confocal, for dye laser multielement spectrometer, linear pressure tuning 4−65429
  Fabry-Perot disperser for multichannel digital spectrometer, plasma meas. appl. *(French)* 4−65440
  Fabry-Perot spectrometer system, variable magnification, resolution and error 4−65428
  Febry-Perot, light pulse transmission *(French)* 4−80909
  Fourier spectroscopy, aberrations of cat's eyes 4−62458
  fringe counting, automatic, phase stability, corner cube interferometer alignment procedure 4−46670
  heterodyne laser interferometer with acousto-optical modulator 4−80907
  hollow-cathode-interferometer-spectrometer system, analytical performance *(German)* 4−62645
  holographic, direct straightness testing of cylindrical surface generatrices 4−46571
  holographic, for gas dynamic measurements 4−71299
  holographic, radial shear, optical testing appl. 4−74061
  holographic, with radial and lateral shear 4−77094
  holographic photographic materials investigation, interferometric apparatus 4−68698
  large aperture, two-beam interferometer, transmission quality, single surface anal. 4−62468
  laser, control of microdensitometer 4−46718
  laser, industrial control economics 4−47398
  laser, interference fringe changes rel. to gas laser cavity stability 4−65923
  laser, obs. of large particle size and velocity 4−42699
  laser differential interferometer for vel. meas. of reflecting and diffusely scatt. surfaces 4−58826
  laser Doppler, analysis for data reduction 4−74060
  long path length, diffr. effects 4−71207
  mechanical vibration meas., sub-angstrom, Michelson interferometer with condenser microphone 4−42707
  Michelson, chirping for nonlinearities compensation in Fourier spectroscopy 4−46667
  Michelson, with asymmetric surface defects distrib., performance 4−65448
  Michelson modified folded type, design for angular meas. 4−65449
  modified Williams, using gas laser, optical glass homogeneity testing 4−58786
  with movable reflector for laser and reference lamp wavelength comparison 4−46668
  multibeam, laser shadow instrum. with photoelectric registration, applic. 4−74064
  multibeam optical interferometer, inlet and outlet plates, spectra characteristics *(Russian)* 4−68699
  multiple-beam, with absorb. mirror films, symm. interference profiles in refl. light *(German)* 4−80914
  plasma diagnostics using laser interferometers 4−56518
  radial shearing interferometer, math. interpretation 4−71206
  radiation sources for length meas., Lamb-dip stabilized lasers *(German)* 4−73970
  ring, accuracy of small optical rotation meas. *(German)* 4−80915
  shearing, transonic two-dimens. flow density meas. with shearing interferometer 4−59023
  speckle-shearing, for surface displacement derivatives meas. 4−58821
  spherical, used in obtaining density scale based on solid objects 4−73980
  stellar, for figure sensing of orbiting astronomical telescope 4−73863
  three beam speckle pattern interferometer, elastic const. and strain meas. 4−62415
  three-minor multiple beam interferometer, resonance props. investig. 4−71208
  Tolansky system, specimen jig 4−58820
  two-beam, intensity and polarisation of interference systems 4−65453
  URSIES at Bartol Coude Observatory 4−73873
  wavefront shearing interferometer, lens testing 4−51063
  zone plate, construction and performance 4−51058

light interferometry
  astronomical speckle interferometry, possible extensions 4−62248
  birefringence, stress-induced, interferometric null method for meas. in solids 4−65450
  caliper, IG-88 inside interferometric, optics 4−58825
  carcass shape recording, moire method 4−42940
  cemented doublet deform. interferometric obs. 4−68673
  channelled spectrum with triple layer interferometer 4−58823
  conference, Washington, USA, Spring (1974) 4−46624
  contour line visualization, real time obs., contour fringe visibility 4−80916
  crack detection in large metal objects, holographic interferometry obs., appl. to trainwheels 4−45889
  d.c. arc, free burning, temp. meas. by diffraction interference methods *(German)* 4−80906
  deformation, symm. and anti-symm., hologram interferometry meas. 4−58741
  differential interferometer appl. to high current arc discharge 4−68854
  dilatational wave measurement 4−42739
  displacement detection, speckeled image with auxiliary diffuser 4−80833
  displacement measurement, in-plane, of opaque surfaces 4−42724
  double exposure speckle interferogram, white light projection technique 4−62467

light interferometry continued
double pulse holographic technique, electron beam impact characts. 4−75539
double-exposure holographic interferometry using reflection holograms 4−51072
ear of cat, acoustic transmission through basilar membrane meas. by combined Mossbauer and laser technique *(German)* 4−77259
Fabry Perot multiple beam, 1700-2500 Å 4−77095
Fabry-Perot axicon fringe brightness, azimuthal variations 4−68695
Fabry-Perot interferograms of periodic spectra, analysis 4−74050
flow pattern in shock wave interaction with vortex field, Mach-Zehnder interferogram 4−44046
flow visualisation, double exposure method in holography 4−55169
Fourier spectroscopy, use of chirping to distinguish good from defective interferogram 4−58817
fringe scanning, pattern comparison, photoelectric method 4−51057
guidance system, interferometric, photoelectric, angular characts. 4−58824
hologram scanning, double-exposure, three-dimens. displacement meas. 4−58738
holographic, appl. to shock wave propag. in solids 4−66992
holographic, bolted plates, deformation meas. 4−65374
holographic, double beam interferometry based on single exposure *(Russian)* 4−68710
holographic, for transient stress meas. 4−42725
holographic, interferometry, in-plane deformation meas. 4−68612
holographic, isothermal differential diffusion coeffs. determ. in electrolytic liquids *(French)* 4−45915
holographic, large-displacement, fringe freq. reduction technique 4−80835
holographic, localisation of interference fringes 4−62470
holographic, non-sinusoidal vibr. meas. 4−68609
holographic, obs. of high density plasmas 4−56520
holographic, of rigid-body motion and homogeneous deform., fringe interpretation 4−42700
holographic, shifted reference, comments 4−59364
holographic addition, for time-average interferometry of const. velocity motion 4−46558
holographic and speckle-pattern interferometry, strain distrib. and elastic const. meas. 4−42720
holographic cylindrical shell deformation measurement 4−50951
holographic detection of cracks in concrete cubes and cylinders 4−45883
holographic interferogram analysis, average wavefront displacement determ. *(French)* 4−59368
holographic interferogram analysis from single view 4−43263
holographic interferograms, electronic processing 4−51070
holographic interferometer, sensitivity regulation technique, for refr. index distrib. meas. *(Russian)* 4−54948
holographic method, discrete illumination of 3-D object, phase raster 4−68707
holographic method for obtaining independent isopachic and isochromatic fringe patterns 4−74070
holographic methods for strain and displacement meas. 4−42719
holographic microscopy, of laser produced plasmas 4−56493
holographic photoelasticity, optical retarder inaccuracies influence on isochromatics and isopachics 4−42726
holographic shadow of moving body, fixed background 4−74475
holographic subtraction for interferometric anal. of fine uniform motions 4−46569
holographic system, optical homogeneity obs. of CO_2 laser discharge 4−74484
holographic technique, gas density meas. in high velocity flows 4−46992
holography and speckle photography applic. to strain and displacement meas. 4−42721
holography applics. in exptl. mechanics 4−74071
interference filter anomaloscope design 4−55130
i.r., using HCN c.w. 4m laser 4−71529
i.r. scanning technique for optical component testing 4−51021
laser, aerodynamics underexpanded supersonic jet 4−46993
laser, testing a paraboloidal mirror 4−54609
laser and classical, as production tool, historical review 4−46666
laser and reference lamp wavelength comparison by movable-reflector interferometer 4−46668
laser beam, effects of atmospheric fluctuations *(French)* 4−42689
laser interferometry, $LiNbO_3$ phase modulator as reference 4−54945
lateral shearing interferograms, method for evaluating 4−42810
length measurement, review *(German)* 4−58743
lens, precision centring and mounting, interferometric meas. 4−62453
lens system testing, fringe patterns from laser illuminated ball bearing sources 4−42773
loudspeaker vibration mode detection by holographic interferometry 4−50970
mass transfer coefficients using holographic interferometry, general principles and appl. to flat plate 4−74192
Michelson, combined effects of beam convergence and mirror misalignment 4−51056
Moire fringe method of strain measurement 4−65375
Moire fringe scanner, automatic high speed 4−77096
Moire grids applic. for deform. studies in wide temp. range 4−68616
Moire methods, optical system 4−74062
Moire shadowless topography using single light source 4−46664
Moire techniques for strain meas. during welding 4−58746
monochromator, interference filter type 4−68693
narrow-band electrophotometer with wedge interference filter 4−54616
NC machine tool position meas. by laser interferometer 4−46572
optical heterodyne arrangement with two-frequency source for vibration meas. 4−54824
optical inhomogeneities, use of interference methods with IAB-451 shadowgraph 4−74063
painting damage detect. on wooden panels, holographic interferometry appl. 4−74065
phase modulator using polarisation interferometer *(French)* 4−58822
photoholoelasticity, isochromatic erasure 4−74069
plasma, F-20 injector produced, interferometric meas. of electron density 4−56519

light interferometry continued
plasma combined i.r.-diagnostic techniques based on generalised Mach-Zehnder interferometer 4−66775
plasma diagnostics using laser interferometers 4−56518
plasma focus, electron density and radiation emitted at plasma freq. and harmonics 4−44401
plasma optical interferogram processing by digital computer *(Russian)* 4−82030
plotter distortion, interferometric meas. method 4−65368
PMMA, strain ratio meas. by interferometric method 4−73989
polarisation, diffusivity meas. 4−46977
polymer, crack terminal region contour determ. using laser 4−61562
prism angle and parallelism testing, laser interferometric method 4−54872
production component metrology by holographic and speckle pattern interferometry 4−51068
quantitative holographic interferometry extension by fringe control techniques 4−51071
random multiplicative noise attenuation, correlation method 4−51061
Rayleigh interferograms, diffusion coeff. evaluation 4−79169
Rayleigh wave measurement 4−42739
refractive index inhomogeneous distrib. meas., Moire-holography method 4−68702
refractive index measurement, appl. to $ZnIn_2S_4$ layered compound 4−67542
Rozhdestvenskii hook system applic. of org. dye laser 4−60326
sandwich hologram interferometry, comparison of object deform. 4−73973
shift, diffusely scattering objects, simplified scheme 4−77092
shock induced particle velocity meas., spatial variation 4−65452
speckle, appl. resolution of partially coherent objects, atm. turbulence effects 4−43254
speckle, object deformation determ. 4−51060
speckle photography, in-plane strain meas., Young's fringes assessment 4−42723
speckle-pattern, using electronic processing, for plane surface strain meas. 4−42722
speckle-shearing, slopes of structural deflections meas. 4−80834
spherical surface shape checking, review 4−58791
strain measurement, double exposure speckle photography 4−77027
stress birefringence measurement, Fabry-Perot null method 4−54949
stroboscopic holographic, two sinusoidal modes simultaneous vibration 4−71156
surface contour measurement, non-ideal conditions 4−77026
surface flatness testing *(Czech)* 4−51020
surface geometry inspection, laser speckle-pattern interferometry, electronic processing 4−54944
surface layer residual deformations determ. by interference and microstruct. methods 4−63964
surface roughness meas., optical method using coherent light *(French)* 4−42711
surface roughness measurement, holographic technique 4−52975
surface scanner, mirror surfaces for laser applications improvements 4−77108
surface stress meas., holographic interferogram processing 4−50965
surface topography, use of liquid surface interferometry 4−46559
thermal stress studies using holographic interferometry 4−70595
thickness measurement using multiple passage devices, sensitivity and range extension method *(French)* 4−58819
thickness of films on curved substrates interferometric means of meas. 4−42709
thin film thickness meas. device 4−42705
turbulent wall pressure instantaneous structure, optical investigation 4−44017
two wavelength holographic, appl. to exploding wires 4−78843
two-beam, gasdynamic studies applic., review 4−48286
tympanic membrane vibration, holographic interferometry anal. 4−65554
uniform-intensity field of light prod. method 4−68694
vibrating object contour generation, weighted subtraction of holograms 4−58737
vibration amplitude meas. by optical heterodyne method with narrow-band filter 4−46578
VISAR, vel. per fringe relation correction 4−80908
wavefront aberration elimination in phase difference amplification, holographic interferometry appl. 4−74473
wavelength of CO_2 laser, meas. for light velocity determination 4−74493
wedge angle measurement, semiconductor, Nomarski interferometry 4−42701
C fibre composite, notched, deformation obs. 4−64627
Cs, density of saturated vapour meas. using resonance absorption of 8521 A radiation 4−42761

light meters *see photometers*

light modulation *see optical modulation*

light pens
photodiode-TTL digital IC system, for spectral data anal. 4−42892

light polarisation
see also birefringence; optical rotation; photoelasticity; polarimeters
absorbing substance, optical const. determ., ATR method *(French)* 4−53386
acoustic wave diffraction effect, vector wave eqn. 4−43242
airglow polarization at 6300 A in artificially heated ionosphere 4−54258
anthracene and substituted anthracenes, polarisation spectra, excited states, transition moments investig. 4−78439
R Aquarii, polarisation on 1974 Oct. 14 4−83230
artificially heated ionosphere, polarization of 6300A line of metastable O 4−46068
asymmetric top molecules, spin allowed and forbidden transitions 4−56169
atmospheric aerosol depolarisation meas. using LIDAR analogue 4−68282
atmospheric polarized emergent radiation at 28 km altitude above New Mexico 4−80355
atmospheric scattering by smoke and smog, polarisation angles *(Russian)* 4−50290

light polarisation continued
- atomic electron scattering,impact radiation polarisation, Bethe theory 4−74886
- atomic multiphoton ionisation, effect of light polarisation 4−47864
- autocollimator, one-axis, using polarised light, theory 4−46633
- average polarisation of partially polarised light 4−43250
- benzophenone, i.r. absorpt. spectra of single crysts. in polarized light *(Russian)* 4−67595
- birefringence in crysts. meas. using polarised beam interference in transparent region 4−74037
- birefringent plate, propag. of polarised polychromatic beam 4−51519
- blue sky brightness and polarization, fish eye camera obs. *(Japanese)* 4−54250
- caustic surfaces obtained by total refl. on plane dioptre, Goos-Hanchen shift *(French)* 4−43248
- μ Cephei, intrinsic light polarization 4−58297
- chlorobenzene, phosphoresc., spin-orbital interaction *(Russian)* 4−81746
- circular, creation by twisted birefringent polarizing medium 4−74470
- circular dichroism, circularly polarised light absorpt. rate calc., quantum electrodynamic theory 4−61126
- circularly polarised fluorescence emission, from mols. displaying rotary Brownian motion, investig. 4−70346
- colour centre emission bands, polarised luminesc., uniaxial stress effects 4−57592
- Comet Bennett (1970 II-1969i), spectropolarimetry and spectrophotometry 4−54453
- condensed media, optical constants R_p/R_s ratio, Kramers-Kronig relationship *(Russian)* 4−70276
- coronal Lα line profile and polarization calc. 4−58234
- Crab Nebula, interstellar circular polarization, dielectric composition 4−46315
- Crab Nebula pulsar, NP0532, secular changes in optical polarisation 4−65188
- crystal, two-photon absorpt., polarisation depend. 4−74527
- cubic crystal, optical orientation of bound excitons in longit. and transverse mag. fields *(Russian)* 4−76291
- cyclic lasers, nonlinear link depend. on mode of polarisation *(Russian)* 4−59381
- Cygnus X-1 (HDE 226868), circular polarization obs. 4−58399
- degree of polarisation of emission, measurement with plane parallel plates *(Russian)* 4−65419
- depolarised light scattering, near gas-liq. critical point, investig. 4−59356
- diamond, natural and synthetic, linearly polarised luminescence from linear defects 4−79804
- dichloroanthracene, mol. cryst., electro-optical props., charge transfer excitons 4−53062
- dichroic spectra, linear, improved method of meas. 4−54933
- dielectric film devices, multilayer 4−54957
- dinaphth[de-1,2,3; d'e'-5,6,7]azulene, in stretched polymers, polarized absorpt. spectra, linear and mag. circular dichroism 4−57564
- dioxane, liquid, mol. light scatt., polarised and depolarised components meas. 4−79725
- early-type stars, wavelength dependence of polarized radiation 4−58433
- electron evanescent wave emission, interaction with matter, intensity and polarisation calc. *(French)* 4−74478
- elliptical, in quasioptical transmission line meas. using phase plates combination 4−51051
- ellipticity and low-field Faraday rotation, convenient meas. technique 4−58777
- ferrocytochrome, polarisation meas. for Raman tensors, symmetry assignment 4−52314
- G240-72, unusual polarization of magnetic white dwarf 4−68415
- galaxies, light polarization by interstellar dust 4−46282
- gas lasers, emission from $J=1\rightarrow J=0$ transition, polarisation and statistical properties 4−71537
- gas lasers, field in cavity with quasi-quarter wave plates 4−71562
- GD229, white dwarf, circular polarisation, wavelength dep. in 3260-9260A range 4−62141
- GD 229, peculiar magnetic white dwarf suspect, linear polarization 4−50591
- 1620 Geographos, UBV obs., light curves and polarization 4−54440
- Goos-Hanchen and Imbert effects, explanation in geometrical optics 4−47289
- guest molecules in stretched PVA matrix, polarisation obs. of electronic transitions using projected 3D vib. space 4−56189
- gyrotropic crystal, ratio of gyration and birefringence parameters effect *(Russian)* 4−70278
- Herbig-Haro objects, red polarimetric obs. of reflection nebulosity 4−80580
- DQ Herculis, linear polarization rel. to synchrotron radiation process 4−50600
- DQHerculis, variable linear and circular polarization 4−54490
- holography with evanescent waves, diffr. efficiency theory for s-polarised light 4−81287
- ice particle counter, automatic, response characteristics 4−61930
- inhomogeneous anisotropic media, ellipse of polarisation evolution, numerical soln. 4−62807
- interference between two polarised radiation beams 4−55436
- interferometer, phase and visibility meas. of two-beam fringes *(French)* 4−51059
- interferometer, two-beam, intensity and polarisation of interference systems 4−65453
- interferometry, diffusivity meas. 4−46977
- interstellar circular polarisation from survey of 84 bright stars 4−62217
- interstellar grain composition, use of circular optical polarization 4−46314
- interstellar polarisation at 4430A and 5780A features in HD 183143 4−50721
- interstellar polarization and extinction, review of observational data 4−46313
- KS 1045, highly reddened OB$^+$ star in Norma, optical polarisation 4−65164

light polarisation continued
- laser, double sided heterostruct., polarisation control by uniaxial compression 4−81340
- laser, injection-type heterojunction, TM polarization of emitted radiation 4−47361
- laser, water vapour, frequency beats between orthogonal linear polarisations *(Russian)* 4−81313
- laser beam shaping devices, using Faraday and Pockels polarisation effects 4−65462
- laser beams, elliptical to circular cross section conversion, use of prism 4−59438
- laser polariser design, based on total internal reflection 4−65417
- laser radiation, polarisation by prism with small birefringence 4−71213
- laser sensing, of cloud composition 4−65000
- laser velocimeter, direction sensitive, Doppler, with polarised beams 4−59015
- limited light beam, computation of transverse shift by reflection *(French)* 4−51515
- linear from partial polarisation, minimal energy losses, brightness conservation 4−47304
- linear interstellar polarization meas. in u.v. and i.r. 4−58435
- liquid crystal, cholesteric, theory of optical props. 4−56614
- liquid crystal film, cholesteric, polarised light transmission as thickness function 4−45387
- liquid depolarisation ratios, low angle laser light scatt. 4−76241
- magneto-Cosserat fluid, polarisable linear, optical props. 4−71499
- Mars, longitudinal polarization in 0.373-0.8 μ region 4−54426
- Mel 111, Coma Cluster, light polarization obs. 4−50670
- metalloporphyrins, emission and excitation spectra, polarisation effect *(Russian)* 4−66474
- Mie two-layered particles, Fe core, concentric water film *(Russian)* 4−55448
- monochromator, intrinsic polarisation 4−74032
- monochromator, u.v., vacuum, degree of polarisation obs. 4−80895
- multibeam optical interferometer, inlet and outlet plates, spectra characteristics *(Russian)* 4−68699
- MWC 349, peculiar Be star 4−83215
- N,N-dimethylselenoformamide, i.r. and Raman spectra, polarisation measurements in the liq. phase 4−69493
- naphthacene in trans-stilbene, mixed mol. cryst., polarisation ratio, host-guest interaction 4−67616
- naphthalene:lumogen A, anthracene, impurity incorporation, luminesc. polarization diagram obs. 4−48642
- naphthalene in polymer matrices, polarised spectra, linear dichroism obs. 4−81771
- negative ion, single-photon electron detachment, depend. on light polarisation 4−74858
- Nomographs, for calcs. of refl. flux, perpendicular and parallel polarised light 4−43244
- organic liquid, optical const. determ., ATR method *(French)* 4−53386
- perfluorocyclopentane, liquid, Rayleigh light scattering, effect of u.s. 4−61165
- photodissociation 4−68018
- photoemission, of electrons from electrodes into soln., influence of plane of polarisation 4−45917
- phthalimide derivatives, glycerine solution, fluoresc. mols. conc. effect of emission spectra polarisation *(Russian)* 4−43862
- phthalimide solutions, effect of excited light energy on polarisation, stimulated emission *(Russian)* 4−70325
- planetary atmosphere, effect of polarisation on scattered radiation *(French)* 4−54247
- planetary nebulae nuclei, broad band optical circular polarization search 4−62123
- polymer, birefringent, thermal variations in retardance meas. apparatus 4−62448
- polymer solution, polarised light scatt. investig. 4−62808
- pyrazoline derivatives, glycerine solution, fluoresc. mols. conc. effect on emission spectra polarisation *(Russian)* 4−43862
- quarter-wave multilayers, Brewster-angle conditions at non-normal incidence, reflecting polariser design 4−62806
- quartz, light diffracted by acoustic surface waves, incidence angle and polarization depend. 4−61131
- quasar radiation as test of Einstein's theory of gravitation beyond geometrical optics limit 4−62729
- radiative transfer equation, effect of polarisation and stimulated events 4−71584
- Raman spectroscopy, circularly polarised, antisymmetric scattering determ. 4−56333
- random medium, depolarisation, Stokes parameters 4−69015
- resonant medium, polarisation effects of light beam self-action *(Russian)* 4−74536
- S-polarized opt. props. of slab dielectric, effect of spatial dispersion 4−57491
- semi-infinite atmospheres, polarized radiation in deep layers *(Russian)* 4−70961
- semiconductor, GaAs-type, deform. effect on polariz. of luminesc. and absorpt. in tunnel transitions 4−49453
- semiconductor, polarisation properties of many-photon interband absorption of light 4−55523
- single-mode laser radiation, polarisation, stability theory 4−71519
- solar gravitational field, polarized radiation deflection, upper limit 4−50441
- solar limb polarization in near i.r. 4−80504
- starlight differential polarization as function of distance and galactic longitude 4−46320
- stellar atmospheres, scatt. of partially polarised light, Milne problem 4−58286
- Stokes parameters for light from induced processes 4−74477
- suspension scatt. of light, instrument for meas. scattering matrix 4−42784
- tristimulus and chromaticity determ. of polarising samples 4−54920
- two-level atoms, intense monochromatic wave propagation *(Russian)* 4−47832
- two-quantum transition spectroscopy, polarisation phenomena *(Russian)* 4−69422
- universal polarisation illuminator and simplified Stokes polarimeter *(Russian)* 4−42787
- Upper Scorpius stars, interstellar circular polarization obs. 4−46316

light polarisation continued
  variable star, intrinsic polarisation variation 4−58315
  Venus, linear polarisation of reflected sunlight 4−76794
  wavelength of maximum polarization rel. to interstellar grains 4−58434
  white dwarfs, broad band optical circular polarization search 4−62123
  white dwarfs and X-ray sources optical circular polarization, broad band search 4−76838
  acetonitrile(-d), cryst. film, i.r. spectra, polarisation and intensity measurements, cryst. struct. 4−70310
  Al-MgF_2, double layer mirrors, high transmission triple refl. polariser for Lyman α-radiation 4−65415
  $Al_xGa_{1-x}As$, optical orientation of spins of free and bound electrons 4−79793
  Ar c.w. laser emission, polarisation in transverse mag. field 4−51559
  $CaWO_4$:Tb^{3+}, magnetically induced polarisation of fluorescence lines, cross relaxation *(French)* 4−64433
  CdS phonon maser, light diffraction, polarisation effects 4−65889
  $CsIBr_2$, single cryst., Raman spectra, polarisation measurements, band assignment *(French)* 4−70308
  Cu_2O crystal, polarised light electroabsorpt. in yellow exciton series region, theory 4−67607
  F_3NO, gas, Raman spectrum polarisation meas., vibr. assignment 4−52151
  GaAs, optical orientation of spins of free and bound electrons 4−79793
  n-GaN, epitaxial layer, i.r. Faraday rotation obs. at room temp. 4−70284
  $GaP_{0.3}As_{0.7}$:Zn, excess circular polarization of luminesc. as result of optical orientation of spins 4−57625
  GaP_xAs_{1-x}, optical orientation of spins of free and bound electrons 4−79793
  Ge, polarisation of low temp. photoluminesc. due to deformations *(Russian)* 4−73190
  H Balmer line polarization obs. in H_2^+ collisions with He, Ar and Kr, 0.1-10 keV 4−60126
  He, extreme u.v. ang. distrib. and polarisation fraction due to 25 to 150 eV electrons 4−47889
  He-Ne laser, emission polarisation in mag. field, resonator anisotropy effect *(Russian)* 4−51579
  KIO_2F_2, nonlinear optical parameters rel. to bonding 4−55517
  $LiNbO_3$, light diffracted by acoustic surface waves, incidence angle and polarization depend. 4−61131
  Na_2, supersonic nozzle beam, fluoresc. polarisation mol. alignment obs. *(A)* 4−73445
  Nd: glass, giant-pulsed laser, radiation depolarisation 4−59426
  (Pb,La)(Zr,Ti)O_3, ceramics, polymorphic phase 4−63924
  $PbMoO_4$ acousto-optic modulator, deflection efficiency, 442-1152 nm, wavelength and polarisation depend. 4−73099
  $Rb^{87}+Rb^{85}$, depolarisation of Hanle effect spectra by collision broadening 4−74849
  $RbIBr_2$, single cryst., Raman spectra, polarisation measurements, band assignment *(French)* 4−70308
  Si, polarisation effects in electroabsorption, theory 4−67556
  Si:B, compression and low temp. laser irradiation, obs. of exciton recombination spectra 4−49438
  Te, nonlinear polarisation coeff. dispersion, harmonic generation 4−77714
  $ZrSiO_4$:U^{5+}, zircon, polarised absorpt. spectra meas., 350 to 2500 nm. 4−53477

light reflection
  see also mirrors; optical films
  absorbing-transparent media interface, reflectance and transmission 4−47300
  anisotropic crystal, appl. of generalized ellipsometry 4−42808
  anthracene, cryst., surface excitons 4−69996
  antireflection coating props., effect of inhomogeneous layer parameters 4−70379
  aromatic liquids, vacuum u.v., reflectance meas. 4−76264
  attenuated total reflection, gases, i.r. spectrum 4−69495
  attenuated-total-reflection spectral linewidth, surface polariton dispersion 4−44876
  barium stearate, Langmuir-Blodgett layers, Raman scatt. using total reflection method 4−49508
  beam path multiplier using two roof reflectors, design eqns. 4−43238
  beam-foil target chambers, detection and elimination of reflections 4−58802
  Bragg nonsinusoidal reflection grating, diffraction efficiency 4−43240
  calcium metasilicate glass, i.r. spectra, structure and crystallisation *(Russian)* 4−66835
  caustic surfaces obtained by total refl. on plane dioptre, Goos-Hanchen shift *(French)* 4−43248
  changes measurement, sensitive detection technique 4−74031
  chatter mark detection, in machining operations *(Japanese)* 4−50960
  cholesteric liquid crystal, spectral width 4−69714
  cholesteric mesophases, high pressure *(German)* 4−48504
  cirrus cloud, radiative props. in window region 4−64898
  coating, antireflection, broadband, for Ge in i.r. 4−61255
  collimated sources, reflective optics to obtain prescribed irradiative distribs. 4−59346
  compensator, for reflection-type shadow and interference systems 4−46634
  condensed media, optical constants, R_p/R_s ratio, Kramers-Kronig relationship *(Russian)* 4−70276
  crystal, spectra 3000 to 600 Å, apparatus for environmental effect obs. 4−58810
  crystal, uniaxial absorbing, optical const. calc. from reflection spectra 4−61129
  curved dielectric structs. and optical waveguides, radiation losses, generalized Fresnel's laws 4−59350
  dielectric interface, Cauchy profile, lateral shift 4−47293
  dispersive medium, narrow beam, calc. *(Russian)* 4−55446
  double-exposure holographic interferometry using reflection holograms 4−51072
  Earth's atmosphere, specular refl. near 90°, satellite obs. 4−83103

light reflection continued
  electro-optical reflector, with roof prism, temp. characts. 4−54871
  film, anisotropic, reflection props. calcs., ellipsometry 4−64457
  film, necessary thickness for optical const. meas., refl. versus incidence angle method 4−49506
  gas layer on surface in liquid 4−77618
  glass, flint, i.r. spectra meas., 1300-300 cm^{-1} region, optical consts. *(Russian)* 4−61169
  glass, surface layers, multiple internal refl. spectra, quartz fusion with moisture in presence of OH groups *(Russian)* 4−53405
  Goos-Hanchen and Imbert effects, explanation in geometrical optics 4−47289
  holographically formed reflection grating, stigmatic soft X-ray focal isolation 4−58828
  III-V semiconductor, phonon line broadening with polishing, surface refl. Raman scatt. obs. 4−44625
  internal, molecular band region spectra, opt. characts. determ. by Kramers-Kronig method *(Russian)* 4−45278
  i.r. dispersive spectroscopy technique 4−71194
  laser mirror, dominant mode refl. meas. 4−68713
  laser polariser design, based on total internal reflection 4−65417
  laser radiation, polarisation by prism with small birefringence 4−71213
  limited light beam, computation of transverse shift by reflection *(French)* 4−51515
  liquid crystal, cholesteric, higher orders of selective reflection of light anal. 4−69725
  liquid crystal, cholesteric, theory of optical props. 4−56614
  mirror, deep parabolic, focal length, double reflection meas. 4−65416
  mirror, metallic, refl. coeffs. meas. at 16.6 μm *(Russian)* 4−77109
  mirror reflection in convex and concave mirrors, equivalence 4−54790
  mirror surfaces improvements, for high-energy laser applications 4−77108
  multilayer optical coatings, synthesis method for thickness determ. 4−73217
  narrow light beam reflection from homogeneous isotropically scattering medium *(Russian)* 4−55440
  Nomographs, for calcs. of refl. flux from dielec. surfaces 4−43244
  nonlinear dielectric layers, plane waves, intensity regulation *(Russian)* 4−51654
  nonlinear total internal reflection, use in ruby laser mode locking 4−69087
  parabolic axicon, possible appl. 4−58776
  pipes, specularly refl., irrad. by obliquely inclined rays, transmission characts. calcs. 4−47292
  plant canopy directional reflectance rel. to feature selection, Monte Carlo calcs. 4−69010
  powder layer transmission and reflection, Monte Carlo calc. 4−55449
  quarter-wave multilayers, Brewster-angle conditions at non-normal incidence, reflecting polariser design 4−62806
  rare earth(III)-2-pyridineamidoxime complexes, refl. spectra, nephelauxetic effect 4−72137
  reflective lens arrays for laser-induced fusion 4−59880
  rhodamine 6G in ethanol soln., stimulated emission on refl. from self-induced mirror 4−51593
  rhodamine 6G/glass interface, inverted population, light internal reflection 4−51644
  rough surface, rel. to speckle in polychromatic light 4−81280
  rough surface, speckle patterns, roughness meas., two wavelengths *(French)* 4−59358
  S-polarized opt. props. of dielectric slab., effect of spatial dispersion 4−57491
  selectively radiating coatings, visible spectrum, optical props. in vacuum 4−77064
  semi infinite medium, diffuse light reflection *(Russian)* 4−71498
  semi-infinite dielectric 4−53404
  semiconductor, exciton refl. spectra, surface charge effects, 2K 4−70059
  semiconductor, strongly degenerate, with Kane dispersion relation, rel. to intrinsic parameters determ., theory 4−60743
  Smith-Purcell radiation from line charge moving parallel to grating 4−43241
  solar, from clouds, geometry for satellite 4−54242
  solar energy concentrators, reflecting coatings, moisture effects, tests 4−77063
  spectroscopy, introductory survey 4−65436
  specular spectra, interpretation limitations 4−53458
  transparent biaxial anisotropic cryst., optical consts. determ. from normal refl. meas. *(French)* 4−45258
  units, symbols and defining eqns., scatt. analogy 4−42691
  water, distilled, ratio refl. spectra, Kramers-Kronig anal. 4−42798
  Ag, aggregated surface, Maxwell Garnett theory 4−76261
  Ag, plasmon dispersion rel. for rough surfaces 4−53135
  Ag film, corrugated, reflection of light near plasma frequency 4−82774
  Al-MgF_2, double layer mirrors, high transmission triple refl. polariser for Lyman α-radiation 4−65415
  Al_2O_3, sapphire, surface vibrs., i.r. refl. spectra *(Russian)* 4−69954
  As_2Te_3, glassy, weak absorpt. region, effect of 10% O content 4−67624
  B, amorphous, 2-25μ 4−49020
  BiI_3, inverse H-like series in opt. spectra *(Russian)* 4−57577
  C plasma, CO_2 laser produced 4−72358
  $CdGeP_2$, phonon dispersion, polarised i.r. refl. spectra obs. 4−45293
  $Cd_xHg_{1-x}Te$, film, reflectivity spectra, 1.7-5.5 eV 4−45328
  CdS, exciton line profiles, wavelength modulated refl. spectra obs. 4−57573
  CdSe, exciton condensation, optical spectra evidence *(Russian)* 4−82379
  CdSe single crystals, refl., absorpt. and luminesc. fine struct. obs., surface effects 4−73136
  $CdSe_xTe_{1-x}$, i.r. refl. spectra, long-wavelength optical phonon freq. 4−76254
  $(CdSe)_x(ZnTe)_{1-x}$ photoreflection spectra obs., excitons 4−67613
  Cr, film, interferometric meas., phase shift 4−73215

light reflection continued
  Cr film, 0.1-1.1 μm range, thickness depend. *(Russian)* 4-53553
  Cu_3Au, ordered and disordered, refl. spectra and band struct. 4-45323
  EuS single crystal, melt-grown, characterization 4-61289
  α-FeOOH formation, role of seeding sol 4-50040
  GaAs, far i.r. opt. props. of free carriers 4-82695
  p-GaAs, hole relax. time, 300-673K, i.r. spectra obs. 4-48984
  GaAs:N, i.r. refl., dispersion parameters, implantation effect 4-76243
  β- Ga_2O_3 vapour grown platelike crystals, absorption and reflection spectra 4-82719
  GaP, ion-implanted, disorder obs. 4-61307
  Hg film, electrodeposited on glassy C electrode, reflectance change meas. 4-54034
  InP_xAs_{1-x} highly doped n-type solid solution, reflection spectra 4-53463
  KH_2PO_4, vacuum u.v. reflection spectra obs. 4-76267
  Li, u.v., optical consts. calc., Fresnel eqns. 4-79695
  LiD, solid target, intense laser pulse meas., energy depend. 4-62854
  $LiNbO_3$, surface vibrs., i.r. refl. spectra *(Russian)* 4-69954
  LiOH, cryst., i.r. reflection from internal mode 4-53415
  Mo, effect of adsorbed alcohol, acetone, CO, mol. polarisation 4-52993
  $NH_4H_2PO_4$, vacuum u.v. reflection spectra obs. 4-76267
  $(NH_4)_2SO_4$, pseudoproper ferroelec., far i.r. transmission and refl. 4-70291
  Nd(III) complexes, o-chlorobenzoic acid, 2,4 dichlorophenoxyacetic acid, diffuse refl. 4-73133
  $(Pb,La)(Zr,Ti)O_3$, pyroelec. detector, radiation absorption 4-73109
  PbI_2, electronic struct. and optical props., spin orbit interaction effects 4-44850
  TiO_2, i.r. reflection spectra investigation of lattice dynamics 4-79729
  V_2O_5, stoichiometry depend., energy gap struct. 4-79756
  YIG, surface vibrs., i.r. refl. spectra *(Russian)* 4-69954
  $ZnGeP_2$, phonon dispersion, polarised i.r. refl. spectra obs. 4-45293
  ZnO, temperature dependence of the band gap from reflection data 4-67609
  ZnS, exciton line profiles, wavelength modulated refl. spectra obs. 4-57573
  $ZnS-MgF_2$, multilayer gradient index film behaviour 4-45390
  $ZnS-MgF_2$ homogeneously mixed film, optical dispersion, refl. and transmittance obs., 2000-7000 Å 4-53552
  $ZnSiAs_2$, i.r. refl. optical phonon identification 4-73120
  ZnTe, exciton line profiles, wavelength modulated refl. spectra obs. 4-57573
light refraction
  see also birefringence
  astronomical refraction tables, new compilation 4-76721
  atmospheric, effects of temp. inversion, using lower atm. temp. gradient data and two atm. models *(Russian)* 4-80317
  atmospheric, local variation, rel. to aerial photogrammetry 4-46719
  atmospheric refr. angles, accuracy of calcs. using aerological data *(Russian)* 4-80318
  atmospheric refraction profiles, use of statistical orthogonal polynomials *(Russian)* 4-83082
  axisymmetric plasma, spectroscopy, errors due to refractive-ray bending 4-44390
  magneto-Cosserat fluid, polarisable linear, double circular refraction 4-71499
  mirage, explanation 4-68594
  photogrammetric refraction, local var. 4-61825
  radiation stresses on light wave traversal through transparent refracting media *(French)* 4-47303
  visual refractive defects, meas., gas laser 4-76966
  CO_2-He-N_2 mixture, laser-induced breakdown, refraction effect on spot size depend. 4-44253
  CsO_2 single crystals, double refraction, room temp. *(German)* 4-79693
  Ge, sub mm absorption and refraction, 293K, 12-50 cm^{-1} 4-73108
  KO_2 single crystals, double refraction, room temp. *(German)* 4-79693
  NaO_2 single crystals, double refraction, room temp. *(German)* 4-79693
light scattering
  see also Brillouin spectra; light diffusion; opalescence; Raman spectra; Rayleigh scattering
  aerosol, optical sounding size boundaries determ., wavelength selection 4-53918
  airborne particles, detection using optical extinction meas. 4-76759
  anisotropic media, ratio of emissive to absorptive powers 4-51522
  anisotropic media, u.s. and hypersound effects 4-55445
  antiferromagnet, frequency moments for two-spin light scatt. 4-53450
  antiferromagnet, one magnon scatt., temp. depend. 4-74531
  aqueous solutions of alcohols, additional effect of phase transitions 4-68030
  atmosphere, varying opacity, latitudinal variation of solar radiation 4-64914
  atmospheric aerosol depolarisation meas. using LIDAR analogue 4-68282
  atmospheric aerosol microstructure and light scattering matrices 4-46025
  atmospheric haze scattering coeff., relation with relative humidity *(Russian)* 4-83080
  atmospheric haze scattering matrix, indirect determ. of angle dependences *(Russian)* 4-83081
  atmospheric light multiple scatt. calcs., middle u.v. reaching ground 4-70688
  atmospheric molecular and aerosol backscatter, laser determ. *(Russian)* 4-61941
  atmospheric scattering by smoke and smog, polarisation angles *(Russian)* 4-50290
  autocorrelation spectroscopy, effect of finite collection aperture 4-43252
  n-azoxyanisole, nematic, by elec. field induced vortices 4-75447
  benzene, liquid, cooperative second harmonic laser light scatt. 4-62860
light scattering continued
  benzyl benzoate, supercooled state, comparison of viscoelastic, dielec. and light scatt. props. 4-67527
  biaxial crystals, light scattering at elastic waves 4-53393
  binary fluid, freq.-depend. transport coeff. determ. 4-56894
  biological sample, laser beam applic. 4-42942
  η Carinae, scattering in shell 4-70980
  chemically relaxing binary fluid mixture, normal mode analysis 4-49355
  cholesteric mesophases, light reflection at high pressure *(German)* 4-48504
  chromatic induction and glare attributed to stray light 4-58518
  cloud layers, models of multiple scattering 4-76727
  colloid particles, changes in an elec. field *(Bulgarian)* 4-49327
  colloidal particles, motion induced by light 4-47305
  cyclohexane, liquid, cooperative second harmonic laser light scatt. 4-62860
  cylindrical beam scattered by isotropic medium, optical thickness, albedo meas. 4-74469
  depolarisation of light near gas-liq. critical point, investig. 4-59356
  dielectric sphere, backscatt. short pulse response of surface waves 4-74461
  differential, from spherical mammalian cells 4-73878
  diffusing media, specular optical density 4-53921
  dioxane, liquid, mol. light scatt., polarised and depolarised components meas. 4-79725
  disperse concentrated system, spectral turbidimetry 4-47309
  displacive phase transformations, lattice vibrations, inelastic light scattering, temperature dependent 4-63880
  Dow latex 642-6, particle diameter determ. methods 4-64654
  electrophoretic light scattering, review 4-53910
  elliptical fibre, ellipticity meas. 4-74040
  ethyl p-[(p-methoxybenzylidene)amino]cinnamate, nematic and smectic-A phases, viscosities 4-75639
  fibre waveguide, attenuation meas., photometer design 4-77072
  fibre waveguide, scatt. loss meas. using integrating sphere 4-74039
  fluid, near critical point, gravity effects 4-49356
  fluid mixture, binary reacting, light scatt. due to spontaneous fluctuations 4-45285
  fluid near critical pt., double light scatt., Ornstein-Zernike behaviour 4-79707
  focused beam, stimulated scatt., quasioptics approx. 4-69084
  four-photon resonant light scatt., dye laser radiation passing through K vapour *(Russian)* 4-74533
  free electrons in homogeneous sphere, multiple light scattering *(Russian)* 4-69008
  full-form object, inherent contrast conditions 4-76681
  gas, mag. field effects on multiple scatt. lifetimes 4-69553
  Gaussian beams, Fourier series expansion approach *(Japanese)* 4-74466
  giant laser pulse peak value, meas. and centralisation *(French)* 4-51620
  glass, light scatt. of laser beams by random microinhomogeneities 4-69073
  glass fibre parameters determ., side illuminated 4-74467
  graphite, aquadag colloidal, polydispersiveness determ. by forward light scatt. 4-50039
  hollow spherical particles, light scattering and absorption *(Russian)* 4-71500
  ice particles, formed by release of H_2O in vacuum 4-77622
  inelastic, single particle excitation spectrum, fine struct. 4-61135
  inhomogeneous atmospheres, light scattering 4-73675
  inhomogeneous medium near critical point, multiple scattering *(Russian)* 4-81285
  i.r. image conversion, speckle influence on resolution 4-69088
  isotropic medium, scattering matrix expansion in generalized spherical functions 4-69009
  laser beam, from light induced periodic structures 4-59450
  laser beam log-amplitude scintillation, variance for inner scale of turbulence determ. 4-43257
  laser beam plasma production, harmonic generation and freq. mixing obs. 4-55514
  laser light scattering probe for turbulent diffusion meas. 4-46984
  laser mirror, dominant mode refl. meas. 4-68713
  layers, luminosity characts., calc. 4-65850
  layers, luminosity characts., calc. 4-68973
  liquid, low angle laser light, Rayleigh factors, depolarisation ratios 4-76241
  liquid crystal, cholesteric, normal mode fluctuations in static mag. field 4-72432
  liquid crystal, elec. field, texturing effect 4-82686
  liquid crystal, light scattering from cholesteric phase, structure obs. 4-82111
  liquid crystal, nematic and nematic-cholesteric, variation of relaxation time with various parameters 4-78906
  liquid crystal, thermotropic mesophase detection by rapid scanning light scatt. technique 4-63757
  liquid crystal, Van der Waals long range forces influence *(Russian)* 4-76234
  liquidus temp. visual determ. by Si photodiode and stereomicroscope 4-52871
  macroions in solution, Doppler shifts in light scatt. 4-80143
  macromolecular characterisation using i.r. Zimm plots, mol. wt., gyration radius 4-48166
  macromolecular solutions, nonzero crit. exponent existence 4-56337
  macromolecules in flow, deformability 4-48323
  MBBA, irradiance statistics, EHD fluctuations 4-73101
  MBBA-EBBA, liq. cryst., light scatt. depend. on applied voltage *(Russian)* 4-82104
  methane-d_4, solid, orientational fluctuations, critical slowing down 4-56629
  methanol + cyclohexane, phase separation near critical point 4-44676
  microstructure of scattering medium consisting of mixture of diff. refractive index particles *(Russian)* 4-55447
  Mie theory, computation of angular functions π_n, τ_n, comment 4-65875
  Mie theory for plane wave scattering by dielectric sphere 4-71502

light scattering continued

- Mie two-layered particles, Fe core, concentric water film *(Russian)* 4−55448
- mirror surfaces improvements, for high-energy laser applications 4−77108
- molecular gas, third harmonic, ang. depend. 4−62856
- monochromatic rain or fog bow obs. 4−61820
- Monte Carlo methods for solving light scattering theory problems 4−76762
- moving discrete centres, autocorrelation function of doubly scatt. light 4−47308
- narrow light beam reflection from homogeneous isotropically scattering medium *(Russian)* 4−55440
- natural water, spectral var. in vol. scatt. function 4−73497
- nephelometer use as optical probe for photoelec. aerosol particle counter 4−58951
- nitroethane-iso-octane, critical mixture, Brownian motion, autocorrel. spectroscopy 4−80147
- nitroethane-isooctane critical mixture, suspended teflon particles, Brownian diffusion constant 4−44692
- nuclear magnons investigation by inelastic light scatt. techniques 4−64226
- oceanographic multichannel forward scatt. meter 4−46129
- optically thick atmosphere, brightness wave propagation 4−73540
- p-type semiconductor, stress-tuned stimulated light scatt. 4−55484
- perspex, absorption and scattering of u.v. light, implications for radiation dosimetry 4−80987
- photographic emulsion, inner scale grain noise, laser scatt. meas. 4−42827
- photographic emulsion, processed, specular optical density 4−53921
- photographic system, modulation transfer function, development adjacency effects 4−54067
- pigmented media, three-flux model for multiple scatt. 4−55444
- pigments, Kubelka-Munk absorption and scatt. constants, meas. 4−54913
- planetary atmosphere, effect of polarisation on scattered radiation *(French)* 4−54247
- planetary atmosphere nonspherical scattering function, absorption line profiles and curves of growth 4−54424
- planetary atmospheres, multiple scattering problems 4−73640
- plasma, diagnostics of laser spark, scatt. method using electron-optical image convertor 4−75308
- plasma, hot, temp. meas. 4−82033
- plasma, neutral density determ. by scatt. of vacuum u.v. radiation 4−44396
- plasma, Thomson scatt., electron temp. and density meas. 4−56521
- plasma density fluctuations, applic. to light scatt. by turbulent media *(Russian)* 4−52539
- plasma focus, dense, ion temp. and mag. field meas. 4−44400
- polar ice and snow, spectrophotometer for meas. 4−68259
- poly-dispersed aerosols, scattering and absorption 4−76726
- polyester, POLA, dil. soln. characteriz. 4−53875
- polyisoprene in soln., chlorinated, mol. props. *(Russian)* 4−50022
- polymer, disordered spherulites, lattice theory 4−70273
- polymer, stiff chain, ang. distrib., models 4−48160
- polymer, supermol. structs. investig. by small-angle polarized light scatt. with photoelec. recording *(Russian)* 4−47393
- polymer film, correl. function approach 4−70377
- polymer hedrites, ovoids and spiral ovoids, small-angle light scatt. 4−66837
- polymer hedrites, ovoids and spiral ovoids, small-angle light scatt. 4−66838
- polymer solution, in good and bad solvents, props. of fibres produced *(Russian)* 4−53896
- polymer solution, polarised light scatt. investig. 4−62808
- polymers, light scatt. of laser beams by random microinhomogeneities 4−69073
- polyoxyethylene solutions with lower crit. mixing temps., structural investig. *(Russian)* 4−44490
- polystyrene latex spheres mixture, intensity correlation 4−56335
- polyurethane, hard-soft segmented, characterisation 4−49980
- powder layer transmission and reflection, Monte Carlo calc. 4−55449
- powder solids, remission spectra, theoret. basis for their evaluation *(German)* 4−45869
- quartz, $\alpha \rightarrow \beta$ transition, light scatt. anomalies *(Russian)* 4−79157
- quasi-elastic response, materials with structural phase transitions 4−69880
- R17 virus, soln., light scatt. obs., macromol. ordering 4−52316
- radiative transfer, fundamental source function 4−55392
- rainbow theory, new, comparison with exact Mie soln. and Airy approx. 4−81284
- Rayleigh-Benard instability, convective velocity meas. by frequency anal. of scattered light 4−48213
- resonant stimulated combinational scatt. of ultrashort light pulses *(Russian)* 4−71587
- ring resonator, backscattering rel. to captured reverse waves *(Russian)* 4−69067
- by sea water, extremal indicatrixes *(Russian)* 4−69011
- semi infinite medium, diffuse light reflection *(Russian)* 4−71498
- semi-infinite atmospheres, polarized radiation in deep layers *(Russian)* 4−70961
- sky, dust layer formation after eruption of Mount Agung *(German)* 4−61804
- soap film surface corrugations from soln. of M cetyltrimethylammoniumbromide and glycerol 4−47295
- Sobolev Φ-function in planar and spherical, isotropically scattering, atmospheres 4−50546
- speckle effects in coherent optical fields, light scatt. at ground glass surface *(German)* 4−43243
- speckle intensity, space and wavelength dependence 4−71491
- speckle patterns, combined random sinusoidal waves, first order statistics 4−77616
- speckle patterns, partially developed, monochromatic, surface roughness depend. 4−81281
- spectral analysis, ternary mixture 4−67578
- sphere in interference pattern, light scatt., fringe anemometry 4−55442
- spheroids, Rayleigh-Gans-Stevenson function, appl. to mol. wt. and shape determ. 4−59357

light scattering continued

- stellar atmospheres, scatt. of partially polarised light, Milne problem 4−58286
- stellar atmospheres Green's function of transfer eqn. *(Russian)* 4−73669
- student experiment using ground glass twice photographed in laser light 4−62376
- from surface of moving media, Fresnel drag 4−47301
- suspensions, Mie scatt., instrument for meas. 4−42784
- suspensions of highly anisotropic scatterers, multiple scatt., modified transport eqn. soln. 4−47307
- thick atmospheres, monochromatic radiative transfer 4−73556
- Thomson, plasma meas. using 4 pulse programmed ruby laser 4−69648
- toluene, depolarized doublet spectra at high press. 4−53418
- turbid medium, various degrees of dispersion 4−51521
- from two interacting molecules in a dielectric, macroscopic e.m. theory breakdown 4−59341
- units and symbols for light reflection (transmission), scatt. analogy 4−42691
- Venus visual phase curve, inverse multiple scatt. problems 4−68360
- water, liquid-phase particulate contaminants 4−45844
- Ag, plasmon dispersion rel. for rough surfaces 4−53135
- Ag film, surface roughness, meas. of scatt. light from surface plasma waves *(German)* 4−48823
- B_2O_3, isothermal compressibility, 550-800K, light scatt. in glass melt 4−57517
- B_2O_3, through glass transition, density fluctuations 4−61146
- CS_2, liquid, cooperative second harmonic laser light scatt. 4−62860
- GaAs:P, laser device, optical scatt. loss due to impurity addition to ternary layer 4−55480
- $Gd_2(MoO_4)_3$, light scatt. by acoustic waves 4−79701
- Ge, cryst., electron-hole drops, optical props., absolute concs. determ. 4−76251
- n-Ge, during exchange excitation of nonequilib. carriers *(Russian)* 4−82460
- Ge, exciton condensation, variation of electron-hole drop size with temp. 4−75834
- ^{3}He-^{4}He liquid mixtures, light scattering near the tricritical point 4−72616
- ^{4}He, liquid, from thermal second sound near λ-transition, 1.9 atm. 4−69946
- K vapour, $4P_{1/2}$ level, influence on stimulated parametric scattering *(Russian)* 4−66305
- KCl, optical extinction bands of K colloids, size distribution, Mie theory calc. 4−82718
- KH_2PO_4 crystal, light scattering study of phase transition at 175°C 4−49373
- $LiNbO_3$, laser scattering induced holograms, diffraction cones 4−68700
- $LiNbO_3$, surface acoustic wave reflection at conducting-nonconducting boundary, light scatt. obs. 4−44745
- Na vapour, forward scatt. signals narrowing dye laser field interaction 4−72051
- NaCl, divalent impurity doped, evidence of charged dislocations from light scatt. meas. 4−52767
- NaCl, rocksalt crystal, submicroscopic crack and void detect. under load, light scatt. obs. 4−79035
- NaCl:Na, optical absorption by 10 to 1000 Å diameter particles, Mie theory 4−49395
- $NaNO_2$, laminar ferroelec. domains, second harmonic 4−55521

light sources

- *see also infrared sources; light emitting devices; photometric light sources; spectroscopic light sources*
- ball bearing divergent source, laser illuminated, lens system testing 4−42773
- colour rendering meas. and standardisation, improvement *(German)* 4−46653
- colour-rendering index computation formulae 4−54905
- fluorescent lamp, chromaticity measurement 4−51014
- general colour-rendering index, meaning and application 4−54904
- lamp, high-power impulse, for u.v. spectral region *(Russian)* 4−46756
- lamp standardisation, use of reference light sources and colour rendering indices *(German)* 4−46652
- lasers, Lamb-dip-stabilized, for interferometric length meas. *(German)* 4−73970
- optimum passbands and stopbands for illuminants and devices 4−58540
- physical aspects, review *(Hungarian)* 4−80864
- soft mode anomaly, device application 4−63883
- stroboscopic spark light source, short flash duration, low time jitter 4−46626
- u.v. microbeam, for micro-irradiation of cellular organelles 4−65570
- variable intensity, portable, gas-proportional scintillation counter, near i.r. and u.v., with isotopic source 4−46811
- Hg discharge u.v. source, portable, for geophysical field work *(Russian)* 4−54313
- Kr^{86}, $2p_{10}$-$5d_5$ transition length standard *(Rumanian)* 4−54817
- Xe discharge flash lamp for laser pumping 4−81315

light transmission

- *see also light absorption; optical filters*
- absorbing-transparent media interface, reflectance and transmission 4−47300
- anisotropic film, expt. test of Schopper's formulas 4−61256
- anisotropic media, dynamic programming, Fermat's principle, eikonal eqn. 4−43249
- apodization with over-all transmittance, diffr. patterns with same Rayleigh resolution limit 4−77612
- atmospheric transmissometer, single-ended 4−64923
- birefringence in crysts. meas. using polarised beam interference in transparent region 4−74037
- birefringent plate, propag. of polarised polychromatic beam 4−51519
- ceramics, manufacturing methods, struct. and physico-chem. props., review 4−54879
- ceramics, optical props. and areas of appl., review 4−70275
- cirrus cloud, radiative props. in window region 4−64898
- coating, antireflection, broadband, for Ge in i.r. 4−61255

light transmission continued
- coatings, dielectric, interference, for 98% transmittance at specified wavelength 4–46632
- crystal, spectra 3000 to 600 Å, apparatus for environmental effect obs. 4–58810
- curved dielectric structs. and optical waveguides, radiation losses, generalized Fresnel's laws 4–59350
- c.w. laser beam propagation in resonant medium, instabilities 4–62862
- deformed crystal, quantum transfer of light particles *(Russian)* 4–71589
- dichloroanthracene, mol. cryst., electro-optical props., charge transfer excitons 4–53062
- dielectric layer, mech. forces due to passage of light beam *(French)* 4–59347
- dielectric narrow band interference filter, optical props. 4–68667
- diffusing media, specular optical density 4–53921
- m-dinitrobenzene crystals, phase-matchable optical nonlinearity 4–74523
- double-layer matching system, rel. to transparency of plane surfaces *(Russian)* 4–77599
- exciton states with negative effective mass, light transmission study of spatial dispersion *(Russian)* 4–53073
- Fabry-Perot interferometer, square form pulse transmission *(French)* 4–80909
- film, general technique for formulae inversion, rel. to observable functions 4–82773
- film transmissivity meas. in extreme vacuum u.v., use of rotating beam splitter 4–58804
- gas layer on surface in liquid 4–77618
- glass, nonoxide chalcogenide, prep. and optical transmission, 0.6-20 μm range 4–57510
- hemispherical transmittance of plane layer for Elsasser model *(Russian)* 4–55439
- inhomogeneous optical film, interf. matrix *(Russian)* 4–67680
- isotropic dielectric medium, light beam induced radiation tensions and pressures *(French)* 4–59348
- laser beam passing through rough surface, unscattered component 4–51517
- lens, perfect, equivalent passband, closed form evaluation 4–65882
- lenses, i.r. transmission of component and assembled systems, meas. 4–42774
- liquid crystal, cholesteric, theory of optical props. 4–56614
- liquid crystal, twisted nematic layer, transient effects 4–70281
- liquid crystal film, cholesteric, polarised light transmission as thickness function 4–45387
- lossless fibre, power fluctuations, asymptotic behaviour 4–59354
- MBBA-EBBA, liq. cryst., light scatt. depend. on applied voltage *(Russian)* 4–82104
- measurement of ang. depend. of reflectance, absorptivity and transmittance using c.w. laser 4–51018
- microscopic optical fields and mixing coeff. of X-ray and optical freqs. 4–73096
- microscopic system, influence of condenser transmission characteristics 4–80902
- Monte Carlo calc., photon trajectory through cylinder 4–55441
- multibeam optical interferometer, inlet and outlet plates, spectra characteristics *(Russian)* 4–68699
- narrow band filters, external conditions, effect on localised transmission *(Russian)* 4–68670
- nonlinear dielectric layers, plane waves, intensity regulation *(Russian)* 4–51654
- photographic emulsion, processed, specular optical density 4–53921
- photometry, use of transdiode for transmission-absorbance conversion 4–62581
- picosecond optical shutter, spatial transmission 4–65475
- pipes, specularly refl., irrad. by obliquely inclined rays, transmission characts. calcs. 4–47292
- polydisperse system, drop size distribs. 4–53906
- polymer, birefringent, thermal variations in retardance meas. apparatus 4–62448
- powder layer transmission and reflection, Monte Carlo calc. 4–55449
- PTFE, PCTFE, as optical coatings, moisture resist., antirefl. 4–71185
- quality assessment by large aperture, two-beam interferometer 4–62468
- random inhomogeneous medium, wave transmittance for thick layer *(Russian)* 4–77623
- random medium, Fourier optics, ambiguity function 4–74468
- random medium, photon statistics, damped solns. 4–47306
- S-polarized opt. props. of dielectric slab., effect of spatial dispersion 4–57491
- semiconductor, strongly degenerate, with Kane dispersion relation, rel. to intrinsic parameters determ., theory 4–60743
- small cubes of homogeneous isotropic material 4–69012
- speckle, temporal coherence effect, on first order statistics 4–81279
- TCNQ complex, (NMePh)(TCNQ), energy gap and metal-insulator transition, far i.r. spectra obs., low temp. *(Russian)* 4–72719
- thermohydrodynamic wave guide, stability of light ray distrib. 4–77619
- thin film, instrument for determ. optical density *(German)* 4–68671
- turbulent air, irradiance fluctuations, diffr. cutoff 4–46028
- turbulent medium, temporal-freq. spectrum, saturation conditions 4–43256
- ultrashort light pulse propag. in nonlinear laser medium 4–71579
- underwater laser transmission characteristics 4–55488
- underwater light field, brightness fluctuations *(Russian)* 4–83075
- units, symbols and defining eqns., scatt. analogy 4–42691
- Ag film, disorder effect on optical relax., two band model 4–61258
- AgBr-SnO_2 photochromic film, u.v. photo-darkening, thermal bleaching props. 4–76334
- Al-MgF_2, double layer mirrors, high transmission triple refl. polariser for Lyman α-radiation 4–65415
- Al-MgF_2-Al-MgF_2-Al type, Fabry-Perot interference filter, transmission in far u.v. 4–58818
- As-S, film, photographic effects, anomalous temp. depend. 4–82775

light transmission continued
- As-S-I glass, i.r. transmission spectrum, 0.75-25 μm, temp. depend., 77-413K *(Russian)* 4–82703
- As_6Se_4, glass, laser beam induced changes 4–59447
- Au film, disorder effect on optical relax., two band model 4–61258
- Au_xAg_{1-x}, film, disorder effect on optical relax., two band model 4–61258
- Bi_xGe_{1-x} film, amorphous, i.r., spectra 4–53163
- $Cd_3(As_xP_{1-x})_2$, temp. depend. of optical transmission edge, effect of Fermi distrib. spreading 4–49332
- CdS, under two-photon excitation 4–51645
- CdS film, heteroepitaxial, optical transmittance and photolum., 77-400K 4–76335
- Cds, transmission spectra, spatial dispersion effect, exciton absorption lines 4–70319
- Cr, film, interferometric meas., phase shift 4–73215
- Cr, film, visible light transmission and elec. cond., changes during oxidation 4–70380
- Cr film, 0.1-1.1 μm range, thickness depend. *(Russian)* 4–53553
- GaAs, far i.r. opt. props. of free carriers 4–82695
- K film, volume-plasma freq., opt. transmission obs. *(German)* 4–73219
- Mg-Bi alloy, amorphous film 4–49092
- MgF_2-$LaF_3(NdF_3)(MgO)$, multidielectric component mirrors for far u.v. 4–58775
- $(NH_4)_2SO_4$, pseudoproper ferroelec., far i.r. transmission and refl. 4–70291
- Ni film, visible light transmission and elec. cond., changes during oxidation 4–70380
- $(Pb,La)(Zr,Ti)O_3$, ceramics, polymorphic phase 4–63924
- $(Pb,La)(Zr,Ti)O_3$, pyroelec. detector, radiation absorption 4–73109
- $(Pb,La)(Zr,Ti)O_3$: Nb,Fe, photochromic effect, transmission spectra 4–76233
- PbO-In_2O_3-GeO_2 system, physical properties 4–61156
- Se, film, laser light irradiation, reversible phase transformations 4–62859
- SiO_2-$ZrO_2(SnO_2)$ multilayer mirror, spectral characts. 4–80874
- Ti film, visible light transmission and elec. cond., changes during oxidation 4–70380
- V_2O_5, particle size effects and conc. depend. of i.r. spectrum 4–53407
- $Y_{3-x}Bi_xFe_{5-y}Al_yO_{12}$ garnet film, high transparency 4–49507
- ZnS-MgF_2 homogeneously mixed film, optical dispersion, refl. and transmittance obs., 2000-7000 Å 4–53552

light velocity
- conventionality in distant simultaneity 4–55347
- in dielectric material in mag. field 4–71497
- direction dependence of velocity of light, coupled mirrors expt. 4–68607
- space-time theory, absolute of velocity in moving medium 4–47174
- time-length measurement system, unified, with speed of light as universal const. 4–46552
- unified field-time system, vel. light rel. to metre standard *(Hungarian)* 4–68605
- wave-equation solns. with phase velocity greater than light *(Spanish)* 4–47284

light velocity measurement
- from laser absolute frequency meas. 4–65365
- state of art 4–65420
- student expt. 4–68596
- time-length measurement system, unified, with speed of light as universal const. 4–46552
- wavelength of CO_2 laser, meas. for light velocity determination 4–74493
- CO_2 laser light, freq. and wavelength of 9.3 micron R(12) transition, light vel. determ. 4–73972
- CO_2 laser radiation wavelength meas. for light velocity determ. 4–65366

light water *see water*

lighting
- electroretinogram amplitude rel. to peripheral retinal spectral response for pulsed lighting 4–58521
- electrostatic field analogy for point and line sources *(Rumanian)* 4–55418
- luminous intensity distrib., automatic photometric system *(Japanese)* 4–46649
- optical, u.v., and i.r. effects on human organism, review *(German)* 4–50888
- space light and radiation distrib. photometry, with computer-aided analysis *(German)* 4–46654
- tunnel entrance, effect of fixation point and other factors on determination of requirements 4–50793

lightning
- ball, positron annihilation 4–70854
- British records rel. to solar cycle 4–54244
- cloud-to-ground versus radar reflectivity in Oklahoma thunderstorms 4–70717
- flash properties, thunder signatures 4–68180
- frequency, rel. to topography in Tatra mountains *(French)* 4–58002
- horizontal structure in cloud to ground and intracloud flashes 4–73548
- incidence in UK 4–58058
- initiation, Saturn V rocket exhaust plume temp. and conductivity detn. 4–80341
- ionospheric electric fields induced by lightning 4–61839
- multiple return stroke, radiated elec. and mag. field profile calc. 4–50288
- multiple return-stroke lightning discharge, thermodynamic characteristics 4–57998
- overhead lines, induced voltage surges, calc. 4–70745
- threshold corona field strengths rel. to linear dischargers in thunderclouds *(Russian)* 4–46023

lightning conductors *see lightning protection*

lightning protection
- *see also surge protection*
- lightning incidence in UK 4–58058
- power transmission line, earth resistance measurement of steel structure *(Korean)* 4–46740

lightning protection continued
- transmission lines, lightning frequency rel. to topography in Tatra mountains *(French)* 4−58002

lightning rods *see lightning protection*

limit, elastic *see elastic limit*

limit cycles
- friction self-vibration, existence of non-relaxation limit cycles *(German)* 4−77510
- non-linear self excited, anal. vibrs. of shallow shells in non-linear supersonic flow 4−69583
- pendulum-type two-strut system, transient process anal., limit cycles and stability *(Russian)* 4−55288

limited space charge accumulation
- *see also Gunn effect; negative resistance effects; space-charge limited devices*
- electron beam, current maximum for rectangular aperture and beam 4−65951

limiters
- for plasma confinement and diagnostics, mech. design 4−59867

limiting circuits *see limiters*

linear accelerators
- 4 MV, output variation with fixed dose setting, obs. 4−54722
- 4 MV, with beam splitter, isodose curves 4−50894
- 6 MV, build-up region, dose and TMR determ. 4−46491
- 6 MV, depth dose data, TAR and TMR obs. 4−54721
- 600 MeV electron linear accelerator HE I MWPC data acquisition system 4−46775
- breakdown statistics for clinical linear accelerators 4−73909
- CAMAC single crate controller and A/D interface module 4−46777
- dose monitoring systems, errors 4−46489
- electron, unsteady current loading *(Russian)* 4−62498
- electron and proton accelerating structure, new design 4−46780
- electron beam characteristics comparison for Siemens betatron 6 to 18 MeV and Sagittaire linear accelerator 7 to 32 MeV 4−46417
- EPIC machine design, present status 4−77150
- heavy ion accelerators, review *(Japanese)* 4−55007
- helic resonators, half-wavelength, meas. 4−51129
- ion-optical accelerator, straight, aberrations 4−77148
- Neptune, radiography applic. *(French)* 4−71225
- neutron source, generation with electron beams, performance, spectroscopy techniques 4−68768
- radiation therapy 4 MV machine, dose calculations and measurements 4−58583
- radiation therapy with 4 MV linear accelerators, wedge filter interlock modification 4−54692
- superconducting accelerator structure, 6 m length, 1300 MHz 4−77139
- transverse Coulomb repulsion of particles in accelerator with asymmetric variable-phase focusing 4−58881
- Van de Graaf tandem, AMV, limits to use of heavy-ions 4−74103
- X-ray bremsstrahlung from 25 MeV radiotherapy machine, comparison with that of 19 MeV betatron 4−71266
- μ beam prod. 10-15 GeV, high quality 4−68765

linear algebra
- *see also determinants; eigenvalues and eigenfunctions; matrix algebra; tensors; vectors*
- absolutely continuous subspace of self-adjoint operator 4−81218
- algorithm exactness concepts 4−68879
- bivariational bounds associated with linear equation $A\varphi=f$ in Hilbert space 4−47042
- computer manipulation techniques 4−68877
- diffraction, plane e.m. waves, on array comprising two layers of anisotropic magneto-dielec. *(Russian)* 4−74462
- Fredholm eqn., improved successive approximation method 4−71485
- general relativistic observables, Poisson brackets, commutator algebra 4−59276
- general relativity, ALAM/CLAM and CAMAL systems 4−68935
- operator equations, iterative solutions, in Banach spaces 4−81111
- operators on Hilbert space, normal approx. spectra 4−42997
- operators on Hilbert space, proof of reciprocity 4−42998
- perturbation theory, statistical, review of calcs. *(Russian)* 4−55310
- positive operators, maximum prolongations *(French)* 4−46998
- postbuckling behaviour of structures, finite element analysis 4−47066
- symbol manipulation algebra program REDUCE 4−65653
- symbol manipulation program ASHMEDAI 4−65652
- symbol manipulation system, SCHOONSCHIP 4−68878

linear combination of atomic orbitals calculations *see LCAO calculations*

linear differential equations
- boundaries of regions of instability, canonic system, generalised Hill method *(Russian)* 4−51280
- boundary value problems, elliptical differential equations *(Russian)* 4−74215
- convolution integral simple derivation leading to Green's function methods, educational course 4−58684
- determinant criterion for type specification *(Russian)* 4−55213
- diffusion flames analysis, criteria for extinction 4−50146
- fourth-order, for transverse vibrations of rapidly rotating slender rod 4−55295
- fourth-order systems, boundary conditions, matrices *(Russian)* 4−55208
- Frechet derivatives, solvability conditions in space of functionals 4−77365
- functional, Peano-Baker type, numerical algorithm for approx. solns. 4−43020
- Graetz problem of axial heat conduction, soln. of linear partial differential eqns. 4−75089
- hyperbolic system in quarter-plane, soln. by regulariser method *(Russian)* 4−55215
- Lagrange equations generalizing rotation 4−71322
- matrix Ricatti eqn., solution ordering preservation as independent variable changes 4−43005
- neutral type differential-difference eqns., stability of solns. 4−74246
- parabolic and elliptic, boundary-value problem, domains with non-fixed boundaries *(Russian)* 4−74216
- partial first order with 2 independent variables solution 4−65625
- periodic solutions by interval analysis methods *(German)* 4−74233

linear differential equations continued
- second order, equivalence 4−59043
- second order, with periodic coeffs., zones of stability and instability *(Russian)* 4−55207
- stability of connected linear systems 4−74225
- stochastic analytic solns. by approximation and model coefficient methods 4−55197
- stochastic linear differential equation, cumulant expansion 4−65628
- stochastic linear differential equation, cumulant expansion 4−65629
- stochastic linear differential equation, projection operator method 4−65630

linear expansion *see thermal expansion*

linear integrated circuits
- transdiode, transmission-absorbance conversion in photometric anal. 4−62581

linear programming
- electrostatic potential field analysis *(Russian)* 4−47259
- gravity fields, filters for upward and downward continuation 4−45949
- luminescent lamp, linear program anal. of luminophosphor light outputs *(Russian)* 4−73192
- maximal colours and colour constancy, linear programming algorithm 4−54906
- plasticity, limit analysis applic. 4−59200

linear rectification *see rectification*

linear rectifiers *see rectifiers*

linear systems
- biotransport, open linear systems 4−73884
- confidence intervals for exptl. correlation functions *(Russian)* 4−50944
- dynamic response, large step integration 4−51396
- elastic, necessary conditions for divergence 4−55252
- frictional oscillation suppression 4−68885
- optimal control, anal. as estimation game with conflicting controls *(Russian)* 4−47050
- oscillations, harmonic and subharmonic, of system with piecewise linear restoring forces 4−77498

linear vibrations *see vibrations*

linearisation techniques
- *see also piecewise-linear techniques*
- anemometers, hot wire, const. temp., static calibration 4−81098
- convection analysis for thermally controlled centrifuge *(Italian)* 4−78596
- local, criteria for wind tunnel wall interference 4−48272
- nonlinear system response, analytical procedures for autocorrelation and spectral density function determ. 4−74237

lines (telephone) *see telephone lines*

linewidths (spectral) *see spectral line breadth*

linguistics, language *see language translation and linguistics*

linking *see joining processes*

Liouville equation *see statistical mechanics*

lip microphones *see microphones*

liquefaction of gases
- *see also low-temperature production*
- Ar, heat exchange meas. in miniature unit 4−58765
- N_2, condensation on liq. H_2 cooled surface using cryopump investig. *(Spanish)* 4−80861
- N_2, heat exchange meas. in miniature unit 4−58765

liquid alloys
- *see also liquid metals*
- alkali and alkaline earth metal alloys, pseudopot. theory of enthalpy of mixing *(German)* 4−70434
- alkali and alkaline earth metal alloys, pseudopot. theory of enthalpy of mixing *(German)* 4−73274
- binary, change in molar volumes during formation *(Russian)* 4−52678
- binary, cpd.-forming, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
- binary eutectics, directional solidification in u.s. field *(Russian)* 4−53654
- compound molecule form., effect on conc.-conc. correl. function, long-wavelength limit 4−82100
- density measurement techniques, review 4−64522
- electrical resistivity and thermoelectric parameter, conc. depend. 4−60775
- electronic density of states, tight binding approx. 4−53027
- eutectic systems, partial diffusion coeffs. *(Russian)* 4−53650
- melt, rising vel. of foreign particles of diverse shape and size *(German)* 4−53638
- sand casting, heat transfer in flowing molten metal 4−45624
- ternary, interaction parameters rel. to valency 4−67745
- transition metal, spin susceptibility 4−72951
- Ag-Al, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
- Ag-Sb melt, electron transfer *(Russian)* 4−70008
- Al, diffusion and permeability of hydrogen, penetration rate meas. method *(Russian)* 4−79925
- Al, molten, wetting of vitreous C 4−79233
- Au-In(Sb) liquid systems, activity meas. *(Japanese)* 4−67762
- Au-Ti melt/Al_2O_3, intermediate phase formation on adhesion and wetting 4−67930
- Bi-Cd(Sn) eutectic systems, partial diffusion coeffs. *(Russian)* 4−53650
- Bi-Pb, u.s. absorpt. vol. viscosity effects 4−67060
- Bi-Te, self diffusion coeff. of Te, conc. depend. *(Russian)* 4−60635
- Ca-Ba, enthalpies of mixing, obs. to determine thermodynamic props. *(German)* 4−48768
- Ca-Sr, enthalpies of mixing obs. to determine thermodynamic props. *(German)* 4−48768
- Cd-Al-Sn, eutectic, atomic distrib. *(Russian)* 4−56598
- Cd-Bi, density, and molar volume *(Polish)* 4−67743
- Cd-Zn melt, electron transfer *(Russian)* 4−70008
- Ce, mag. susceptibility meas., mag. phase transition *(German)* 4−79511
- Cu alloys, high temp. viscosity meas., viscometer design 4−58952
- Cu-Al, interaction with UO_2, eff. of Zr addition 4−43651
- Cu-Al:Co liquid alloy, impurity susceptibility 4−45094

liquid alloys continued
  Cu-Bi(In)(Sb)(Sn), comp. depend. of Hall coeffs. *(Japanese)* 4−44898
  Cu-Ga melt, short range order structure *(Russian)* 4−70453
  Cu-In melt, struct. and elec. cond. *(Russian)* 4−45533
  Cu-Ni-S molten system, miscibility gap and distrib. of nickel 4−45512
  Cu-Ti melt Al_2O_3, intermediate phase formation on adhesion and wetting 4−67930
  Fe-C melt, wetting of Cr_2O_3 *(Russian)* 4−44753
  Ga-In, elec. resist., −20 to 800°C *(Russian)* 4−48955
  Ga-Sn alloys, solid and liq., mag. susceptibility meas. *(Russian)* 4−79496
  Ge-Au(Cu) systems, thermodynamic props., mass spectrometry obs. 4−45944
  Ge-Co(fE)(Ni), mag. props., conc.-temp. depend., 900-1700°C *(Russian)* 4−45091
  Ge-Cu, binary, investigation of thermodynamic props. 4−45492
  Hg-Cd, dilute, convection effects during electrotransport 4−44691
  Hg-In alloys, liq., association equilibria, conc. depend. of enthalpy of mixing *(German)* 4−72423
  Hg-K, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
  Hg-Tl, viscosity meas., 20°-90°C, presence of Hg_3Tl type associations *(German)* 4−69705
  In-Bi(Sn) melts, self-diffusion of indium *(Russian)* 4−45543
  In-Ga, compatibility with Ti alloys and alloy steels 4−71997
  In-Te, elec. cond. and thermoelec. power meas. 4−82410
  In-Zn alloys, conc. depend. of self-diffusion coeffs. *(Russian)* 4−56898
  InBi and In_2Bi, γ-γ ang. correl. 4−79652
  Mg-Bi, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
  Mg-Bi(Sb)(Sn), thermodynamic obs. using e.m.f. method with CaF_2 electrolyte 4−51879
  Na-K(Rb) liq. alloys, u.s. absorpt. obs. 4−79104
  NaK, flow in line through tube bundles, heat transfer 4−43616
  NaK-Na, horizontal heat exchanger, mixed convection in shell 4−43629
  Ni, molten, sulphur thermodynamics 4−49661
  Pb-Bi, liq. us. absorpt., vol. viscosity effects 4−67060
  Pb-Sn, surface tension and contact angle meas. by sessile drop technique 4−48832
  Pb-Sn-Bi, Ziman's theory *(Russian)* 4−70007
  Pb-Sn-Zn, Ziman's theory *(Russian)* 4−70007
  Pu-Ga(1 wt.%), sound vel. meas. from m.p. to 950°C 4−66266
  Sr-Ba enthalpies of mixing, obs. to determine thermodynamic props. *(German)* 4−48768
  Tl_xTe_{1-x}, elec. cond., metal-nonmetal transition 4−79264
  Zn-Al, density meas. 4−64523
  Zn-Cd, density, and molar volume *(Polish)* 4−67743
  Zn-Ga, thermodynamic props., errors due to side reactions 4−45526
  Zn-Sn-Pb dil. soln., high Pb conc., thermodynamic props. *(Polish)* 4−67771
liquid crystal devices
  data display applications of liquid crystal properties 4−78888
  display, review *(Japanese)* 4−72426
  displays, image storage, review 4−56606
  electro-optic shutter, using twisted nematic, for fast switching 4−42775
  e.m. field visualization in rectangular waveguide *(Russian)* 4−51107
  fibre-optic sensor, for e.m. wave power absorption meas. in tissue 4−65275
  MBBA twist cell, appl. of numerical method for dynamics analysis 4−69707
  methoxybenzylidenebutylaniline, u.s. surface wave visualisation *(Russian)* 4−42737
  nematic, 1024 bits page composer for holographic memories 4−58832
  nematic digital light deflector, MBBA, operation, performance 4−71181
liquid crystals
  acoustic properties, review 4−75446
  alkoxy-azoxy-benzenes, nematic, Raman spectroscopy and elastic props. 4−66824
  alkoxybenzoic acid liquid crystals, anisotropy of molar refraction 4−82682
  anisotropy of rotational diffusion in nematic and isotropic phases, i.r. spectra determ. 4−82112
  aromatic esters, preparation and properties 4−78898
  azobenzenes, dielectric consts. and mol. struct. 4−56615
  p-azoxyanisole, dielectric anisotropy, hindered rotation 4−66819
  p-azoxyanisole, e.s.r. spectra, in applied elec. field, molecular motion 4−67432
  p-azoxyanisole, liq. cryst., ^{13}C spin-lattice relax. meas., nematic-isotropic transition investig. 4−76179
  n-azoxyanisole, nematic, dynamic light scatt. 4−75447
  p-azoxyanisole, nematic, structure factor, neutron diffr. obs. 4−72430
  p-azoxyanisole, press. volume and temp. depend. of nematic order 4−78909
  p,p'-azoxyanisole, purification by zone refining, thermodynamic data 4−78899
  p-azoxyanisole, translational self diffusion, anisotropy, order and viscosity effects 4−69721
  p-azoxyanisole series, preorientation pot. barriers, i.r. absorpt. spectra 4−49333
  azoxybenzene, dialkoxy derivatives, purification by zone refining, thermodynamic data 4−78899
  azoxybenzenes, dielectric consts. and mol. struct. 4−56615
  p-azoxyphenetole, purification by zone refining, thermodynamic data 4−78899
  p-azoxyphenotole, dielectric anisotropy, hindered rotation 4−66819
  benzylidene-p-cyananilines, orientational-order and molecular parameter temp. depend. 4−52692
  4-butoxybenzal-4′-ethylaniline, BBEA liq. cryst., struct. of smectic H phase investig. 4−82106
  chain ordering, even-odd effect in isotropic-nematic transition temps. investig. 4−60404

liquid crystals continued
  chloresteric mixture, helical pitch and opt. rot. power determ. using Cano wedge arrangement *(Japanese)* 4−79697
  chlorostilbenes, nematic-isotropic and cholesteric-isotropic transition temperatures, u.v. irradiation effects 4−52683
  5α-cholestan-3β-yl ω-phenylalkanoates, mesomorphic behaviour 4−69720
  cholesteric, biaxial model 4−60409
  cholesteric, bistability behaviour of texture in elec. field 4−69706
  cholesteric, Brillouin zone effect, sound wave propag. investigation 4−66827
  cholesteric, bubble domain texture formation obs. 4−72425
  cholesteric, distortion lattices for superposed strain and mag. field 4−52681
  cholesteric, elec. cond., temp. depend., rel. to struct. changes 4−75873
  cholesteric, higher orders of selective reflection of light anal. 4−69725
  cholesteric, models of χ dislocations with continuous core *(French)* 4−82107
  cholesteric, normal mode fluctuations in static mag. field 4−72432
  cholesteric, pretransitional optical rot. in isotropic phase 4−72434
  cholesteric, shear induced texture change mechanism, electric field effect 4−78904
  cholesteric, spectral width of refl. 4−69714
  cholesteric, theory of optical props. 4−56614
  cholesteric amorphous liquid phases, pretransition phenomena and optical activity 4−52689
  cholesteric film, polarised light transmission as thickness function 4−45387
  cholesteric mesophases, light reflection at high pressure *(German)* 4−48504
  cholesteric mixtures, helical pitch, temp. depend. 4−60405
  cholesteric polypeptide, twist elastic const. 4−56608
  cholesteric storage mode transition to nematic phase in critical geometries 4−78912
  cholesteric. temp. range, birefr. meas., Abbe refractometer 4−69716
  cholesteric-nematic liq. cryst. mixtures, reflective pitch meas., mol. assoc. model 4−78889
  cholesteric-nematic mixture, structural oscillations 4−69709
  cholesterol ethers in dicarboxylic acid, X-ray anal. of short-range order 4−52690
  cholesteryl chloride + nematic N4, electric field induced texture changes 4−78905
  cholesteryl decanoate, dielec. const. temp. depend., effect of texture transitions 4−57450
  cholesteryl esters, mesophase struct. by X-ray diffr. 4−78907
  cholesteryl esters of n-fatty acids, double refr. of cholesterol and smectic modifications *(German)* 4−53469
  cholesteryl nanoate-cholesteryl propionate, anomalous spherulitic crystn. in cholesteric mesophase 4−78910
  cholesteryl nonanoate, and mixtures, temp. range, optical props. 4−69717
  cholesteryl nonanoate, cholesteric, X-ray investigation of phase transition 4−69711
  cholesteryl nonanoate, cholesteric pitch divergence, appl. of least squares fit analysis method 4−82103
  cholesteryl nonanoate, intrinsic pitch determ. 4−44467
  cholesteryl oleyl carbonate, and mixtures, temp range, optical props. 4−69717
  cholesteryl oleyl carbonate-cholesteryl chloride binary mixtures, liq. cryst. phase transition temps. investig. *(German)* 4−66816
  cholesteryl oleylcarbonate-cholesteryl chloride, cholesteric to smectic-A transition order 4−66817
  conductivity, permittivity and electrode space-charge 4−70249
  coumarine, partially orientated in nematic mesophase, n.m.r., coupling consts., orientation parameters 4−45197
  p-cyanobenzilidene-p′-octyloxyaniline, smectic A nematic transition from sp.ht. meas. *(French)* 4−48503
  N-p cyanobenzilidene-p-n-octyloxyaniline, impurity depend. of crit. exponent of nematic bend elastic constant 4−66822
  N-p-cyanobenzylidene-p-octyloxyaniline, Freedericksz deformation near nematic-smectic-A transition 4−69722
  N-p-cyanobenzylidene-p-octyloxyaniline, nematic-smectic-A transition charact. 4−63759
  cyclobutane structure obs. nematic phase n.m.r., ring puckering motion effects 4−52017
  di-(p-methoxyphenyl)-trans-cyclohexane-1,4-dicarboxylate, adiabatic calorimetry, 300-550K 4−78891
  p,p′-dialkoxyazoxybenzenes, molar refraction anisotropy 4−52687
  1,4-dichlorobenzene-^{13}C partially oriented in nematic phase, p.m.r. determ. of mol. geometry 4−52205
  dielectric permittivity, Kirkwood-Frohlich theory extension to anisotropic liq. 4−72428
  diethylazoxybenzoate, proton spin-lattice relax. above smectic-A-isotropic transition 4−69708
  diheptyloxyazoxybenzene, benzene ring rot. IR correl. functions 4−56607
  2,5-dihydrofuran, molecular struct. determ. from nematic liquid cryst. n.m.r. 4−48087
  domain structure and properties 4−82113
  elasticity and flexoelectricity limitations 4−69843
  electrohydrodynamic instabilities, cholesteric liquid crystals with negative dielectric anisotropy 4−69719
  equation of state for system of hard spherocylinders, Monte Carlo method 4−69713
  3-N-p-ethoxybenzilidene-amino-6-n-butylpyridine, smectic liq. cryst., electrical conductivity *(German)* 4−48987
  p-ethoxybenzylidene-p-cyananiline ordering determ. from dichroism of dissolved dyes 4−52691
  p-p-ethoxyphenylazo-phenyl undecylenate, nematic, hydrostatic pressure effects on phase transition temp. 4−52682
  ethyl p-[(p-methoxybenzylidene) amino] cinamate, temp. depend. of Raman scatt. near smectic to nematic transition temp. 4−69712
  ethyl p-[(p-methoxybenzylidene)amino]cinnamate, nematic and smectic-A phases, viscosities 4−75639
  flow alignment of molecules, temp. dependence relation 4−48507
  hard-rod fluid, scaled particle theory, appl. to nematic liq. 4−77579
  p-n-heptylhoxy azoxybenzene, nematic, mag. field effects on u.s: attenuation and vel. *(French)* 4−66820

liquid crystals continued
- p-n-hexyloxybenzilidene p-aminobenzilonitrile, nematic layer, deformation in crossed electric and mag. fields 4–66826
- p-n-hexyloxybenzilidene-p′-aminobenzonitrile, shear flow effects 4–44465
- p-hydroxyanisole, crit. transition, sp. vol. meas., 114.9-165°C *(Russian)* 4–78923
- ionizing particles effects on passing through cholesteric liquid crystals 4–69835
- Ising model, phase transitions 4–43180
- isotropic to nematic transition, density and temp. depend. 4–66818
- lecithin-phosphatidyl serine-water, vibr. spectra 4–75444
- lecithin-water mixtures, coexistence of rigid and liquid crystalline phases 4–54624
- light ellipse of polarisation evolution, numerical soln. 4–62807
- light scattering, mol. theory of orientations fluctuations and optical Kerr effect 4–56610
- light scattering, Van der Waals long range forces influence *(Russian)* 4–76234
- light scattering from cholesteric phase, structure obs. 4–82111
- lipid bilayers, cis double bonds structure, spin label determ. 4–44462
- local heat transfer coeffs. determ. using liq. crysts. 4–58758
- lyotropic liquid crystals, double quantum transitions in deuteron n.m.r. 4–67467
- MBBA, action of impurities on Kerr effect 4–82109
- MBBA, appl. of numerical method for dynamics analysis of liq. cryst. twist cells 4–69707
- MBBA, dielectric obs. of nematic instabilities 4–66821
- MBBA, inversion wall annihilation dynamics elec. cond. obs. *(German)* 4–78922
- MBBA, liq. cryst., proton spin lattice relaxation short range orientational fluctuations, BPP theory 4–49249
- MBBA, n-type nematic, birefringence obs. 4–45265
- MBBA, nematic, anisotropy of self-diffusion tensor, temp. depend. obs. by n.m.r. 4–66825
- MBBA, nematic, anomalous sp. ht. at phase transition *(Japanese)* 4–78921
- MBBA, nematic, diffusion anisotropies meas. by use of dyes 4–44466
- MBBA, nematic, ion mobility meas., crit. voltage for EHD instability *(French)* 4–44689
- MBBA, nematic, mag. field effects on u.s. attenuation and vel. *(French)* 4–66820
- MBBA, nematic, transient laser phenomena in a.c. electric fields 4–63752
- MBBA, nematic, wall velocity and ellipticity giving elastic constants 4–78901
- MBBA, nematic, with dissolved nitroxide radicals, degree of order of radicals determ. by e.p.r. *(French)* 4–45167
- MBBA, nematic, X-ray investigation of phase transition 4–69711
- MBBA, plasma polymerized films as orientating layers 4–48501
- MBBA, scatt. light irradiance statistics, EHD fluctuations 4–73101
- MBBA in capillary tube, threads and disclinations obs. *(French)* 4–63755
- MBBA nematic droplets on water substrate, configs. with cyl. symmetry 4–69723
- MBBA nematic liq. cryst., in carbon tetrachloride soln., Rayleigh scatt., orientation investig. 4–82105
- MBBA nematic phase volume diamagnetic anisotropy from 274K to 318K 4–70139
- MBBA thin layer, c.w. laser induced thermal loss effect 4–81354
- MBBA-EBBA mixture, light scatt. depend. on applied voltage *(Russian)* 4–82104
- mesophases, thermotropic and lyotropic, molecular ordering, polymorphism 4–78914
- 4-methoxybenzilidene-4′-amino-n-alkyl cinnamates, e.p.r. study 4–52684
- N-p-methoxybenzylidene-p-butylaniline, nematic phase, dielec. meas., absorpt., 1-120 × 10^3 kHz 4–45246
- methoxybenzylidenebutylaniline, u.s. surface wave visualisation *(Russian)* 4–42737
- microencapsulation in spheres *(German)* 4–63758
- molecular orientation in twist cell, under varying applied field, numerical method 4–69707
- nematic, alignment and wetting properties 4–52680
- nematic, bend-shear-mode instabilities in a.c. field 4–72433
- nematic, birefringence threshold voltage, anisotropy depend. 4–82685
- nematic, convective instabilities 4–72427
- nematic, crit. point in mag. field-temp. phase diagram 4–60408
- nematic, critical exponents for symmetric traceless tensor field theory model 4–59319
- nematic, effect of charge transfer acceptors on dynamic scatt., effect of liquid crystal as donor 4–60402
- nematic, elec. cond. anisotropy, temp. depend. *(Russian)* 4–66828
- nematic, elec. controlled birefringence, transient behaviour 4–75443
- nematic, frequency addressed field effect 4–79702
- nematic, generalised mean field theory 4–78917
- nematic, hydrodynamic theory in terms of correlation functions 4–63751
- nematic, hydrostatic pressure effects on phase transition temp. 4–52682
- nematic, interfacial effects in static theory 4–56611
- nematic, inversion wall annihilation dynamics *(German)* 4–78922
- nematic, Kerr effect obs. in isotropic phase 4–63754
- nematic, low field conduction by electrodialysis 4–78908
- nematic, method for determ. of flexo-electric coefficients 4–56612
- nematic, mol. orientating mechanisms in elec. and mag. fields 4–48508
- nematic, molecular reorientation and relaxation in electric field from birefringence effect 4–52693
- nematic, molecular theory, intro. 4–78916
- nematic, order parameter deviations due to high viscosity, e.s.r. obs. 4–79581
- nematic, phase diagram in vicinity of tricritical point 4–48505
- nematic, polarity depend. electro-optic effect, flexoelec. process 4–60401
- nematic, rod like mol. ordering theory 4–44464

liquid crystals continued
- nematic, soft modes predicted, isotropic-nematic transition on condensation 4–63881
- nematic, surface alignment, effect of substrate chem. and topography 4–78902
- nematic, theory of phase transitions 4–78890
- nematic, translational self diffusion, anisotropy, order and viscosity effects 4–69721
- nematic, twisted, dielec. anisotropy effect 4–48502
- nematic, twisted layer, transient effects in elec. controlled light transmission 4–70281
- nematic and nematic-cholesteric, light scattering relaxation, variation with several parameters 4–78906
- nematic esters, dielec. dispersion, positive anisotropy 4–82114
- nematic film, reorientation by static and alternating fields 4–69724
- nematic flows, transverse effects 4–82108
- nematic layer, deformation in crossed electric and mag. fields 4–66826
- nematic layers with homeotropic orientation, hysteresis in elec. field deform. 4–75442
- nematic liquid film, shear laminar flow, instability 4–48193
- nematic mixtures, phase diagrams determ. *(Hungarian)* 4–75448
- nematic phase, long range orientational distribution function 4–78919
- nematic phase, p.m.r. spectra *(German)* 4–56605
- nematic phase, viscosity coeffs. meas. *(French)* 4–78893
- nematic-isotropic phase transition, hard rod model 4–78918
- nematic-smectic phase transition, new lattice theory 4–60407
- nematogens, surface temp. limit detector, appl. to microcircuits 4–62425
- Onsager theory, gas of long rods, third virial coefficient 4–78900
- optical activity, nematic device for temp. sensing 4–58756
- p-ozoxyanisole, pVT diagram, 110-147°C, up to 400 atm. 4–82260
- p-cyanobenzilidene-p’-octyl oxyaniline, twist viscosity coeff. divergence near nematic-smectic A transition 4–75445
- PAA, mol. rot. diffusion, liquid cryst. and liquid states 4–60411
- para-azoxyanisole, nematic, relax., proton spin thermometry 4–78913
- para-octyloxybenzoic acid, nematic, relax., proton spin thermometry 4–78913
- paraazoxyanisole, acoustic relaxation rel. to transverse magnetic field 4–56613
- PBLG polypeptide, interaction with acidic mols. in mag. field rel. to orientation, ordering 4–44463
- phase transformation in gas of long thin rods, planar graph contribution to virial coefficients 4–71449
- phase transition, elec. field induced *(Russian)* 4–48509
- phase transition observation, pyroelectric thermograph indicator 4–54836
- phase transitions 4–63761
- phenyl 3-methyl benzoyloxybenzoate, low melting nematic derivatives 4–69718
- polarisation, e.m. and transport phenomena in nematic type 4–78903
- poly-γ-benzyl-l-glutamate, cholesteric liq. cryst., orientation fluctuation scatt. effects, light-beating spectra 4–63760
- poly-γ-ethyl-L-glutamate, cholesteric, pitch-independ. crit. field 4–69710
- poly-p-benzamide solution transition to liq. cryst. state, viscosimetric criteria *(Russian)* 4–48528
- polymerized, sections, texture 4–69715
- properties, surveyed, data display appl. 4–78888
- n-propyl-4-octyoxybiphenyl-4-carboxylate, smectic, X-ray investigation of phase transition 4–69711
- relaxation, proton spin thermometry at low fields 4–78913
- review, fundamental props. including polymorphism and practical appls. 4–56606
- review of material props. w.r.t. display device applics. *(Japanese)* 4–72426
- rheological properties investig. using acoustic currents *(Russian)* 4–82224
- scaled particle theory, soln. of integral eqn. for hard spherocylindrical fluids 4–72424
- Schiff bases, preparation and properties 4–78898
- second-order phase transition, nematic to smectic A, angular fluctuation dynamics in region 4–78897
- smectic, conoscopic obs. 4–60406
- smectic A, B or C type, isomorphic relations and phase diagrams *(German)* 4–52694
- smectic A, distortion lattices for superposed strain and mag. field 4–52681
- smectic A, interaction between parallel edge dislocation lines 4–52685
- smectic A, linear theory of dislocations 4–63756
- smectic A, mechanical instability, compression induced phase change 4–78896
- smectic A, second sound acoustic branch, damping by molecular axis non-hydrodynamic relaxation 4–82110
- smectic A mesophase, e.s.r. obs. of mol. motion 4–61020
- smectic A phase, analogy with supercond. 4–52688
- smectic A phase, X-ray scatt., mean field theory 4–72429
- smectic C, B and H phases, simple molecular theory 4–60410
- smectic H phases, melting behaviour 4–78895
- smectic phases, A, B and C, relationship between miscibility and structure 4–78892
- smectic-A, stress-strain fields around edge dislocations, calc. 4–60403
- smectic-A to crystalline phase transition, mean field approximation 4–56609
- smetic-A-nematic phase transition, time-depend. Landau theory, nematic viscosity coeff. 4–66823
- sodium isovalerate mesophases, horizon formation as fluidity test 4–48506
- sodium n-butyrate mesophases, horizon formation as fluidity test 4–48506
- spin-lattice relaxation, nematic director fluctuations cutoff calc. 4–72431
- TBBA, smectic B phase, quasi-elastic neutron scattering, uniaxial rotational diffusion meas. 4–78894
- terephthal-bis-butylaniline, TBBA, liq. cryst., struct. of smectic H phase investig. 4–82106

liquid crystals continued
terpthal-bis-butyl-aniline, Raman spectra of all observed phases 4—52686
texturing effect, dynamic scatt. regime 4—82686
thermotropic, organic, structure-property relationships 4—78915
thermotropic mesophase detection by rapid scanning light scatt. technique 4—63757
trisverdazyl radical, three-spin system, solid, fluid soln., liq. cryst. e.s.r. spectra investigs. 4—52203
twist viscosity coeff. divergence near nematic-smectic A transition 4—75445
twist walls in nematic liquid crystals 4—78911
two-dimensional, classical continuous model, criticism 4—63753
Au film, discontinuous, switching phenomena obs. by liq. cryst. technique 4—75972
p-azoxyanisole, domain struct. investigation by light diffraction 4—78920
POF$_3$, oriented in EBBA nematic phase, n.m.r. 4—57398
liquid drop model (nuclear) *see nuclear liquid drop model*
liquid films
see also adsorbed layers; liquid helium; superfluidity; surface tension
accelerated superfluid film flow, mechanism of dissipation 4—44726
adsorbed in cylindrical pores, excitation spectrum, thermodynamic props. 4—44771
n-alkanes, on silica, setting investig. 4—48833
condensate film, laminar stability anal. 4—63535
cooling of very hot vertical surface by falling liquid film 4—75101
dielectric, on flat plate, crit. electrostatic field strength 4—52476
downward flow along vertical surface with attendant heat transfer 4—43947
equilibrium states of periodic waves on fluid film down vertical wall 4—48330
evaporation kinetics, surface effect 4—63904
falling, heat exchange during evap. 4—66570
film condensation, correl. of data, similarity parameter applic. 4—63534
flow, gravitational instability in thermal entry region 4—48198
flow breakdown in inclined tube 4—63550
flow mechanism during steam condensation on horizontal finely-finned surface 4—78577
free-flowing, heat transfer in nucleate boiling 4—52384
hydrodynamics, falling film, gas phase shear stress 4—60187
inertia forces in laminar and turbulent flow 4—52349
laser beam effect on film (oil or kerosene) lying on water 4—47368
lenticular filament, longit. flow down inclined plane 4—78610
liquid-gas interface, longitudinal wave dispersion, thickness effect 4—44744
lubricating oil, dynamic response on rollers *(Japanese)* 4—44597
Marangoni instability in liq. layer with non-uniform heat source 4—75092
mass transfer in wavy liquid films 4—44091
metal, condensation, noncondensable gas effects 4—44667
monolayer, random packing in 2 dimensions 4—82336
monomolecular film on liquid surface, dynamic interactions with imposed electric field 4—66647
motivated film, surface wave effects on triple-phase front of dry path 4—72332
nematic, transverse effects 4—82108
Newtonian liquid film on vertical surface 4—48242
parallel disc model, uneven film thinning 4—72288
phase separations, vapour-liq. film Lennard-Jones systems, investig. by Monte Carlo methods 4—67045
polywater, props. on surface of quartz capillaries 4—82313
Reynolds' drainage model, initial transients 4—52491
soap film surface corrugations from soln. of M cetyltrimethylammoniumbromide and glycerol 4—47295
spontaneous rupture of thin film on solid surface and free film, hydrodynamic stability 4—44752
surface tension driven convective instability 4—60161
surface wave effect on thickness, cocurrent liquid-gas flow 4—66648
thickness measurement by fluoresc. technique 4—73984
thin lubricating oil film, electrical conduction 4—48694
turbulent, first order reaction gas absorpt. 4—63626
turbulent, motion in vertical tubes 4—66599
turbulent, systematic study and bulk flow theory 4—52397
turbulent shear flow analysis, approximations 4—52396
twist walls in nematic liquid crystals 4—78911
two phase flow system, rel. to shear stress distribution 4—52494
vertical falling, hydrodynamics and heat transfer 4—48201
viscous, free, surface thinning theory *(Russian)* 4—75687
water condensate film in inclined tube, heat transfer, hydrodynamics 4—66563
H$_2$O, direct contact condensation of immiscible organic vapours, heat transfer 4—75084
He, superfluid film, third sound attenuation 4—72608
He, transfer anomaly on plexiglass, thermal effects 4—69945
He II unsaturated superfluid films, critical velocity peak for Doppler-shifted third sound 4—52957
^{3}He, ^{4}He, second virial coeffs. of two-dimens. system using Beck pot. 4—67080
^{3}He, monolayer on superfluid ^{4}He, transport coeffs. 4—75659
^{3}He-^{4}He film, thickness and flow rate ^{3}He conc. depend. 4—56942
^{4}He, liq. superfluidity onset, connectivity theory relation 4—56934
^{4}He, monolayer adsorption on Grafoil, thermodynamics 4—72606
^{4}He, superfluidity of thin films on glass substrate at 0.2 to 1K 4—56929
^{4}He film flow suppressor for dilution still and ^{3}He purification 4—50988
^{4}He-solid interface, strong phonon conversion 4—72604
liquid flow *see flow of liquids*
liquid He *see liquid helium*
liquid helium
see also liquid helium-3; liquid helium-4; liquid helium sound propagation; superfluidity; vortices
atomic excited states, quenching and press. shifts 4—78338
boson hard sphere model applic. at 0K 4—63952
liquid helium continued
bound states of two-roton Schrodinger eqn. 4—65733
capillary wave excitation by means of Wigner lattice of surface electrons *(Russian)* 4—72609
container, thermal insulation model *(German)* 4—77057
cryostats, efficient filling and re-filling aid 4—68647
Dewar, improved, for Hitachi e.s.r. spectrometer 4—54998
dielectric loss 4—70255
film, momentum accommodation coeff., temp. depend. 4—82318
ion capture by vortex lines at low temp. 4—82298
kinetic coefficients, case of He II 4—75661
muonic atoms, polarized neutral atom investigation, hyperfine struct. possibilities *(German)* 4—78386
neutron scattering, inelastic, analogy to eN deep inelastic scatt., partons 4—51720
oscillating superfluid flow, effect of fluctuations 4—67082
phonon attenuation at very low temp., theory 4—52955
positive muons, Larmor precession 4—72603
positronium Lyman-α radiation from positrons stopped in liquid He 4—81742
refrigeration system, pumped, thermal efficiency, operating below 6K 4—68646
resonances in mobility of negative ions in microwave field 4—44724
roton spectrum, pressure depend. 4—60657
shock waves 4—72298
storage Dewar experimental cryostat *(German)* 4—46610
superfluid, exciton like excitations, energy spectrum *(Russian)* 4—67076
surface electron interaction with vapour-liq. interface oscills. (ripplons) 4—72601
surface states, metastable He$_2$ excited states on liq. He 4—72602
vacuum pumping system for Baseball II plasma machine 4—59866
H$_2$-He liquid metallic mixture, thermodynamic props., hard-sphere perturbation theory 4—48493
liquid helium-3
see also fermion systems
adiabatic solidification, Pomeranchuk cooling, low temp. production 4—58766
adsorbed monolayer, specific heat, mag. susceptibility 4—60665
anisotropic superfluid phase, density, observation of fourth and second sound 4—44720
cold finger cryostat for e.p.r. expts. 4—65403
correlation energies calc. in Brueckner-Goldstone formalism 4—67084
degenerate, in bounded geometry, spin diffusion coeff. 4—60668
dynamic parallel magnetism investig. 4—60670
Fermi superfluid, anisotropic, spin dynamics 4—56926
Ginzburg-Landau free energy, d-wave pairing near transition temp. 4—60671
Kapitza resistance at metal or mag. salt surface, spin-spin interactions 4—75665
Landau theory for low temperature equilibrium properties 4—63960
melting pressure at very low temp., extended solid model 4—60672
monolayer on superfluid ^{4}He, transport coeffs. 4—75659
neutron scattering at 1.3K 4—79216
normal, heat capacity, paramagnon contribution temp. dependence calc. *(Russian)* 4—82302
phase diag. below 3 mK 4—63963
precooling stage in adiabatic demagnetisation cryostat 4—77054
purification, using ^{4}He film flow suppressor 4—50988
semi-phenomenological theory of two phase transitions below 3 mK, spin Hamiltonian 4—52959
spin waves in hydrodynamic regime 4—82301
superfluid, A- and B-phases at melting curve, viscosity and density meas. 4—44730
superfluid, anisotropic, two-fluid hydrodynamics *(French)* 4—60656
superfluid, dynamical spin susceptibility, microscopic theory, n.m.r. line shift 4—56938
superfluid, fourth sound and superfluid mass meas. 4—72613
superfluid, Landau-Ginzburg eqns. 4—72595
superfluid, magnetic transition investigation 4—52961
superfluid, n.m.r. freq., weak coupling gap eqn. 4—56940
superfluid, n.m.r. line widths and shifts 4—79218
superfluid, n.m.r. shifts, mag. susceptibility depend. 4—72614
superfluid, paramagnon and BCS state 4—63962
superfluid, phase diagram, weak mag. field effects 4—52962
superfluid, phase diagram between 0.7 and 2.5 mK 4—72612
superfluid, spin susceptibility, low field behaviour, resonance poles 4—56939
superfluid, spin waves 4—56935
superfluid, static nuclear magnetism 4—52960
superfluid, triplet pairing, self-consistent approx. for correl. functions 4—52963
superfluid B-phase, magnetic anisotropy 4—72611
superfluid n.m.r. near critical temp., high mag. field and pressure effects 4—79217
superfluid transition mechanism, spin fluctuation exchange 4—69949
superfluidity, review 4—63961
superfluidity and phase diagram 4—69948
susceptibility discontinuity at A-normal transition 4—75664
susceptibility near 1K 4—56937
thermal boundary resistance with Ce$_2$Mg$_3$(NO$_3$)$_{12}$.24H$_2$O 4—44740
triplet pairing superfluidity, self-consistent approximation 4—56936
^{3}He, second virial coeffs. of two-dimens. system using Beck pot. 4—67080
^{3}He-A superfluid, parallel magnetisation, nonlinear phenomena 4—72610
liquid helium 3-4 mixtures
adsorption on solid surface of ^{4}He at low temp. 4—67085
dilute, ^{3}He spin diffusion coeff. and temp. variation of roton gap energy 4—44731
dilution refrigerator, design details 4—71174
dilution refrigerator, surface efficiency of heat exchangers 4—65401
film, thickness and flow rate ^{3}He conc. depend. 4—56942
impurity excitations interaction with negative ions 4—79219
light scattering near the tricritical point 4—72616
second sound, superfluid density, universality and scaling laws 4—82303

liquid helium 3-4 mixtures continued
sound absorption near λ point *(Russian)* 4−79220
superfluid, ^{3}He-^{3}He quasiparticle scatt. 4−72617
superfluid fraction near T_λ determ. 4−44732
superfluid solution, conc., first sound absorpt. *(Russian)* 4−79221
superfluid solutions, fourth sound propag., hydrodynamic eqns. *(Russian)* 4−75667
superfluidity of ^{3}He 4−69950
superfluids, acoustical approximation, sound propag. 4−75666
superfluids, hydrodynamic eqns. 4−72618
thermal conductivity meas., very dilute ^{3}He in ^{4}He soln., temp., pressure and conc. depend. 4−72615
u.s. absorption, 0.45-3K, temp. depend. near lambda point *(Russian)* 4−52965
wall film superfluidity in bulk normal phase 4−56941
HeII-^{3}He, energy current expression from equilibrium conditions 4−52964
^{3}He quasiparticle energy spectrum and dispersion law 4−48818

liquid helium-4
see also boson systems; superfluidity
accelerated superfluid film flow, mechanism of dissipation 4−44726
adsorbed monolayer, specific heat 4−60665
adsorbed monolayer on graphite, Debye temp. 4−79161
adsorption on solid surface in dilute liq. mixtures of ^{4}He in ^{3}He 4−67085
atomic structure, near superfluid transition, neutron diffraction 4−48814
condensate correlations, λ-transition 4−69944
dynamic structure function, exact and certain approximate forms 4−60659
electronic external and internal surface states 4−79214
film, behaviour using hard-sphere model 4−75658
film flow suppressor for dilution still and ^{3}He purification 4−50988
film transfer anomaly on plexiglass, thermal effects 4−69945
free energy minima in a ring 4−79212
free energy minima in a ring 4−79213
ground state wave function of liquid, solid ^{4}He phases, uniform theory at absolute zero 4−72600
ion mobility singularity at λ-point 4−63957
Kapitza resistance calc. with Cu 4−63958
light scattering from thermal second sound near λ-transition, 1.9 atm. 4−69946
liquid structure factors, neutron diffraction 4−48815
monolayer adsorption on Grafoil, thermodynamics 4−72606
neutron scattering at momentum transfer of 15 Å^{-1}, momentum distrib. 4−48813
neutron scattering from superfluid He, final state corrections including condensate and noncondensate contributions 4−63956
normal component density at higher pressures, roton spectral range depend. *(Russian)* 4−52958
optical breakdown, role of laser self-focusing 4−79215
phonon beam angular spreading, upward phonon dispersion 4−44728
phonon detectors, calibration 4−75590
phonon group velocity at 93 GHz, press. depend. 4−69947
phonon small angle scattering and sound propagation below 0.6K 4−72605
phonon spectrum, long wavelength limit, Brillouin Wigner anal. 4−56931
ripplon theory of surface tension 4−63955
second sound interaction with vortex lines 4−79211
second sound parametric excitation by first sound *(Russian)* 4−82300
sound attenuation, critical exponent 4−67077
superfluid, Bose-Einstein condensate, neutron scatt. data 4−75663
superfluid, divergent transport coeffs. at critical points, renormalization-group calcs. 4−51498
superfluid, electron-bombarded, pressure shifts and quenching of atomic and mol. metastable states 4−44729
superfluid, entropy under s.v.p., 1-2K *(French)* 4−60660
superfluid, Feynman and ILF crit. vel. theories 4−44725
superfluid, flow through small hole, critical velocities 4−60664
superfluid, forces on vortices, thermodynamic calc. *(French)* 4−44722
superfluid, fourth sound, hydrodynamic theory in clamped conditions 4−60662
superfluid, high-field negative-ion persistence currents 4−48816
superfluid, N atom stabilisation, recomb. radiation meas. *(Russian)* 4−67083
superfluid, neutron inelastic refl. at surface, two-fluid hydrodynamics *(French)* 4−44721
superfluid, quantized vortex line at known pinning sites 4−79208
superfluid, Raman scattering elementary excitation interactions 4−56927
superfluid, revised theory of evaporation, based on interacting many-boson systems 4−79206
superfluid, roton interactions, microscopic theory 4−72607
superfluid, specific heat, phonon and roton contrib. 4−48817
superfluid, temp. wave propag. 4−56932
superfluid film, third sound attenuation 4−72608
superfluid transition, new universal quantity 4−56930
superfluidity, excluded vol. conditions in quasi-particle theories 4−75662
superfluidity of thin films on glass substrate at 0.2 to 1K 4−56929
superfluidity onset temperature, second sound meas. 4−60666
surface state electrons, lifetime, thermal ionisation 4−60667
thermal conductivity, crit. anomaly near λ-transition 4−72594
thermal conductivity, critical exponent above λ-transition using skeleton graphs 4−56928
thermodynamic properties, 2-1500K, temp.-entropy charts 4−69942
thin film, multilayer, thermodynamic model of adsorption 4−56974
u.s. dispersion, attenuation near liq.-gas crit. point 4−72599
u.s. pumping of He II through pinhole 4−44723
Ga-He liq. interface, Kapitza cond., 1.2-1.8K, electronic thermal cond. 4−52956
He I, crisis of nucleate boiling in vertical channels, natural convection 4−69940
He I, flow boiling research 4−50989

liquid helium-4 continued
He I, surface tension, temp. and density depend. 4−67075
He II, adiabatic flow, cooling, mutual friction and press effects 4−63953
He II, adiabatic flow capillary temp. distrib. during stationary flow 4−63954
He II, effective interaction analysis 4−82296
He II, Feynman-Cohen excitation spectra, Monte Carlo calcs. 4−67079
He II, free surface, electron bubble phenomenological model 4−60663
He II, frictional forces at a rectilinear vortex 4−79207
He II, phonon dispersion curve, semi-phenomenological fit 4−82297
He II, phonon-phonon scatt., pressure depend. 4−67081
He II, rotating, quantised vortex line visualisation 4−67078
He II, rotational velocity oscillations 4−48811
He II, second sound vel. phonon dispersion depend. 4−56933
He II, supercritical counterflow, local temp. meas., Gorter-Mellink law validity determ. 4−44727
He II, superfluid proportion in Vycor porous glass, fourth sound meas. 4−63959
He II film thickness on Cu as function of surface roughness and saturation 4−82299
He II roton localised states surrounding ions 4−48812
He II target, for pion cross section precise measurements 4−77160
He II unsaturated superfluid films, critical velocity peak for Doppler-shifted third sound 4−52957
He-II, film, persistent currents 4−69943
He(I) boiling, heat transfer, forced convection in a tube 4−69939
HeII, lifetime of electrons trapped on vortex lines 4−79209
HeII, rotating, temp. depend. of second sound velocity reduction 4−69941
HeII, superfluid, energy current expression from equilibrium conditions 4−52964
^{4}He, second virial coeffs. of two-dimens. system using Beck pot. 4−67080
^{4}He-NaF interface, phonon reflection on solid side 4−60661
^{4}He-solid interface, strong phonon conversion 4−72604

liquid helium sound propagation
see also second sound; zero sound
fourth sound in superfluid He, hydrodynamic theory in clamped conditions 4−60662
superfluid film, third sound attenuation 4−72608
superfluid solution films, oscillations, surface normal component effect *(Russian)* 4−72598
superfluid solutions, fourth sound propag., hydrodynamic eqns. *(Russian)* 4−75667
He II, superfluid proportion in Vycor porous glass, fourth sound meas. 4−63959
He II unsaturated superfluid films, critical velocity peak for Doppler-shifted third sound 4−52957
He-3 fourth sound observations in possible anisotropic superfluid phase 4−44720
^{3}He, liq., superfluidity, review 4−63961
^{3}He fourth sound and superfluid mass meas. 4−72613
^{3}He-^{4}He solution, sound absorption near λ point *(Russian)* 4−79220
^{3}He-^{4}He solutions, u.s. absorption, 0.45-3K, temp. depend. near lambda point *(Russian)* 4−52965
^{3}He-^{4}He superfluid solution, conc., first sound absorpt. *(Russian)* 4−79221
^{3}He-^{4}He superfluids 4−75666
^{4}He, phonon small angle scattering and sound propagation below 0.6K 4−72605
^{4}He, u.s. dispersion, attenuation near liq.-gas crit. point 4−72599
^{4}He phonon spectrum, long wavelength limit, Brillouin Wigner anal. 4−56931

liquid lasers
7-alkylamino coumarins, acid soln., fluorescence and excitation spectra, laser emission 4−48062
anthracene dye, measurement of two-photon-absorption in cavity *(German)* 4−55473
chelate and $SeOCl_2$ *(Polish)* 4−69054
chemical, in visible region, general review 4−55469
chemistry in lasers, Stokes 0-0 loss role 4−71522
coumarin fluorinated dyes, performance and stability 4−71553
cresyl violet dye, quenching of laser action by 6943 Å radiation 4−74499
cresyl violet perchlorate, excited singlet state absorption, rel. to laser efficiency 4−64393
Cryptocyanin dye-laser, spectral kinetics *(Russian)* 4−51582
α-α'- diethoxymethyleneoctahydroxanthylium perchlorate, lasing by lamp pumping 4−47351
dye, absorpt. cross sections of first excited singlet state at 3371 Å 4−62839
dye, anti-Stokes luminescent quantum yield reduction effect on laser efficiency *(Russian)* 4−77673
dye, applic. in Rozhdestvenskii hook system 4−60326
dye, broadband tunability using two (multi) compartment cells 4−71554
dye, c.w., for ultra-high resolution spectroscopy 4−71193
dye, c.w. mode-locked, sub-picosecond kilowatt pulse generation 4−51585
dye, efficient, diffraction limited, ruby laser pumped 4−51589
dye, flash pumped, numerical solutions of rate equations 4−51586
dye, flashlamp pumped, prepulse enhancement for power output increase 4−74498
dye, flashlight-pumped with tunable wavelength 4−62840
dye, gain narrowing using glass fibre feedback line 4−65913
dye, generation freq. calc. in quasistationary regime *(Russian)* 4−47346
dye, high power, switching using rotary spark gap in series with flash lamp 4−74076
dye, high resolution, appl. of pressure scanning to tuning 4−77665
dye, high-energy planar self-guiding, flashlamp excitation 4−59416
dye, high-power, design of birefringent filter 4−62471
dye, laser resonator with longit. linear pumping *(Russian)* 4−43334
dye, linear flashlamp pumped, use of coaxial dye cell 4−81315
dye, mech. tuning of superradiant wavelength 4−71551

liquid lasers continued
  dye, N_2 pumped, efficient generation of tunable near u.v. radiation 4−59417
  dye, power output coupling 4−77671
  dye, present status review 4−43314
  dye, quantum states and chem. phenomena 4−51583
  dye, rapid acousto-optical tuning 4−58843
  dye, rapidly tunable c.w., for direct absorption spectroscopy 4−65438
  dye, reliable high average power, simmering-mode flashlamp operation 4−77666
  dye, saturable absorber mode locking, pulse compression 4−77672
  dye, time-resolved spectral characteristics *(Russian)* 4−59410
  dye, tunable, principle and applications 4−77670
  dye laser, coaxial glass flashlamp 4−54958
  dye laser, picosecond pulse amplification, meas. small signal, saturated gains 4−81316
  dye laser, triggering source for N_2 laser 4−81317
  dye laser, tunable, application to atomic spectroscopy 4−43727
  dye laser cavity, inverse Raman scatt. meas., method of intra-cavity spectroscopy 4−58807
  dye laser multielement spectrometer, linear pressure tuning 4−65429
  dye lasers, effect of triplet state losses on coherence 4−74501
  dye lasers, tunable, and applics. 4−71550
  dye materials, c.w. emission spanning visible spectrum 4−65912
  dye prism ring lasers, performance characts. 4−77667
  dye pulsed laser system, for Raman and luminesc. spectroscopy in solids 4−65425
  dye ring and dye coupled lasers, dual wavelength 4−71552
  dye ring laser, tunable, N pumped with single mode operation 4−55486
  dye solution convertor attachment, for N_2 laser 4−77668
  dye solution lasers, spontaneous and induced emission *(Russian)* 4−59413
  dye solutions, conference, Szeged, Hungary, Aug (1973) 4−59409
  electrochemiluminescent, development prospects 4−51584
  electrogenerated chemiluminescence pumped dye laser cavity 4−51587
  energy transfer organic dye mixture lasers 4−77669
  jet stream dye laser, narrow band operation 4−47347
  methanol, and deuterate, sub mm lasers 4−51592
  multicoloured laser beam display system 4−51659
  optical efficiency of co-axial systems, pumping liquid lasers *(Russian)* 4−69055
  organic, u.v., high power N_2 laser pumped 4−51588
  organic luminophors solns., amplification and induced absorpt. 4−47350
  organic solutions, intermolecular interactions effect, emission threshold 4−70324
  phenanthrene, location of $^3b_2^- \leftarrow {}^3B_2^+$ transition, possible use as dye laser investig. 4−76260
  photodecomposition effects on parameters of solution lasers *(Russian)* 4−59412
  phthalimide derivative solutions, lamp pumping, lasing characteristics 4−51591
  phthalocyanine dye, solvent characteriz. for stable passive shutters *(Russian)* 4−59418
  polychromatic pulsed dye laser, coloured beam prod. 4−74502
  polymethine dye, N_2 laser excitation, emission up to 9500 Å 4−47348
  polymethine dye solutions, investigation of light beam interactions *(Russian)* 4−43313
  polymethine dyes, laser induced absorption, fluorescence, generation characteristics 4−51590
  pulsed dye laser, sensitised fluorescence meas. of alkali metals 4−59459
  pyrilium perchlorate soln., lasing by lamp pumping 4−47351
  quantum electronics, conference, San Francisco, USA, (1974) 4−69036
  Raman active liquids, laser radiation intensity profile effect on self-focusing *(German)* 4−81346
  rhodamine, picosecond pulse amplification, meas. small signal, saturated gains 4−81316
  rhodamine 6G, ethanol soln., amplification and induced absorpt. 4−47350
  Rhodamine 6G, spectral kinetics *(Russian)* 4−51582
  rhodamine 6G, thin film distributed feedback, gain characts., tuning 4−62838
  rhodamine 6G (B), dimer emission, superradiant t.w. laser 4−71555
  rhodamine 6G dye laser pumping by plasma focus 4−81314
  rhodamine 6G dye soln., deterioration in methanol 4−47349
  rhodamine 6G in ethanol soln., stimulated emission on refl. from self-induced mirror 4−51593
  rhodamine 6G in ethyl alcohol soln., laser emission characts *(Russian)* 4−71556
  rhodamine 6G pulse dye laser, first-order coherence 4−59411
  rhodamine 6G/glass interface, inverted population, light internal reflection 4−51644
  rhodamine B, electronic absorpt. and emission spectra, effect of dimer form. 4−70345
  rhodamine B, optical heteorogeneity and induced extinction during org. solvent exposure to electrons *(Russian)* 4−77701
  rhodamine dye, laser pumped, stimulated emission, relaxational spectral shift 4−74500
  rhodamine two-component mixed solutions, laser generation yield *(Russian)* 4−59414
  rhodamine-6G, thin film DFB, wavelength control 4−59415
  stilbene dye, measurement of two-photon-absorption in cavity *(German)* 4−55473
  $POCl_3/ZrCl_4:Nd^{3+}$, repetitively pulsed, Q-switched 4−55474
  $POCl_3$-$ZrCl_4:Nd^{3+}$, high power amplifier performance 4−43311
  $POCl_3 + SnCl_4:Nd^{3+}$ laser materials, spectral luminescent characts., effec of oxidizing agents *(Russian)* 4−43312

liquid metals
  see also liquid alloys
  alkali metal, positron annihilation, perturbation calcs. 4−60519
  alkali metal-nonmetal solutions, model approach, enthalpy of soln. calc. 4−60399
  alkali metals, heat transfer crisis during boiling 4−44666
  boiling, two-phase flow, slug-annular regime parameters 4−44136

liquid metals continued
  condensation heat transfer of binary vapour 4−44108
  conduction in fully ionised metals 4−60777
  convection due to h.f. current heating in vertical channel 4−44711
  density measurement techniques, review 4−64522
  eddy diffusivity, heat transfer predictions 4−43981
  electrical resistivity using modified perturbation theory 4−79330
  electron beam refining, hydrodynamics of metal flow from melting bar *(Russian)* 4−53737
  electronic density of states, tight binding approx. 4−53027
  electronic effects in dynamical structure 4−75439
  electronic structure, effective medium approximation 4−60723
  electronic transition absence, first order, high pressure shock wave data 4−44822
  embrittlement of alloys, specificity concept 4−53766
  embrittlement of metals and alloys, rel. to microhardness measurement in liq. metal media 4−61561
  equilibrium properties, free volume theory 4−78883
  film condensation, noncondensable gas effects 4−44667
  flow, bubble growth inception at heated wall 4−44131
  flow, probeless temp. meas., thermoelectric effect 4−42985
  gas bubbles, interaction at high temperature reviewed, rel. to process metallurgy 4−67744
  hard sphere structure factors 4−44458
  hard-sphere diameter derivation, temperature depend. 4−56597
  heat transfer, conf. Trogir, Yugoslavia (1971) 4−43980
  heat transfer, rel. to reactor cooling 4−43630
  heat transfer analysis, flow through eccentric annuli 4−43985
  high-current emission from cold surfaces *(German)* 4−79856
  interaction processes of refractory inclusions, role of electrocontact *(Russian)* 4−45489
  kinetic processes, ion subsystem dynamics effect on transport coeffs. 4−57069
  MHD blanket scaling in toroidal fusion reactor 4−69345
  MHD condenser cycle with preheating *(German)* 4−69600
  molten, cylindrical channel lifetime in liq. phase *(Russian)* 4−56461
  monatomic, nuclear quadrupolar spin-lattice relaxation 4−79626
  multivalent, sp. elec. cond. temp. depend. *(Russian)* 4−57078
  n.q.r., theory 4−67489
  nuclear fuel element cooling, thermal-hydraulic anal. 4−43618
  nuclear fuel rod assembly cooling, analytic and lumped parameter solns. 4−43617
  nuclear reactor cooled rod assembly, temp. fields 4−43615
  nuclear reactor cooling, rod displacement effect, multiregion anal. 4−43621
  refractory, molten, surface tension meas. equipment 4−58772
  resistivity theory from force-force correl. function 4−57070
  resistivity theory from random force correl. formula 4−57077
  sand casting, heat transfer in flowing molten metal 4−45624
  self-diffusion in liquids and liquid metals, exptl. technique 4−56895
  solidification, two-dimens. model including convection in liq. region 4−73279
  superheat, effects on dynamic boiling 4−44662
  superheat, incipient boiling temp., cavity theory 4−44661
  superheating, bubble nucleation mechanism 4−44663
  surface tension, statistical mech. pseudo-atom model 4−72625
  surface tension near melting pt., approx. formula *(Japanese)* 4−44750
  surface tension prediction 4−63970
  thermal oscillations 4−63947
  thermodynamic properties, electron theory 4−56892
  transport properties, and hard sphere calc. results 4−78886
  turbulent diffusivities of heat and momentum transfer 4−43984
  turbulent forced convection, heat-transfer coeff. 4−43987
  turbulent MHD flow, heat transfer 4−44106
  Van Hove diagonality conditions and ionic configuration average 4−75765
  wetting of Mo films on nonmetallic materials 4−80045
  Al, collective modes calc. using self-consistent phonon scheme 4−79129
  Al, diffusion of H_2, coeff. determ. 4−82284
  Al, elec. resist. calcs. 4−44615
  Al, electrical resistivity, depend. on model potential form factor, dielectric screening function and struct. factor 4−67201
  Al, electrotransport of 3d transition metal solutes 4−82283
  Al, interaction of pyrolytic graphite, 1050-1350°C *(Russian)* 4−53793
  Al, molten, wetting of vitreous C 4−79233
  Al melt, heat of dissolution and modifying ability of transition metals *(Russian)* 4−79983
  Bi, density, pycnometric method *(Polish)* 4−67743
  Bi, surface tension meas. by maximum bubble-pressure method 4−48830
  Ca, v.p. curve *(German)* 4−82262
  Ca:In, liq., tracer impurity diffusion 4−56899
  Cd density, pycnometric method *(Polish)* 4−67743
  Cs, viscosity meas. up to 1600°C 4−63938
  Cu, enthalpy meas. using liq. Ar calorimeter 4−60623
  Cu, high temp. viscosity meas., viscometer design 4−58952
  Cu, u.v. photoemission, density of states determ. 4−72675
  Dy, elec. resist. meas. from room temp. to 1600°C 4−60776
  Fe, adsorption and surface activity of Se *(Russian)* 4−45487
  Fe, diffusion of Ti, 1550-1700°C *(Russian)* 4−69928
  Fe, impurity diffusion mechanisms *(Russian)* 4−45485
  Fe, surface energy, temp. depend., 1550-1800°C 4−67093
  Fe, surface energy, temp. depend., 1550-1800°C 4−67094
  Fe, with dissolved Si, oxidation reaction thermodynamics *(Russian)* 4−45910
  Ga, convective temp. oscillations 4−63946
  Ga, diffusion of P, rel. to GaP cryst. growth rate in synthesis, solute diffusion method 4−45469
  Ga, embrittlement of Al alloys and brazing of waveguides *(Russian)* 4−80055
  Ga, interface with GaAs, substrate characts. influence on contact angles 4−48831
  Ga, structural transform. obs. by exoelectron emission method 4−53587
  Ga, structure factor investigation *(French)* 4−56603

liquid metals continued
- Ga, supercooled, liq. structure factor meas. by X-ray scattering 4–48499
- Ga, X-ray diffr. obs., intensity patterns between 163 and 323K *(French)* 4–52677
- Ga:Ag(Sn), liq., tracer impurity diffusion 4–56902
- Ga:Au, liq. tracer impurity diffusion 4–56901
- Ga:Zn(Cd), liq., tracer impurity diffusion 4–56900
- Ga-Re contact, liq.-solid, FIM obs. of contact phenomena 4–48820
- Ga-W contact, liq.-solid, FIM obs. of contact phenomena 4–48820
- Hg, cavitation during flow in transverse mag. field *(Russian)* 4–81961
- Hg, fluidity on Sn surface, −33 to +80°C *(Russian)* 4–49633
- Hg, heat transfer from vertical flat plate 4–44710
- Hg, spreading on Pb, Cd, Cu and Zn surfaces under cathodic polarisation conditions 4–64712
- Hg, struct. factor, temp. insensitivity −β5 to 250°C, X-ray diffr. obs. 4–60400
- Hg, supercooled, liq. structure factor meas. by X-ray scattering 4–48499
- Hg, surface plasmon dispersion reln. determ. 4–57154
- Hg, surface tension meas. by maximum bubble-pressure method 4–48830
- Hg, viscosity, up to 1000 kg cm^{-2} 4–82285
- Ho, elec. resist. meas. from room temp. to 1600°C 4–60776
- In, compatibility with Ti alloys and alloy steels 4–71997
- In, γ-γ ang. correl. meas. 4–79652
- In:Ga, liq., tracer impurity diffusion 4–56899
- K, boiling, heat removal system design for fusion reactor blanket 4–69342
- K, boiling heat transfer in tubes, press. influence 4–44133
- K, boiling in short rod bundles, crit. heat flux meas. 4–43625
- K, effective pair pot., exptl. test of models 4–56600
- K, electrical resistivity, thermoelectric power, model potential calcs. 4–60774
- K, electron dispersion study of effective mass and density of states 4–48891
- K, interionic potential, effective pair potential 4–75438
- K, non-equilib. flow, vaporizing through nozzle 4–44137
- La, heat capacity, thermal and elec. cond., 1200-1600K *(Russian)* 4–44893
- Li, compatibility with CTR containment materials, impurities influence 4–63291
- Li, coolant for θ-pinch reactor, induced radioactivity calc. 4–63296
- Li, in conducting wall pipe in transverse mag. field, MHD pressure drop, rel. to fusion reactor blanket cooling 4–69603
- Li, reaction with heavy metal oxides 4–83027
- Li cooled fusion reactor blanket, use of insulated walls to reduce MHD pressure effects 4–69341
- Li-cooled mirror machine blanket, thermal energy conversion system 4–63300
- Li-cooled Tokamak reactor blankets, thermal and mech. design 4–59857
- Li-Na-stainless steel blanket, heat transfer and radiation damage 4–55935
- Mo, solubility of N_2 at 2650°C *(German)* 4–73312
- N, interionic potential, effective pair potential 4–75438
- Na, appl. of theory for Brownian motion of particle in heat-cond. liq. *(Russian)* 4–81242
- Na, boiling, crit. conditions for dryout 4–43627
- Na, boiling, l.p., natural convection, heat transfer meas. 4–44665
- Na, boiling in rod bundles, hydraulic model 4–43626
- Na, collective modes calc. using self-consistent phonon scheme 4–79129
- Na, eddy cond. meas., temp. profiles 4–43983
- Na, eddy diffusiity in circular duct, meas. technique 4–43982
- Na, effective pair pot., exptl. test of models 4–56600
- Na, electrical resistivity, thermoelectric power, model potential calcs. 4–60774
- Na, electron dispersion study of effective mass and density of states 4–48891
- Na, forced convection boiling loop, crit. conditions 4–44134
- Na, freq.-depend. friction const., single particle props. 4–63749
- Na, hydrodynamic instability in parallel channels, boiling 4–44135
- Na, in heat pipe, heat transfer meas. at low temp. 4–81616
- Na, incipient boiling in single-pin annular channel 4–78229
- Na, interaction effect on LMFBR safety, review *(Japanese)* 4–78161
- Na, mixed convection meas., body forces effect 4–43986
- Na, oxygen analysis by V wire equilibration 4–58995
- Na, oxygen analysis by V wire equilibration 4–68840
- Na, reactor coolant, entrainment in Ar flow 4–43628
- Na, reactor coolant, flow and temp. distrib. around blockage 4–43622
- Na, reactor coolant, mixing effect, temp. distrib. 4–43623
- Na, reactor cooling, incipient boiling superheats 4–44664
- Na, reactor cooling, temp. distrib., eccentricity effects 4–43619
- Na, reactor cooling simulation, heating method, rod eccentricity effects 4–43620
- Na, self-motion, calc. of memory function, velocity autocorrelation function 4–63747
- Na, triplet correlation function from struct. factor, press. depend. 4–52679
- Na conduction electron spin-lattice relaxation, 13K to 600K, normal and umklapp processes 4–64263
- Na coolant, molten UO_2 fragmentation on constant, thermal stress mech. 4–81565
- Na liquid-vapour interface, rapid transient movement meas. 4–46900
- Na two-phase flow, in nuclear reactor, flow pattern, pressure drop and critical heat flux 4–81562
- Na-cooled fast reactor safety instrumentation 4–43593
- Na-NaK, horizontal heat exchanger, mixed convection in shell 4–43629
- Ni, molten, sulphur thermodynamics 4–49661
- Ni, surface energy, temp. depend., 1550-1800°C 4–67093
- Ni, surface energy, temp. depend., 1550-1800°C 4–67094
- Pb, electrical resistivity, depend. on model potential form factor, dielectric screening function and struct. factor 4–67201
- Pb, freq.-depend. friction const., single particle props. 4–63749

liquid metals continued
- Pb, surface tension meas. by maximum bubble-pressure method 4–48830
- Pu, sound vel. meas. from m.p. to 950°C 4–66266
- Rb, density fluctuation propag., hydrodynamic models 4–72418
- Rb, density fluctuations, mol.-dynamics calcs. 4–66815
- Rb, density fluctuations, neutron scatt. obs. 4–66814
- Sn, flow in horizontal beds 4–44167
- Sn, surface tension meas. by maximum bubble-pressure method 4–48830
- U, enthalpy meas. using liq. Ar calorimeter 4–60623
- Zn, density, pycnometric method *(Polish)* 4–67743
- Zn, electrical resistivity, depend. on model potential form factor, dielectric screening function and struct. factor 4–67201
- Zr, activity coeffs. of low-volatile impurities *(Russian)* 4–45486

liquid oscillations
- *see also liquid waves*
- arbitrary centres of revolution, hydrodynamic characteristics by a variational method *(Russian)* 4–78670
- bay water oscillations, boundary conditions at bay entrance *(Japanese)* 4–46006
- boundary layer, viscous fluid ciliary propulsion 4–81888
- deep bodies of liquid, variational anal. of natural oscillations *(Russian)* 4–52469
- eastern boundary currents of the tropical Atlantic *(Russian)* 4–73528
- eigenfrequencies of oscillations in rotationally symmetric fuel tanks, singularity method *(German)* 4–69599
- incompressible viscous fluid near entry between two parallel plates, oscillatory flow 4–78675
- ion exchange bed, pulsation effect on percent use 4–45936
- jet, oscillatory motion, surface-active material effect 4–44048
- manometer-type liquid-column oscills. and drag-reducing polymers 4–82977
- mass transfer between solid particle and liq. in field of oscillations excited by spark discharge 4–45849
- non-Newtonian fluid, Bingham type, motion generated by oscillating plate 4–48316
- oscillatory and collective instabilities in large Prandtl number convection 4–81838
- part full axisymmetric stationary containers, calc. 4–60224
- rapidly oscillating flow, particle motion analysis 4–52484
- sloshing motion in triangular tank, oscillation frequencies determ. 4–81941
- superposed flow, h.f. behaviour 4–66642
- superposed flow, l.f. behaviour 4–66641
- surface layer oscill. growth due to second incident on liquid interface *(Russian)* 4–52819
- tank, air-agitated, surface oscillations and suppression 4–52462
- in tanks with membrane on free surface, axial load factor effect 4–63589
- viscoelastic fluid, forced oscillations in rot. cylinder of finite length *(French)* 4–48329
- viscoelastic fluid, in spherical container, linearized eqns. of motion *(French)* 4–48328
- viscous electrically conducting liq. in mag. induction field, plane oscillations *(French)* 4–44097
- viscous sphere, Chandrasekhar eqn. solns. 4–55281
- water, liq., optical, dielec. props. meas. rel. to collective electronic oscills. investig. 4–60398
- waterfalls, resonating, meas. of modes and frequencies 4–61716

liquid permeability *see permeability*

liquid semiconductors
- conference, Garmisch-Partenkirchen, Germany (Sep. 1973) 4–72665
- electron properties, model *(Russian)* 4–69975
- AgTe, metal like semicond. melt, Hall coeff. meas. 4–79371
- As_2Se_3, cond. at h.f., high temp. or strong field 4–75881
- As_2Se_3, elec. cond. switching, temp. depend. of activation energy 4–79386
- As_2Se_3-As_2Te_3, temp. depend. of electrical conductivity 4–72779
- B_2O_3, I-V characts., strong electric field effects 4–57103
- Bi_2Te_3, metal like semicond. melt, Hall coeff. meas. 4–79371
- $CdGeP_2$, cryst.-melt phase transition, elec. cond. meas. 4–72777
- $CuO.P_2O_5.V_2O_5$, I-V characts., strong electric field effects 4–57103
- CuTe, Cu_2Te, liq. struct., neutron diffr. 4–75441
- GaTe, metal like semicond. melt, Hall coeff. meas. 4–79371
- In-Te, liquid alloys, elec. cond. and thermoelec. power meas. 4–82410
- InSb, and amorphous films, X-ray and electron diffr. exam. of short-range struct. 4–44468
- Sb_2O_3, I-V characts., strong electric field effects 4–57103
- Se, liq. and amorphous, hole transport mechanism 4–75885
- Se, photocond., optical absorpt. 4–75920
- Se, Se:Te(Ge), I-V characts., strong electric field effects 4–57103
- Se-Te, cond. at h.f., high temp. or strong field 4–75881
- Sn-Se alloys, elec. cond. and thermo-e.m.f. 4–44946
- Te, elec. cond. meas. at temps. beyond normal b.p. 4–70055
- $TlAsS(Te)_2$, cryst., glassy and liquid states, thermal cond. meas. 4–79200
- Tl_2S, molten, solid phases, elec. cond., thermoelec. power meas., doping investig. 4–44948
- Tl_2Se:Te,In(Sn), molten, possibility of carrier compensation 4–75906
- Tl_2Te, mobility edges, pseudogap model 4–44820
- Tl_2Te, pseudogap determ., diffusive transport 4–82348
- $ZnSiAs_2$, reversible cryst. to melt phase transition, elec. cond. meas. 4–72776

liquid-solid transformations *see solid-liquid transformations*

liquid structure
- *see also long-range order; short-range order*
- acetic acid, X-ray diffraction determ. 4–44459
- acoustic spin resonance, Maxwell effect 4–49212
- alcohols, quasicrystalline struct., Raman spectra 4–76242
- alkali fluorides, aq. solns., ^{19}F nuclear mag. relax. time meas., water reorientation, struct. investig. 4–82102
- alkali halides, aq. solns., i.r. reflect. meas., refractive indices determ., struct. of water investig. 4–70292

liquid structure continued
- alkanes, in soln. long and short chain mixtures, aggregation investig. by X-ray scatt. 4−60397
- alloy, binary, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
- alloy, binary, solid sphere model, molar volume changes during alloy formation *(Russian)* 4−52678
- aromatic liquids, mol. rot., cold-neutron state 4−56601
- atomic clusters, struct., vibr. props., melting investig., mol. dynamics simulation method 4−66804
- binary mixture, of polar and non-polar liquids, compressibility investig. using u.s. method *(French)* 4−56793
- binary system with normal components, struct. rel. to dielec. const. calcs. *(Russian)* 4−73066
- t-butyl alcohol, rel. to acoustic nonlinearity parameter 4−75577
- carbon tetrachloride, mol. motion determ. 4−53333
- classical, hydrodynamic theory of translatory velocity and momentum correlation functions of molecule *(Russian)* 4−52674
- classical binary isotopic fluids, excitations, at. transport 4−69929
- collision diameter, upper bound calc. from HNC and PY theories 4−75433
- conformal solution, partial struct. factors and atomic dynamics 4−78876
- diatomic, X-ray and neutron diffr. 4−78880
- dipolar mixtures, mean spherical model solution 4−77554
- electron correlation functions from scattering data 4−78877
- electron diffraction determ. 4−63742
- ethylbromide and deuterated analogues, liq., relative mol. orientation determ. from proton mag. relax. meas. 4−57419
- fluorobenzene-d_5, mol. motions in dense fluid region 4−57413
- formic acid, X-ray diffraction determ. 4−44459
- hard core size at m.p., rel. to Lindemann law 4−79168
- Lennard-Jones fluids, mean spherical model for struct., correlation function calcs. 4−60390
- mean spherical model for mixture of charged spheres and hard dipoles 4−56596
- melt, neutron diffractometry, method of two isotherms 4−48479
- metal, dynamical structure factor, electronic effects 4−75439
- metal, hard sphere structure factors 4−44458
- methane, liq., trapped electron electronic state calc., INDO-UHF method 4−68028
- methane, mol. motion, neutron scatt. obs. 4−63750
- methane, X-ray diffraction, evaluation of direct correlation function 4−66812
- methanol, vol. viscosity, struct. determ. by u.s. absorpt. meas. 4−56604
- methanol solutions in acetonitrile, dielec. determ. 4−54098
- methyl iodide, liq., mol. reorientation and vibr.-relax., temp. and density effects 4−79716
- molecular liquids, orientational single particle correl. functions, J diffusion model theory derived 4−60393
- molecular liquids, translational single particle correl. functions, model hard sphere system 4−60392
- monatomic liquid, atomic and electronic transport props. and molar vol. 4−72581
- naphthalene in n-alkane solns., spectral shifts of $\pi\pi^*$ bands, mol. orientation, theory 4−72111
- neutron spectrometer, pulsed source, for structural studies of amorphous materials 4−56589
- nitromethane, molecular structure determ. by Rayleigh scattering 4−49346
- nitrotoluene melt, viscosity meas., −12-45°C 4−48780
- optimal mode analysis of first coordination layer *(Russian)* 4−60588
- orientational relaxation, angular velocity autocorrel. functions determ. 4−66805
- polarisation, whole range from very weak to very strong polarisation 4−78903
- polywater, extended plane structure, experimental and theoretical evidence compared 4−78542
- propionic acid, X-ray diffraction determ. 4−44459
- pyridine, in dioxane and CCl_4, dipole moment determ., solvent effects investig. *(German)* 4−70622
- quaternary ammonium salts, molten, conductance, vol. meas. at high press., liq. struct. model 4−52921
- random packing of hard spheres, computation, model 4−69701
- relaxational compressional modulus derived from eq. of state 4−69702
- restricted cell model for hard parallel rectangles in brick wall config. 4−44456
- review of theories on struct. and props. 4−75432
- rigid sphere liquids, equation of state, surface tension evaluation 4−48829
- statistical mechanical perturbation theory, use of non-spherical ref. pot. 4−78881
- structure factors, dynamic, coherent and incoherent, cluster expansion 4−63748
- tricyclo(3.3.0.0) octane, liquid and plastic crystn., vib. lifetimes, Raman obs. 4−57515
- trinitromethane, vib. spectra and struct. 4−63442
- viscous liquids, e.p.r. lineshapes, relaxation due to secular interactions 4−67428
- water, effect of dissolved high molecular weight compounds, thermodynamics 4−50222
- water, electron diffraction determ. 4−63742
- water, intermol. pot. energy function derived from mol., lattice, struct. parameters 4−78536
- water, Monte Carlo simulation, effect of correl. energy corrections to Hartree-Fock water-water potential 4−66811
- water, proton chem. shift temp. and press. depend. 4−79617
- water, random tetrahedral model, distrib. function and ang. deforms. 4−78882
- water, Rayleigh scatt. spectra, hydrogen bonding, mol. reorientation, polarisability anisotropies investig. 4−76244
- water, review 4−66809
- water, self-diff. coeffs. and rot. correl. times, theoret. determ. 4−56896
- water, sound velocity maximum, effect. of non-electrolytes on temp., struct. investig. 4−69858
- water, structure and thermodynamics, Monte Carlo method 4−44461

liquid structure continued
- water, X-ray zero-angle scatt. cross section 4−78885
- water adsorbed on ion-substituted polysilicic acid gels, structure determ. by spin-echo method 4−45854
- water-dimethyl sulphoxide liquid system, struct. determ., spin-lattice relax., chem. shift investigs. 4−82098
- Ag-Al alloy, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
- Ar, atomic motion, neutron scatt. obs. 4−63750
- Ar, dense fluid, thermal cond., viscosity calc. using perturbation theory 4−67059
- Ar, molecular dynamics investigation of free surface 4−52971
- Ar, structure factors, dynamic, coherent and incoherent, cluster expansion 4−63748
- Ar, tunnel-model liq., X-ray scatt. investig. 4−82099
- Ar-Kr, binary liquid mixtures, partial struct. factors in long wavelength limit 4−78884
- Br, by neutron diffr. obs. 4−72420
- CS_2, depolarised Brillouin spectra 4−57516
- CaO-Al_2O_3-CaF_2 system, glass form., electron microscopic, i.r. spectra obs., liq. zone 4−69730
- Cd-Al-Sn, eutectic alloy, atomic distrib. function *(Russian)* 4−56598
- Cl_2, X-ray state, from diatomic mol. 4−56599
- CuTe, Cu_2Te, semicond., neutron diffr. 4−75441
- D_2O, dielec. const. determ. rel. to press., struct. investig. 4−61089
- D_2O-diamagnetic electrolyte solutions, effect of press. on deuteron spin-lattice relax., struct. breaking investig. 4−61015
- $FeCl_3.4H_2O(4D_2O)$, molten, Raman spectra anal. 4−45294
- Ga, structural transform. obs. by exoelectron emission method 4−53587
- Ga, structure factor investigation *(French)* 4−56603
- Ga, supercooled, liq. structure factor meas. by X-ray scattering 4−48499
- Ga, X-ray diffr. obs., intensity patterns between 163 and 323K *(French)* 4−52677
- $Ga_2(Se_xTe_{1-x})_3$, solid immiscibility and liq. struct. investigation 4−67046
- H_2O, dielec. const. determ. rel. to press., struct. investig. 4−61089
- H_2O and D_2O, effect of pressure, 0 to 1000 bar 4−48497
- He^4, liquid, final state corrections including condensate and noncondensate contributions 4−63956
- ^4He, atomic structure, near superfluid transition, neutron diffraction 4−48814
- ^4He, dynamic structure function, exact and certain approximate forms 4−60659
- ^4He, liquid structure factors, neutron diffraction 4−48815
- Hg, struct. factor, temp. insensitivity $-\beta5$ to 250°C, X-ray diffr. obs. 4−60400
- Hg, supercooled, liq. structure factor meas. by X-ray scattering 4−48499
- Hg-In alloys, liq., association equilibria, conc. depend. of enthalpy of mixing *(German)* 4−72423
- Hg-K alloy, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
- Hg-Tl alloys, viscosity meas., 20°-90°C, presence of Hg_3Tl type associations *(German)* 4−69705
- K, effective pair pot., exptl. test of models 4−56600
- KCl-$ZnCl_2$ system, liq., Raman spectra determ. rel. to composition, struct. investig. *(German)* 4−70314
- KNO_3-$Ca(NO_3)_2$, melt, glass-forming, elec. relax. investig. in liq. and vitreous states 4−76214
- Kr-Xe, binary liquid mixtures, partial struct. factors in long wavelength limit 4−78884
- Li salts in aqueous and organic solutions, short-range order from adiabatic compressibility data 4−48495
- $LiNO_3$ and $LiNO_3$-KNO_3 mixtures, molten, ^7Li spin-lattice relax. time 4−53331
- Mg-Bi alloy, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
- NH_3, dynamics determ. from cold neutron scatt. 4−72422
- Na, effective pair pot., exptl. test of models 4−56600
- Na, self-motion, calc. of memory function, velocity autocorrelation function 4−63747
- Na, triplet correlation function from struct. factor, press. depend. 4−52679
- Ne, neutron critical scattering obs. of Ornstein-Zernike deviation 4−66813
- $NiCl_2$ solution in D_2O, ion distrib., neutron diffr. obs. 4−44457
- $PbCl_4$, liquid, field-dependent relax. and absolute nucl. shielding of ^{207}Pb 4−53329
- Rb, density fluctuation propag., hydrodynamic models 4−72418
- Rb, density fluctuations, mol.-dynamics calcs. 4−66815
- Rb, density fluctuations, neutron scatt. obs. 4−66814
- SnX_4, X=Cl, Br, I, n.m.r. relax. of ^{119}Sn, field depend. 4−53330

liquid surface waves
- *see also oceanography*
- air-sea momentum exchange 4−57971
- atmospheric surface layer at sea, turbulent momentum, heat and water vapour fluxes 4−58006
- axisymmetric wave propagation, surface tension effects 4−78676
- bubbles, simultaneous excitation of surface waves and subharmonics, thresholds 4−78692
- Cape Cod Canal, microwave radiometer meas. of surface roughness 4−70685
- column of circular cross-section, weakly nonlinear capillary waves, derivative expansion method 4−66639
- corrugated surface transient response for radar sensing of sea wave structure 4−80419
- disc striking shallow liquid, pulse pressure, apparent mass and apparent moment of inertia determ. *(Russian)* 4−75163
- film, motivated, surface wave effects on triple-phase front of dry path 4−72332
- forced in channel, effect of surface tension 4−52468
- gas-liquid interface, wavy disturbance effect on heat transfer 4−63586
- gravity wave, slowly-varying, approach to beach 4−64842
- gravity wave-internal wave interaction 4−52465
- growth oscillations due to sound incident on liquid interface *(Russian)* 4−52819

liquid surface waves continued
  Gulf of Mexico, hurricane wave heights, meas. and model 4−70687
  harbour, wave induced oscillations, theory and expt. *(Japanese)* 4−80311
  ice rate, of small-capacity fishing vessels *(Russian)* 4−58048
  Kelvin wave propagation along irregular coastline 4−61721
  Lake Ontario, turbulence spectrum transition generated by breaking waves 4−73499
  linear theory, method of reflections 4−81940
  liquid film, surface wave effect on thickness cocurrent liquid-gas flow 4−66648
  long shelf wave generation by wind, boundary layer approx. 4−50273
  Lough Neagh, wave and drag properties of surface with limited fetch 4−76674
  nonlinear interaction between standing surface and internal gravity waves 4−52466
  nonlinear water waves, shear current effect, models 4−68160
  North Atlantic storm 1968, wave height and period statistics 4−73520
  North Sea, sharply peaked wave energy spectra 4−68156
  ocean, directional spectra from oblique photographs 4−46133
  ocean, edge wave excitation at incidence on beach 4−46002
  ocean, equipment to extract energy 4−58150
  ocean, momentum transfer over waves, influence of stability and wind-wave coupling 4−57977
  ocean, spectral dissipation due to white capping 4−57970
  ocean wave slope spectra determ. by airborne radar 4−80420
  ocean waves, relatively calm, in Lesser Antilles region 4−80294
  offshore sea surface, nine-channel wave recorder for space-time characts. *(Russian)* 4−80415
  open-ocean wind-generated wave spectra, equilibrium range 4−70675
  planetary waves, diffraction by infinite strip, Weiner-Hopf equation 4−45994
  Rossby waves in circular basin and ocean, interior boundary value problem *(Russian)* 4−73512
  rotating ocean, edge waves with inclined shore *(Russian)* 4−54178
  sandy beach wave run-up, height variation 4−46000
  sea, atmospheric turbulent surface layer, wind wave-induced disturbances 4−54174
  sea, dynamical anal. of drag conditions 4−54171
  sea surface waves generated by periodic atmospheric disturbances, dissipation *(Russian)* 4−80298
  sea wave attenuation, by rain 4−64841
  sea wave imaging by coherent microwave radar 4−80418
  shallow sea water, drag coeff. 4−54175
  shallow sea water surface, drag and bulk transfer coeffs. 4−57976
  shallow water theory foundation 4−81934
  ship waves breaking on model beach, mapping and wave profiles 4−61725
  shoaling water, optimal field size for wave spectra determ. 4−64845
  short gravity-capillary wind waves, microwave c.w. Doppler spectra 4−80312
  slope meas. using solid state optical probe 4−68857
  solitary wave, mass, momentum, energy as function of amplitude 4−69598
  solitary wave height change and collapse on flat coastal slope *(Russian)* 4−64865
  spectral characteristics of rough sea from analysis of spectrum of radar signal *(Russian)* 4−73588
  standing waves on natural beaches 4−70677
  tank, air-agitated, surface oscillations and suppression 4−52462
  Taylor instability, of accel. air-water interface 4−44095
  tropical Atlantic, wave analysis of Polygon array 4−80292
  tsunami warning system, ionospheric acoustic wave Doppler technique 4−46135
  tsunamis, numerical simulation 4−50272
  u.s. wave height meter, emission type 4−74011
  viscous fluid nonlinear surfaces waves in inclined channel 4−78674
  water, radiation and scattering from vertical barrier 4−52464
  water edge waves on beach of mild slope 4−57994
  water Korteweg de Vries eqn. 4−75160
  water waves, induced by solid bodies in relative motion *(German)* 4−66643
  wave-current interactions on fluid force 4−54183
  wind generated, interaction with air current *(Russian)* 4−57960
  wind waves on stationary current inhomogeneous over depth *(Russian)* 4−78673
  wind-generated waves, constants in frequency and wave number spectra 4−70666
  wind-wave generation, wind velocity struct. 4−54197
  He^4, ripplon theory of surface tension 4−63955

liquid theory
  see also equations of state of liquids
  alloy, binary, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
  alloy, compound molecule form., effect on conc.-conc. correl. function, long-wavelength limit 4−82100
  atom clusters, total free energy from liquid-state perturbation theory 4−52671
  binary diffusion coeffs., mass and size depend., mol. dynamics formulation 4−79172
  binary fluid, freq.-depend. transport coeff. determ. 4−56894
  binary liquid mixtures, excess thermodynamic function prediction 4−60626
  blip function theory of dense fluids comprising linear mols. 4−75435
  blip function theory rel. to diffr. from diatomic liqs. 4−78880
  charged hard spheres, thermodynamic and structural props., Monte Carlo calcs. 4−66537
  classical, hydrodynamic theory of translatory velocity and momentum correlation functions of molecule *(Russian)* 4−52674
  classical binary isotopic fluids, excitations, at. transport 4−69929
  conformal solution, partial struct. factors and atomic dynamics 4−78876
  conformal solution theory, mixture radial distrib. function and mol. dynamics, appl. to Ar-Kr 4−44455
  critical phenomena in strong electric field 4−77581
  dense fluid, kinetic theory 4−78879

liquid theory continued
  dipolar hard sphere mixtures, thermodynamic props. 4−78878
  dipolar mixtures, mean spherical model solution 4−77554
  dynamical form factor moment, long-range forces contrib. *(Russian)* 4−82097
  electrolyte solution, optimised cluster expansion 4−48492
  electron correlation functions from scattering data 4−78877
  equation of state for system of hard spherocylinders, Monte Carlo method 4−69713
  equilibrium and transport properties, modification of Kirkwood superposition approx. 4−52856
  fused salts, appl. of mol. dynamics method 4−82101
  hard core size at m.p., rel. to Lindemann law 4−79168
  hard dipolar sphere calculation, Monte Carlo, Metropolis sampling method 4−72414
  hard sphere radial distrib. function of eqn. of state by scaled particle theory 4−75434
  Helmholtz free energy, polar fluid, ionic soln., three-body contribution 4−48491
  n-hexane + neopentane(tetramethyl silane) mixture, conc. depend. work function calc. 4−66810
  hole theory for binary mixtures, excess functions calc. *(Spanish)* 4−48494
  kinetic memory function 4−60143
  kinetic theory, polyat. liqs., generalised moment method 4−60394
  kinetic theory polyat. liqs., sphere, ellipsoid models 4−63745
  Kirkwood-Rice-Allnatt, kinetic theory, transport in liqs. 4−69927
  Lennard-Jones fluids, mean spherical model for struct., correlation function calcs. 4−60390
  long time behaviour of time, depend. collision operator 4−63746
  low mobility liquid, localization in electronic bubbles 4−64071
  macromolecular solution, steady flow and equilib. rheological props., kinetic theory 4−49976
  mean spherical model for mixture of charged spheres and hard dipoles 4−56596
  merocyanine dyes, solvent sensitivity, solvent short range order effect 4−60396
  metal, dynamical structure factor, electronic effects 4−75439
  metal, thermodynamic props., electron theory 4−56892
  metal, viscosity data and hard sphere results, hard core size determ. 4−78886
  molecular liquid, mean square intermol. force, Monte Carlo calcs. 4−63744
  molecular liquids, orientational single particle correl. functions, J diffusion model theory derived 4−60393
  molecular liquids, translational single particle correl. functions, model hard sphere system 4−60392
  molecular torque in mixed dense fluids, Monte Carlo perturbation comparison 4−60395
  multicomponent, compressible, closed system of eqns. derivation *(Russian)* 4−75436
  nonequilibrium shear relaxation 4−75570
  nonhomogeneous classical fluid, statistical theory *(Russian)* 4−66807
  optimised cluster theory, Lennard-Jones fluid, liq.-gas phase transitions 4−66806
  orientation and ang. vel. correl. functions of fluid of linear mols. 4−75437
  orientational relaxation, angular velocity autocorrel. functions determ. 4−66805
  pair distribution function, hypernetted chain formalism 4−52673
  pair distribution functions, binary kernel for Coulombic interacting system 4−62740
  paramagnetic molecules, tumbling in liq. orientation depend. spin density matrix 4−53318
  polar liquids, Debye dielectric relaxation theory, rotational Brownian motion of sphere 4−82096
  polarisation, whole range from very weak to very strong polarisation 4−78903
  polyatomic liquids, isothermal compressibility and partial molar vol., perturbation treatment 4−60391
  quantum corrections to radial distribution function of fluid 4−69703
  quaternary ammonium salts, molten, conductance, vol. meas. at high press., liq. struct. model 4−52921
  radial distribution function, perturbation technique 4−72416
  rigid sphere liquids, equation of state, surface tension evaluation 4−48829
  rotational relaxation of molecules in isotropic and anisotropic fluids 4−52672
  scaled particle theory, soln. of integral eqn. for hard spherocylindrical fluids 4−72424
  spin-rotation relaxation in liquids with dynamically coherent reorientation 4−72413
  square well fluid, eqn. of state 4−52857
  statistical mechanical perturbation theory, use of non-spherical ref. pot. 4−78881
  structural relaxation time, relaxational compressional modulus derived from eq. of state 4−69702
  structure and properties, review of theories 4−75432
  surface structure and surface tension, perturbation theory and Monte-Carlo calculations 4−44748
  transport coefficients and corrected Enskog theory 4−52914
  transverse current correlations, shear viscosity 4−48781
  two-liquids mixture, microscopic theory with dissipative effects, linearized eqns. and Green functions 4−52951
  two-liquids mixtures microscopic theory with dissipative effects, hydrodynamic eqns. 4−52950
  water, mol. dynamics simulation 4−52675
  water, proton chem. shift temp. and press. depend. 4−79617
  water, review 4−66809
  water, self-diff. coeffs. and rot. correl. times, theoret. determ. 4−56896
  water-water interactions, Monte Carlo method, computer simulation 4−72419
  Al, liq., collective modes calc. using self-consistent phonon scheme 4−79129
  Ar, dense fluid, thermal cond., viscosity calc. using perturbation theory 4−67059
  Ar, dispersion of phonon-like excitations, model calcs. 4−75602
  Ar, freq. moments, atomic correlations, sum rules 4−72421

liquid theory continued
Ar, tunnel-model liq., X-ray scatt. investig. 4−82099
Ar-Kr, binary liquid mixtures, partial struct. factors in long wavelength limit 4−78884
K, interionic potential, effective pair potential 4−75438
Kr-Xe, binary liquid mixtures, partial struct. factors in long wavelength limit 4−78884
LiCl in H_2O, mol. dynamics study 4−69704
N, interionic potential, effective pair potential 4−75438
Na, liq., collective modes calc. using self-consistent phonon scheme 4−79129
Na, self-motion, calc. of memory function, velocity autocorrelation function 4−63747
NaCl, liq., long range forces, appl. of mol. dynamics 4−82101
U, thermodynamic equilib. to 9000K, eqn. of state, soft sphere theory 4−63888

liquid-vapour transformations
see also condensation; liquefaction of gases; vaporisation
alkali metal, crit. vol. and temp. calc., effective ion-ion interaction 4−82266
binary mixture of hard spheres, Percus-Yevick eqn., appl. and soln., phase transition determ. 4−51447
binary mixtures, two-phase, saturated densities, rectilinear diameter 4−52874
cryogen, shock wave overpressure due to metastable phase transform. 4−52895
detection of instantaneous phase changes, comparison of three probe systems 4−74193
equilibrium constants, evaluation from activity coeffs., entropy, enthalpy, heat of mixing calc. *(German)* 4−60603
forward and reverse reaction rates, vaporisation and condensation coeffs. 4−56867
lattice fluid with extended interaction, anal. of phase transitions 4−67074
liquid crystal phase transformation in gas of long-thin rods, planar graph contribution to virial coefficients 4−71449
liquid phase diffusion, mol. exchange phenomenon, semi-infinite slab model 4−56870
metastable liquid state, book 4−60605
methane + n-hexane, vapour recovery, high press. phase equilib. meas. and calc. 4−69900
molecular fluid, equilib. props., perturbation theory 4−72415
multicomponent systems, critical phenomena, tricritical points 4−72551
optimised cluster theory, Lennard-Jones fluid, liq.-gas phase transitions 4−66806
simple system, miscibility, experimental method 4−69898
sound velocity near liquid-vapour critical point, altitude dependence *(Russian)* 4−52822
statistical theory, conditional correlated distrib. functions 4−52872
vapour phase diffusion, mol. exchange phenomenon, finite slab model 4−56869
water vapour, homogeneous nucleation, mol. model 4−82265
Ar, optimised cluster theory, liq.-vapour phase transitions, thermodynamic props. 4−66806
N_2, viscosity near liquid-vapour crit. pt. *(Russian)* 4−67030
Ne, liquid, neutron critical scattering obs. of Ornstein-Zernike deviation 4−66813
Ne-Ar, system, vapour-liq. and gas-gas equilib., to 2000 atm. 4−72558
Ne-Kr system, vapour-liq. and gas gas equilib. to 1850 atm. 4−72559
No, $^{15}N/^{14}N$ isotopic liq./vap. fractionation factor investig. rel. to temp., dimerisation 4−50221
SF_6, compressibility along crit. isochore, crit. exponent γ eval. *(Russian)* 4−79146
Se, vapour composition and crit. consts. 4−79143

liquid waves
see also liquid surface waves
$\sqrt{gh}$-wave refraction for nonsymmetrical hyperbolic depth profile *(German)* 4−61718
acoustic wave, fractional harmonic components 4−65298
Bose quantum liquid, capillary waves, variational principle 4−60658
bottom drift, neutrally buoyant particles, due to periodic shallow water waves 4−64849
Brent frequency horizontal var. rel. to spatial coordinates *(Russian)* 4−54177
Cauchy-Poisson problem, nonsteady state wave motion 4−48331
coastal internal tides, generation and dissipation 4−80287
conservation laws for fully nonlinear long wave eqns. 4−56433
equilibrium states of periodic waves on fluid film down vertical wall 4−48330
immiscible two-fluid interfacial solitary waves 4−44093
inertial, angular momentum mixing, in rotating liquid-filled cylinder 4−63548
inertial wave interaction, nonlinear reson., anal. 4−44094
interfacial waves, Rayleigh-Taylor instability, viscous effects 4−66640
internal, rel. to temp. spectra of deep ocean off Hawaii 4−64856
internal h.f., influence on sound field of point source 4−77001
internal ocean wave measurements, interpretation in presence of fine struct. 4−64857
internal seiche in shallow two-layer fluid, model for internal surge in Loch Ness 4−44092
internal wave generation, by underwater disturbances *(Russian)* 4−73523
internal waves in a continually stratified sea *(Russian)* 4−73524
internal waves in vicinity of moving field of pressures *(Russian)* 4−78672
liquid film flow on inclined plane, wave state stability *(Russian)* 4−75158
mass transfer in wavy liquid films 4−44091
nonequilibrium shear relaxation 4−75570
nonstationary pressure wave propagation in layer of perfect compressible liquid 4−63588
North Sea Southern Bight and Thames Estuary, mathematical model of tides and surges 4−46009
ocean internal wave, moored temperature sensor, fine-struct. contamination 4−65004

liquid waves continued
ocean internal wave propagation with horizontal nonuniformities of density field *(Russian)* 4−54179
periodic waves in shallow water, stability 4−81937
plane nonlinear gravity waves in stratified liquid *(Russian)* 4−72284
planetary waves in variable depth ocean, energy and energy flux 4−70669
river-shallow sea system mathematical model, appl. to tides and surges in Thames estuary 4−46009
rotating annulus, effect of upper boundary condition on thermal convection 4−66564
Seneca Lake, internal undular surge 4−73500
simulation, wave spectrum synthesizer 4−42973
small amplitude, anal. of cumulative terms in analytic characteristic methods *(German)* 4−63590
standing, mass transport sustained by oscillations of finite amplitude 4−63587
Stokes wave associated current, time dependence *(Russian)* 4−56430
structure of wave motion in a flow for arbitrary change of density with depth *(Russian)* 4−70681
tubulent wave flow, velocity structure in bottom region 4−81935
turbulent boundary flow, interaction with compliant surface 4−72280
velocity measurement, laser Doppler velocimeter, appl. to sloping beach wave motion 4−46134
water, eff. of adverse wind on wave phase velocity 4−44096
water, laser induced acoustic waves 4−72525
water, propag. over irregular bottom topography 4−59210
water, wave interaction with two closely spaced vertical obstacles 4−81938
He, capillary wave excitation by means of Wigner lattice of surface electrons *(Russian)* 4−72609

liquids
see also liquid structure; liquid theory; solutions
prebreakdown phenomena, gas bubble chamber obs. 4−82654
refractive index, X-ray obs. using roentgen ferrometrical method *(Russian)* 4−82680
surface tension, review 4−63969
ultrasonic absorption, theory 4−82227
u.s. measurements, resonance reverberation apparatus 4−50969

literature reviews *see reviews*

lithium
angular forces, normal vibrations, model 4−72537
atom, correlation energy, Brenig's method *(Russian)* 4−74821
atom, energy level lower bounds, intermediate hamiltonian method 4−55987
atom, ground state quadrupole oscillator strength distrib., pseudo-spectral method 4−69409
atom, Hartree-Fock problem, finite difference Newton-Raphson soln. 4−63321
atom, isoelectronic sequence, $3s \rightarrow 3p$ transition, oscillator strengths 4−56002
atom, photoelectric cross section of valence level 4−72058
atomic oscillator strengths determ. using new valence and Rydberg orbitals generation procedure 4−51942
Auger effect, orbital relax. effects in soft x-ray transition rates 4−61266
Auger spectrum 4−46945
band structure, cohesive energy, optical cond., Compton profile 4−72689
b.c.c. structure, Li clusters, SCF-LCGO-MO calculations, rel. to vacancies and Be impurities 4−63826
blankets in fusion reactors, ^3H inventory 4−69360
colloidal in LiH, paramag. reson. of cond. electrons *(Russian)* 4−67452
conduction electron spin echo 4−79604
coolant for θ-pinch reactor, induced radioactivity calc. 4−63296
diffusion and electrodeposition on Mg in propylene carbonate 4−61619
elastic constants, temperature and pressure variation meas. 4−79090
electron-phonon interaction, diffraction model 4−69864
electronic struct. calcs., Hartree-Fock method 4−64016
electronic structure, Hartree-Fock results 4−72683
e.s.r., thin film microwave transmission meas. *(German)* 4−54999
exploding wire, plasma creation, numerical one-dimens. MHD calc. 4−60279
f.c.c. and b.c.c. crystals, static lattice Green's function and its asymptotic behaviour 4−63822
flow, in conducting wall pipe in transverse mag. field, MHD pressure drop, rel. to fusion reactor blanket cooling 4−69603
foils, in transition radiator-detector system for particle identification at high energies 4−46855
fuel and blanket management and supply in commmercial supply 4−72007
fusion reactor blanket, energy cooling and afterheating effects 4−69382
fusion reactor blanket, integral neutronics expt. in Li-metal assembly 4−74807
high purity, prep. by gettering technique 4−81619
ionisation on Rh surfaces, investig., double filament technique, surface-ionisation work function determ. 4−79826
isoelectronic series, 1/Z expansion calcs. of $(1s)^2 2s\,^2S$ and $(1s)^2 2p\,^2P$ states 4−74860
isotopic concentration determ. by emission spectrometry 4−68834
K-spectra edge shape of free-electron metals, broadening mechanisms 4−45383
Knight shift, press. depend., average spin density 4−73039
Krasko-Gurskii model potential, possible existence of f.c.c. lattices 4−56645
laser plasma, magnetic toroidal trapping 4−52608
laser-fusion reactors, pulse unfocusing, Li vapour density 4−72004
liquid, compatibility with CTR containment materials, impurities influence 4−63291
liquid, cooling of Tokamak reactor blankets, thermal and mech. design 4−59857
liquid, fusion reactor blanket cooling, use of insulated walls to reduce MHD pressure effects 4−69341
liquid, particle collectors for Tokamak fusion reactor 4−78275

lithium continued
- liquid, reaction with heavy metal oxides 4–83027
- molecule, potential energy curve, correlation energy correction, Hartree-Fock density 4–52075
- muonic atom, transition rate calcs. for μ^- capture 4–72103
- muonic atoms, parity violations by neutral currents 4–63379
- nucleosynthesis in low energy stellar flares 4–62097
- open-shell system, dynamic polarizability by coupled Hartree-Fock perturbation theory 4–59923
- optical conductivity calcs. window for plasmon-induced absorpt. 4–73128
- photoionisation, cross section value from $1s^2sp^2P^0$ state *(Russian)* 4–69428
- plasma, electron conc. determ. from forbidden transition intensities *(Russian)* 4–78824
- plasma, mag. mirror compression, electron cyclotron heating 4–82024
- plasma, magnetospheric dynamics 4–68288
- plasma, partially ionized, prospects for MHD and direct energy conversion 4–69356
- plasmon secondary electron emission *(Russian)* 4–57653
- positron diffusion constant and mobility calc. 4–82384
- precipitation in Ge, effect of heat treatment conditions 4–82825
- self-consistent charge density and surface electronic states, calc. for (001) face 4–79396
- solid, X-ray Raman and Compton scatt., optical transitions 4–79817
- spin-echo damping law for conduction electrons 4–67453
- Stieltjes imaging of photoabsorption and dispersion profiles 4–78346
- super Li stars, KI resonance lines rel. to Li abundance 4–58294
- surface electronic structure, (001), initial forces of ionic relaxation 4–69745
- u.v. optical properties, refl. meas. 4–79695
- vapour cell, vacuum confinement 4–68660
- X-ray absorption threshold theory, role of cut-off energy 4–57642
- X-ray absorption thresholds, many electron theory, comparison with expt. 4–79811
- X-ray forbidden edges, phonon enhancement factor 4–61247
- X-ray K-edge emission spectra, many-electron theory assessment 4–64453
- X-ray photoemission spectra, characteristic energy loss structure 4–67698
- X-ray Raman and Compton scattering, 77 and 300K 4–82770
- CdS:Li, photochem. effects, photocond. meas. 4–72820
- GaSb:Li compensated, free hole and hopping transport props., coeffs. meas. 4–53110
- n-Ge:Li, impurity interaction with disordered regions formed by fast neutrons 4–56780
- Ge:Li, vacancy-Li atom interaction during γ-irradiation 4–66910
- Ge(Li) detector, background spectrum analysis 4–58920
- H_2+Li^+, elastic and rot. inelastic collisions, quantum mechanical close-coupling formalism 4–63486
- H_2+Li^+, H_2 collisionally induced dissociation, differential cross section 4–48139
- KBr:Li, γ-irradiated, hardening and activation volume investigation 4–56769
- KCl:Li, optically pumped broadly tuneable c.w. laser using colour centres 4–55475
- KCl:Li^+, H_a-centre geom. struct., uniaxial stress effect, e.p.r. obs. 4–44534
- KCl:Li^+, lattice resonant modes, negative isotope effect 4–44630
- Li I, interaction energy of photoelectron with nucleus, ionisation potential 4–47821
- Li isoelectronic sequence, $^4P^o5/2$ states, decay and autoionisation rates 4–74859
- Li isoelectronic sequence, electrostatic pot. boundary at nucleus, nuclear diamag. screening 4–51933
- Li:Xe(Kr), optical absorption threshold meas. 4–45336
- Li/Cu double layers, cond. electron spin relax., spin diffusion 4–73029
- Li-Kr, Li-Xe systems, high resolution differential cross section, intermol. pot. meas. 4–66349
- Li-Na-stainless steel CTR blanket, heat transfer and radiation damage 4–55935
- Li + Li potential curves, asymptotic calcs. 4–52014
- Li + Li(He)(H), dipole-quadrupole Van der Waals constants, pseudostate method 4–69409
- $Li+M_2\rightarrow Li^+$, dynamics of electron transfer collisions, up to 14 eV 4–78372
- Li + methyl halide collisions, chemiionisation cross sections investig., mol. electron affinities determ. 4–67993
- Li^+, 2^3P state, hyperfine, effects in Zeeman splitting, perturbation theory 4–72053
- Li^+, Coulomb hole in 2^3S state 4–59901
- Li^+, dipole oscillator strengths, upper and lower bounds, Hylleraas wavefunctions 4–47844
- Li^+, split-shell wavefunctions, perturbation calcs. 4–55995
- Li^+, third harmonic coeff. fully coupled H-F calc. 4–55993
- Li^+, variational ionisation energy, Hylleraas-Undheim-Pekeris method 4–74817
- Li^+-Li, symm. charge transfer, cross section oscill., impact parameter method 4–78371
- Li^++H_2, vib. and rot. excitation, classical dynamics model 4–57829
- Li^++H_2, vibr.-rot. excitation, Morse and harmonic oscills. anal. 4–52292
- Li^++H_2 reaction, rot. transitions of H_2 at $E_{c.m.}=0.6$ eV, calcs. 4–54000
- Li^++N_2, mol. vibr.-rot. excitation, impulsive spectator model 4–75053
- Li^++Se, 300-500 keV, diff. cross sections 4–78375
- Li_2, Li_2^+, Hartree-Fock-Rothaan wavefunctions 4–74951
- Li_2, valence energies and geometries, HF-Roothaan LCAO-SCF-MO calc. 4–56080
- Li_2 molecule, 2s electrons distrib. in rel. to atomic functions used *(German)* 4–43786
- Li_2^+, Li_2^-, convergence of Hartree-Fock eqns. 4–52030
- Li_2^+, Li_2^-, FSGO open-shell calcs. 4–66379
- Li_4, molecules in molecules theory 4–56102

lithium continued
- ^{5,6}Li II, hollow cathode discharge, h.f.s. and isotope and Lamb shifts 4–78331
- MgO:Li, ENDOR spectrum of V_{li} centre at 4.2K, nuclear quadrupole coupling meas. 4–70233
- ND_3-^{7}Li, solution conc. fluctuation in non metal to metal transition range, neutron scatt. 4–75440
- Nb/Li mixtures in D-T fusion reactor blanket, thermal state calcs. 4–69340
- NiO:Li_2 film, switching and dielec. breakdown props., variation of threshold field with Li conc. 4–53165
- Si:[B^-(s)−Li^+(i)], high pair concentration, electro irradiation damage 4–82200
- Si:Li, implanted, annealing effects on doping profile 4–57718
- Si:Li, Si:Li-O, thermal cond. meas. rel. to temp., phonon scatt. investig. 4–63950
- Si:Li, thermal cond., 1.2-50K, phonon scatt. mechanism 4–60567
- SnO_2:Li, e.s.r., g-values *(Japanese)* 4–82615
- ZnO:Li, hydrothermal growth and cryst. perfection 4–49612

lithium alloys
- Al-Li, radiation generated prismatic loops around gas bubbles 4–69826
- Li-Ag, lattice parameters by X-ray diffraction 4–78948
- Li-In, growth of single crystals, Bridgman method 4–73249
- Li-Mg, disordered alloy, binding energy of equilib. lattice parameter calc. 4–72444
- Li-Mg, lattice parameters by X-ray diffraction 4–78948
- Li-Mg, organic battery anode, intermetallic diffusion 4–61619
- Li-Mg system pseudopotential theory, quasi-localised electronic states 4–75798
- LiAl, cryst. energy, order-disorder transition temp. calc. 4–60587
- LiBe molecule, FSGO open-shell calcs. 4–66379
- LiTl, cryst. energy, order-disorder transition temp. calc. 4–60587
- Mg-Li, heating effect on mech. props. 4–76483
- Mg-Li-Al, $\alpha+\beta$ type, stability of mech. props. rel. to thermal and thermomech. treatment *(Russian)* 4–53743

lithium compounds
- *see also lithium alloys*
- acetate dihydrate irradiated single crystals, e.s.r. of OH radicals 4–57357
- ferrite, characterisation for microwave applications 4–45133
- ferrite, ion ordering influence on pulse props. 4–67395
- ferrite with rect. hysteresis loop, Co addition, dynamic unidirectional anisotropy 4–57304
- ferrites, $Li_{0.5-x}Me_xFe_{2.5}O_{4+\gamma}$, (Me=Fe,Co,Na), long-range ordering, octahedral ion contrib. 4–72985
- formate monohydrate, H bonding, neutron diffr. 4–69792
- halides, aq. and non-aq. solns., specific acoustic impedance, temp. depend. 4–56810
- halides, soft X-ray absorption spectra, excitonic nature 4–67675
- ionisation on Rh surfaces, investig., double filament technique, surface-ionisation work function determ. 4–79826
- light diffraction by u.s. waves 4–55445
- lithium ammonium tartrate, potential field acting on H, calc. 4–66853
- lithium citrate, aq. and non-aq. solns., specific acoustic impedance, temp. depend. 4–56810
- lithium ferrite, from oxides, kinetics of formation 4–67996
- lithium salicylate, aq. and non-aq. solns., specific acoustic impedance, temp. depend. 4–56810
- pyrazine-Li^+ ion pair, lowest energy conformation, ab initio MO calcs. 4–52055
- quartz/$LiNbO_3$, surface acoustic waves, optical detection 4–73918
- salts in aqueous and organic solutions, short-range order from adiabatic compressibility data 4–48495
- $[Li(HCONH_2)_2]^+$ complex, chelate effect, ab initio LCGO SCF calcs. 4–60016
- $Ba_xLi_{5-2x}Nb_{5(1-y)}Ta_{5y}O_{15}$, crystallographic, dielectric and nonlinear optical properties *(French)* 4–64353
- $Cu_2Li_2P_6O_{18}$, cryst. data *(French)* 4–63806
- $Cu_2Li_2P_6O_{18}$, cryst. struct. determ. *(French)* 4–78951
- ^{4}He/LiF, gas/solid energy transfer, close-coupling anal. 4–56962
- $K_{1-x}Li_xTaO_3$, Raman scatt. from impurity soft modes 4–73119
- (Li,K)(NO_3,Cl) reciprocal molten salt, liquidus topology, liq.-liq. miscibility gap 4–56854
- (Li,Na)(F,Cl) reciprocal molten salt, liquidus topology, liq.-liq. miscibility gap 4–56854
- Li-1,3 dionates, i.r. spectra, struct. and vibr. interaction isotope shift anal. 4–56243
- Li-ceramic compounds in fusion reactor blanket, H breeding 4–69327
- Li^+ anthracenide salts, protonation kinetics 4–61607
- $LiBH_4$, melting and polymorphism investig. rel. to temp., press., phase transitions investig. *(German)* 4–72563
- $LiBaF_3$:Eu^{2+}, e.s.r., optical absorption and luminesc. spectra obs. 4–73146
- Li_2BeF_4, molten, corrosion control in fusion reactors 4–51912
- γ-Li_2BeSiO_4, cryst. struct. 4–78979
- LiBr, Hugoniot equation of state 4–52815
- LiBr, lattice dynamics, 3-body force shell model 4–82232
- LiBr, lattice dynamics and anharmonic self-energies determ. 4–48721
- LiBr aerosols, particle size distrib., effect of flow rate and temp. 4–70586
- LiBr:Ag^+, temp. decay of luminesc. quantum yield, 77-160K *(Russian)* 4–67659
- Li_2CO_3, addition to d.c. free burning arc, temp. distrib. effects 4–60337
- LiCl, absolute hygrometer applic., precautions against pollutants *(Dutch)* 4–83142
- LiCl, evaporated film, valence and cond. bands, photoemission obs. 4–61274
- LiCl, Hugoniot equation of state 4–52815
- LiCl, lattice dynamics and anharmonic self-energies determ. 4–48721
- LiCl, model centres, contact hyperfine interactions calc. 4–79313
- LiCl, single crysts. and bicrysts., plastic deform. transmission through boundary *(Russian)* 4–52805
- LiCl, solvation enthalpies in dioxane-water mixtures 4–50213
- LiCl aqueous solns., surface layer thermodynamics 4–83036
- LiCl in H_2O, mol. dynamics study 4–69704

lithium compounds continued
LiCl: Cu single crystal, luminesc. props., photo, thermo and X-ray, 79-450K *(Russian)* 4−82737
LiCl:Cd^{+}, X-irradiated, e.s.r. and optical absorption spectra obs. 4−70211
LiCl-CdCl$_2$, molten, thermodynamic props., transference numbers and ionic mobilities, e.m.f. meas. 4−70606
LiCl-KCl eutectic melt, diffusion of Co(II) iron coeff. determ. by chronoamperometry *(French)* 4−44690
$LiCl + Ba \rightarrow Li + BaCl$, crossed beam react., internal states investig., laser fluoresc. method 4−83020
LiCl + n-butyl alcohol, 5 MHz, u.s. velocity depend. on temp. and conc. 4−75576
LiCl + n-propyl alcohol, 5 MHz, u.s. velocity depend. on temp. and conc. 4−75576
LiClO$_3$, in glassy NH$_3$, vib. spectra of ion pairs 4−79718
LiCoAl ferrite, ferromag. reson., elastic stress depend. *(Russian)* 4−57381
Li$_6$CoO$_4$, prep., crystallographic and mag. characteriz. *(French)* 4−48569
Li$_2$Cr$_2$O$_7$.2H$_2$O, neutron diffr. studies, cryst. struct. and state of water mols. 4−75507
Li$_2$Cr$_2$O$_7$.2H$_2$O, p.m.r. study of localization of protons, hydrogen bonding 4−52740
LiD, a.c. cond. and dielectric constant meas., 5 to 500 kHz 4−48979
LiD, activated by Ge^{2+}, Sn^{2+}, B^{3+}, Sb^{3+}, X-ray and thermostimulated luminescence *(Russian)* 4−70363
LiD, lattice dynamics, 3-body force shell model 4−82232
LiD, mercury-like ion activated, luminesc. and excitation spectra *(Russian)* 4−61229
LiD, photoemission, ultrasoft X-ray region 4−79851
LiD, solid, laser pulse reflection meas., intensity depend. 4−62854
LiD, thermal expansion and mode Gruneisen parameters 4−67056
LiF, (100) cleaved surface, energy spectra of scatt. He ions 4−79832
LiF, charged dislocation mobility, high temperature 4−72468
LiF, comp. determ. by He^{+} scatt. 4−75679
LiF, cond. bands, pseudopot. calcs. *(French)* 4−44835
LiF, conduction bands, press. depend., Hamiltonian matrix elements 4−75749
LiF, correlated thermolum. and thermally stimulated cond., simple recomb. model 4−45368
LiF, crack deceleration by deformation defects 4−79095
LiF, cryst., electron irrad., colloidal centre generation, kinetics *(Russian)* 4−75541
LiF, curved surface, step movement during condensation and evaporation 4−56950
LiF, damage depth, proton, deuteron and α-particle bombard. 4−56782
LiF, dislocation break-away kinetics 4−69815
LiF, dislocation density change during annealing under load 4−60508
LiF, dislocation glide mobility, high temperatures, point defect velocity limitation 4−72469
LiF, dislocation struct. and yield pt. changes during multiple loading 4−48670
LiF, dislocations as sinks for H-centres, internal friction meas. 4−44600
LiF, electrification by plastic deformation 4−57159
LiF, electron irrad., 250 MeV, dislocation initial stresses, etch pattern obs. *(Russian)* 4−72475
LiF, excitation and absorption spectra, 450 nm band, γ-irrad. 4−64417
LiF, exoelectron emission by mech. treatment, high energy 4−49539
LiF, film, optical properties, macroscopic theory 4−49361
LiF, forbidden soft X-ray transitions, Li K absorption 4−64452
LiF, Hugoniot equation of state 4−52815
LiF, inert gas beam surface scatt., tangential rel. effects 4−64459
LiF, laser induced exoelectron images 4−49536
LiF, lattice dynamics and anharmonic self-energies determ. 4−48721
LiF, lattice thermal cond. obs. from 300 to 1100K contrib. of optical phonons 4−56924
LiF, Li ion displacement by low energy electrons, absorpt. in I band 4−56777
LiF, Li X-ray K-absorpt. rel. to electron-hole interaction, colour centre form. 4−79813
LiF, low-temp. deformation and dislocation mobility 4−79045
LiF, mirror image cleaved surface pairs, elec. struct. 4−57157
LiF, optical absorption and photoemission edges 4−60737
LiF, optical props. investig., Hartree-Fock band struct. calcs. 4−70320
LiF, phonon-induced second-order Raman scatt. obs. at room temp. 4−49362
LiF, plastic deform., pyroelec. props. 4−76220
LiF, pressure intensification 4−53830
LiF, SCF calcs., basis set variation effect on mol. properties 4−47925
LiF, single crystals containing cavities, slip generation by pressurization 4−60539
LiF, soft X-ray absorpt., theoretical treatments 4−70373
LiF, stacking fault energy from creep data 4−60510
LiF, symmetrical Bragg geometry, expt. test of X-ray diffr. theory for crysts. of intermediate perfection 4−60380
LiF, thermal mixing of nuclear Zeeman and electronic spin-spin impurity interactions, theory 4−72709
LiF, thermally stimulated exoelectron emission glow curves, description method 4−49547
LiF, thermolum., role of Mg 4−70371
LiF, thermolum. dosimetry materials, simultaneous TL and TSEE meas. 4−53588
LiF, valence band position rel. to Li^{+} 1s level, photoemission, core exciton 4−57034
LiF, X-ray and thermoluminesc., recomb. process *(Russian)* 4−82735
LiF, X-ray K-emission band of Li *(Russian)* 4−45375
LiF, X-ray photoemission spectrum, valence band struct. 4−64478
LiF F-centres, study of electron-nucleus-nuclear triple resonances 4−53342
LiF film, evap., thermally stimulated exoelectron emission after X-irrad. 4−49538
LiF granules, on LiF single cryst. surface, dislocations formed during sintering 4−49907
LiF monocrysts., dislocation mobility meas. during impact loading 4−66924
LiF rods in high energy electron beams, energy dependence with respect to absorbed dose in water 4−46486
LiF self-consistent Hartree-Fock calc. 4−75754
LiF single crystals, luminesc. meas. rel. to colour centres, X-ray excitation 4−67652
LiF slabs, spectral thermal emission meas. in far i.r. 4−67050
LiF thermoluminescence dosimeters, estimation of γ-ray exposure in mixed n-γ fields 4−46840
LiF thermoluminescence plaques, use without furnace annealing 4−46497
LiF thin crystals, defect formations caused by electron irrad. 4−60517
LiF with F-centres, nucl. relax. by means of electron spin cross-relax. *(Russian)* 4−79645
LiF:H(D), U band absorption, peak positions meas., 77K, using synchrotron radiation 4−79761
LiF:Mg, low-temp. deformation and dislocation mobility 4−79045
LiF:Mg, precipitation kinetics at low annealing temps., thermal cond. meas. 4−67049
LiF:Mg, thermoluminesc., complex capture centre, absorpt. spectrum *(Russian)* 4−73206
LiF:Mg positron annihilation, obs. of lifetime spectra in γ-irradiated samples 4−56772
LiF:Mg^{2+}, internal function, temp. dependence *(Russian)* 4−48705
LiF:Mg^{2+}, strain rate sensitivity of flow stress, obs. of activation parameters 4−52809
LiF:Ni(Mg), impurity states effect on yield stress *(Russian)* 4−66964
LiF-7 Teflon, thermoluminescent, mixed field dosimetry 4−80988
LiF-BeF$_2$-CeF$_3$ system, phase diagram 4−72553
LiF-CeF$_3$ system, phase diagram 4−72553
LiF-NaF lamellar eutectics, i.r. reflectivity obs. of interface phonons *(French)* 4−45313
LiF + He, atom-solid elastic scatt., pot. depend. 4−73220
LiF(:Mg), thermally activated polarisation effects 4−82659
LiF(Cl), interionic pot. using rigid-ion models 4−72441
Li$_3$Fe(CN)$_6$, ^{7}Li motion, n.m.r. obs. 4−48797
Li$_4$Fe(CN)$_6$, ^{7}Li motion, n.m.r. obs. 4−48797
LiFe$_5$O$_8$, cation stacking faults, h.v. electron microscope obs. 4−66927
LiFe$_5$O$_8$, domain struct., transmission electron microscope obs. *(French)* 4−67401
LiFe$_5$O$_8$, magnetostatic waves, dispersion relations and propagation losses derived 4−45157
LiFe$_5$O$_8$, processing and properties, effects of sintering, temp., and stoichiometry 4−70549
LiFe$_5$O$_8$, Sb^{5+}-substituted, supertransferred hyperfine fields at Sb^{5+}, local order and ion-specific props. 4−70235
LiFe$_5$O$_8$ and LiFe$_{4.7}$Mn$_{0.3}$O$_8$, prep. technique and calcination temp. effect on densification 4−61480
Li$_{0.5}$Fe$_{2.5}$O$_4$, coupled oscills. of nuclear spins and domain walls 4−79612
Li$_{0.5}$Fe$_{2.5}$O$_4$, impurity effects on phase transition 4−52889
Li$_{0.5}$Fe$_{2.5}$O$_4$:Ru, photomagnetic effects obs. 4−60985
LiFeTiO$_4$, paraprocess magnetostriction 4−79566
LiGaO$_2$, synthesis and luminesc. props. *(Russian)* 4−73154
Li$_{0.5}$Ga$_{2.5}$O$_4$:Mn^{2+} e.s.r. spectra at 37 GHz 4−45178
LiGd(MoO$_4$)$_2$:Nd^{3+}, stimulated emission due to $^{4}F_{3/2}$ to $^{4}I_{13/2}$ Stark multiplet transitions 4−53472
Li$_4$GeO$_4$, Li$_6$Ge$_2$O$_7$, vibr. spectra 4−67566
LiH, CI procedure based on perturbation theory natural orbitals calcs. 4−78415
LiH, cryst. struct. up to 120 kbar, X-ray diffr. 4−63798
LiH, distinguishable electron calcs. 4−52031
LiH, electronic struct., correlation energy correction, Hartree-Fock density 4−52074
LiH, ionic cond. meas. 4−48990
LiH, MC SCF theory of closed-shell systems, two-by-two rot. method 4−78411
LiH, mol. characts. determ. using variation methods with auxiliary conditions 4−56091
LiH, orbital exponent optimization in HF-SCF-LCAO-MO calc. 4−81748
LiH, photoemission, ultrasoft X-ray region 4−79851
LiH, plasma, separation in multi-ion spectrometer 4−68803
LiH, point charge models 4−56145
LiH, press. and temp. derivs. of elastic moduli 4−82214
LiH, u.v. irrad., paramag. reson. of cond. electrons in colloidal Li *(Russian)* 4−67452
LiH thermal expansion and mode Gruneisen parameters 4−67056
$LiH + HD = LiD + H_2$, isotope exchange, corrections to Born-Oppenheimer approx., electronic effects 4−74957
$LiH + HD = LiD + H_2$, isotope exchange, shifts in vibr. consts. calc., Born-Oppenheimer approx. method 4−74958
LiH^{+}, dissoc. energy, FSGO calcs. 4−52044
LiH^{2+}, singlet-triplet differences, $^{1,3}\Pi$ states 1/Z expansion analysis 4−72139
LiH^{3+}, polynomial wavefunction calcs., ground state energy 4−78397
LiH(Na), reflection, luminesc., forbidden zone width, indirect transitions *(Russian)* 4−73164
Li^{+}(H$_2$O')$_n$, configuration, Hartree-Fock pot., pairwise additivity approx. 4−74928
LiH$_3$(SeO$_3$)$_2$, LiD$_3$(SeO$_3$)$_2$, pyroelectricity, magnitude and direction 4−82670
LiHg, intermol. pots. by inversion of atomic beam scatt. 4−74922
LiI, lattice dynamics, 3-body force shell model 4−82232
LiI, lattice dynamics and anharmonic self-energies determ. 4−48721
LiI, zone refined, absorption and emission spectra 4−82709
α-LiIO$_3$, acoustic saturation of n.m.r. spectrum 4−79627
LiIO$_3$, cryst., parametric freq. conversion of dispersion matching 4−71578
LiIO$_3$, dispersion of rotatory power, 600-925 nm 4−49389
LiIO$_3$, inverse Raman scatt. from polaritons obs. 4−70301
LiIO$_3$, laser damage, with and without harmonic generation 4−55494

lithium compounds continued

- LiIO$_3$, powdered and polycryst., Raman spectra from oblique phonons 4−49364
- LiIO$_3$, quasicontinuous generation of tunable coherent submm. difference freq. *(Russian)* 4−81357
- LiIO$_3$, single cryst. growth from vapour and transmission spectra *(Russian)* 4−82803
- LiIO$_3$, stimulated Raman scatt. of ultrashort pulses by polaritons *(German)* 4−47371
- α-LiIO$_3$, struct., neutron diffr. refinement 4−82146
- LiIO$_3$, tunable i.r. difference freq. generation 4−81353
- LiIO$_3$ crystal, Raman light scatt. by E$_1$ polaritons 4−53453
- LiIO$_3$ crystal i.r. upconvertor for astronomical obs. 4−54608
- LiIO$_3$:Cr^{3+}, paramag. obs. on hexagonal single crystals, use of field modulated spectrometer 4−49222
- α-LiLa(MoO$_4$)$_2$, hydrothermal synthesis and cryst. struct. 4−49557
- LiLa(MoO$_4$)$_2$:Nd^{3+}, stimulated emission due to $^4F_{3/2}$ to $^4I_{13/2}$ Stark multiplet transitions 4−53472
- Li$_2$MgGeO$_4$, orthorhombic, cryst. struct. *(French)* 4−48565
- Li$_x$Mn$_{1-x}$V$_2$O$_4$, X-ray, thermoelectric and IR spectroscopy of spinels *(German)* 4−63814
- Li$_2$MoO$_4$, thermal cond. and lattice parameter meas., 300-700K 4−72593
- H-Li$_2$Mo$_4$O$_{13}$, cryst. struct. determ. 4−60448
- LiNH$_4$SO$_4$, ferroelectric, vibration spectra, NH$_4^+$ ion hindered rotation 4−49341
- LiNO$_3$, aq. and non-aq. solns., specific acoustic impedance, temp. depend. 4−56810
- LiNO$_3$, cryst., Raman spectra, normal coordinate anal., force consts. determ. 4−67567
- LiNO$_3$ and LiNO$_3$-KNO$_3$ mixtures, molten, ^{7}Li spin-lattice relax. time 4−53331
- LiNa ferrites, sintering kinetics 4−67898
- LiNaGe$_4$O$_9$, crystal atomic structure 4−56689
- LiNbO$_3$, acoustic surface wavefront visualisation by imaging technique 4−63968
- LiNbO$_3$, congruently melting composition, controlled crystal growth 4−73252
- LiNbO$_3$, congruently melting, refr. index, 0.4-3.0 μm 4−82681
- LiNbO$_3$, control of nonlinear effects in acoustic surface waves 4−80785
- LiNbO$_3$, electron microscope obs. of shear surface decoration patterns *(Russian)* 4−73082
- LiNbO$_3$, epitaxial film growth by discrete evap. in vacuum 4−61282
- LiNbO$_3$, ferroelectric, photosensitivity investigation 4−57141
- LiNbO$_3$, h.v. bulk photovoltaic effect, photofractive process 4−79378
- LiNbO$_3$, heating effects on elec. field appl. *(Russian)* 4−49307
- LiNbO$_3$, kinetics of colour changes during radiation and annealing *(Russian)* 4−52756
- LiNbO$_3$, laser scattering induced holograms, diffraction cones 4−68700
- LiNbO$_3$, light diffracted by acoustic surface waves, incidence angle and polarization depend. 4−61131
- LiNbO$_3$, multiphoton photorefractive processes for holographic storage 4−74067
- LiNbO$_3$, Nd^{3+}:YAG laser second harmonic intensity distrib. at output 4−65940
- LiNbO$_3$, nonlinear interactions in guided Rayleigh waves 4−63967
- LiNbO$_3$, piezoelectric cryst., nonlinear interaction of elastic waves resulting in electric field oscillations 4−76217
- LiNbO$_3$, pyroelectric, contact phenomena 4−79679
- LiNbO$_3$, pyroelectric, thermally-stimulated field emission 4−70399
- LiNbO$_3$, quasicontinuous generation of tunable coherent submm. difference freq. *(Russian)* 4−81357
- LiNbO$_3$, Rh doped and undoped, Cu diffused layers for reversible holographic storage 4−51066
- LiNbO$_3$, ruggedised Pockels type modulator, operation 4−68712
- LiNbO$_3$, Schaeffer-Bergmann diffraction patterns due to u.s. waves 4−57498
- LiNbO$_3$, single cryst., ferroelec. domains X-ray anal. *(German)* 4−76224
- LiNbO$_3$, solid-soln. range rel. to stability of congruent composition 4−56856
- LiNbO$_3$, surface acoustic wave reflection at conducting-nonconducting boundary, light scatt. obs. 4−44745
- LiNbO$_3$, surface vibrs., i.r. refl. spectra *(Russian)* 4−69954
- LiNbO$_3$, thermally stimulated field emission of exoelectrons 4−49545
- LiNbO$_3$, thick phase hologram form. mechanism 4−43265
- LiNbO$_3$, thin film growth, chem. vap. deposition 4−45419
- LiNbO$_3$, visualization of inverse phase velocity surfaces for bulk and surface u.s. waves, light diff. exam. 4−44746
- LiNbO$_3$, with InSb film, acoustoelec. amplification using pseudosurface waves 4−57143
- LiNbO$_3$, yz cut, acoustic surface wave attenuation surface quality effects 4−56957
- LiNbO$_3$ film, for electro-optic modulation of guided waves 4−57501
- LiNbO$_3$ holographic storage performance rel. to doping levels 4−46693
- LiNbO$_3$ intense tunable psec. i.r. pulse generation, using stimulated three-photon parametric amplification 4−71570
- LiNbO$_3$ phase modulator as reference for laser interferometry 4−54945
- LiNbO$_3$ single crystal, n.m.r. and quadrupole moment of ^{8}Li 4−79634
- LiNbO$_3$ total internal reflection modulator for Q-switching 4−46704
- LiNbO$_3$ with Ag or Pd layer, temperature charact. of elastic surface wave *(Korean)* 4−48826
- LiNbO$_3$:Fe, control of Fe^{2+} concentration 4−56764
- LiNbO$_3$:Fe, hologram storage, Mn addition, photochromic behaviour 4−42811
- LiNbO$_3$:Fe three-dimensional read-write phase holograms, diffraction efficiency 4−46692
- LiNbO$_3$:Mn(Fe)(Cu), optical absorption spectra, correlation with photorefractive sensitivity 4−57586
- LiNbO$_3$/CdSe film monolithic layered struct., acoustoelec. e.m.f. and electronic gain 4−57146

lithium compounds continued

- LiNbO$_3$-KNbO$_3$-NaNbO$_3$, ceramics, solid solns., phys. props. investigation for ultraacoustic appl. 4−45739
- Li$_{0.4}$Ni$_{0.2}$Fe$_{2.4}$O$_4$, long-range ordering, octahedral ion contrib. 4−72985
- LiNiO$_2$ and LiNiO$_2$:Ni^{III}, ferromag. and ferrimag. behaviour *(French)* 4−82552
- Li$_2$O, ab initio versus CNDO potential surface calcs., mol. struct. 4−52053
- Li$_2$O treated BeO dosimeters, fast neutron detection in mixed radiation fields 4−54728
- Li$_2$O-(Nb,Ta)$_2$O$_5$-Al$_2$O$_3$, glass form., struct. 4−63764
- Li$_2$O-Al$_2$O$_3$-SiO$_2$ partially crystallized glass, boundary layer existence 4−44481
- Li$_2$O-Al$_2$O$_3$-SiO$_2$ system glasses, water content influence on crystn. and spherulite growth *(French)* 4−78929
- Li$_2$O-Al$_2$O$_3$-2SiO$_2$, Li ion source for cyclotron external injection 4−80978
- Li$_2$O-Al$_2$O$_3$-nSiO$_2$, glasses, ceramics, sp. ht., 1.5-6K, struct. depend. 4−60621
- Li$_2$O-B$_2$O$_3$ glass, Cu, Cl effects on colour, absorpt. spectra obs. 4−70335
- Li$_2$O-Ga$_2$O$_3$-GeO$_2$, synthesis and luminesc. props. *(Russian)* 4−73154
- Li$_2$O-K$_2$O-SiO$_2$ system, ESR spectra, radiation capture centres in glasses 4−70214
- Li$_2$O-SiO$_2$ glass, e.p.r. spectroscopic investigation of struct. at high press. 4−48510
- Li$_2$O-SiO$_2$ glass, liq. phase separation and cryst. growth 4−63766
- Li$_2$O-SiO$_2$ glass, quantitative anal. of struct., using i.r. reflection spectroscopy 4−58976
- Li$_2$O-SiO$_2$ glasses, Dy^{3+} activated, luminesc. centre types 4−70343
- Li$_2$O-silica system, silicate crystn. products, i.r. spectra *(Russian)* 4−49368
- Li$_2$O-TiO$_2$ system, dielec. props. 4−45228
- Li$_2$O-WO$_3$-MoO$_3$ systems, phase relationships, miscibilities 4−60595
- Li$_2$O-ZnO-SiO$_2$ glass, ceramics, high temp. plasticity, model based on dilatancy and dissolution 4−49890
- Li$_2$O-ZnO-SiO$_2$ glass-ceramics, high temp. plasticity, const. strain rate tests 4−49889
- Li$_2$O-ZnO-SiO$_2$ glass-ceramic, dynamic fatigue 4−61497
- LiOH, cryst., i.r. reflection from internal mode 4−53415
- Li$_2$O$_3$PF, thermodynamic props. calc. from optical constants, densities and mag. susceptibilities determ. 4−45261
- Li$_2$O.P$_2$O$_5$, in mixed alkali glass, internal friction 4−60553
- Li$_2$S, MO SCF calcs. of mol. geometry and pot. energy surface 4−66369
- Li$_2$SO$_4$.H$_2$O, aq. and non-aq. solns., specific acoustic impedance, temp. depend. 4−56810
- Li$_4$SiO$_4$, Li$_6$Si$_2$O$_7$, vibr. spectra 4−67566
- LiTaO$_3$, Czochralski growth, post growth cooling, thermal stress analysis 4−62677
- LiTaO$_3$, for holographic recording, sensitivity and fatigue 4−68703
- LiTaO$_3$, struct. phase transition, pulsed ^{7}Li n.m.r. obs. 4−67013
- LiTiZn ferrite, mol. field coeffs. of Ti^{4+}, Zn^{2+} 4−82557
- Li$_2$V$_{12}$O$_{30}$, n.m.r. meas. of ^{51}V, 8-16 MHz 4−79613
- Li$_x$V$_2$O$_5$, d-d overlap estimate from e.s.r. meas. 4−82613
- Li$_y$X$_z$, (X=Li, Na, H and ions$^+$), valence energies and geometries, HF-Roothaan LCAO-SCF-MO calc. 4−56080
- LiYF$_4$, rare earth substituted, crystal field parameters, interpretation 4−44855
- LiZn ferrites, resist. and Curie pt., comp. depend. 4−53232
- Li$_2$ZrF$_6$, i.r. and Raman spectra, vibr. assignment, normal coord. anal. 4−48036
- ^{6}LiF, vibr. state lifetime, electric resonance mol. beam method 4−72154
- ^{7}LiD, absorpt. spectrum meas., vibr. levels investig., dissoc. energies determ. 4−60107
- ^{7}LiD, specific heat meas., 5 to 320K 4−52901
- ^{7}LiH, specific heat meas., 5 to 320K 4−52901
- ^{6,7}Li^{79,81}Br, molecular Zeeman effect 4−52182
- $0.5Li_20 \times o.5K_2O \times 2SiO_2$, mechanical properties, effect of melting time and atmosphere 4−73341
- Li$_6$[Al$_2$(BO$_3$)$_4$], cryst. struct. 4−82153
- Li[Sb(OH)$_6$], and deuterated derivatives, i.r. absorpt. spectra, vibr. assignments *(French)* 4−76256
- Li$^+$(donor)$_n$ complexes, CDNO/2 studies of ion solvation, rel. to charge transfer, struct. 4−45940
- NaF, Hugoniot equation of state 4−52815
- Ni(PO$_3$)$_2$-LiPO$_3$ system, equil. diagram, phase parameters *(French)* 4−44647

lithospace *see earth crust*

lithosphere *see earth crust*

livestock *see farming*

living systems

see also biology; biomedical phenomena; biophysics; brain

- animals high mortality rate up to 10 MHz and 100 MW/cm^2 4−65265
- atmospheric homeostasis, control of structure and composition by life on surface 4−46040
- biotransport, open linear systems 4−73884
- directed panspermia, Mo abundance in living organisms 4−54619
- directed panspermia, sea water Mo abundance 4−50738
- energy conservation equation, bio-heat transfer, error in 4−83295
- energy transfer, in layers of fur 4−46350
- kidney function, visualisation by radiolabelled chelates 4−71117
- liver, perihepatic halo, ascites, ^{99m}Tc-pertechnetate perfusion studies 4−62314
- liver scanning, lung uptake of ^{99m}Tc-sulphur colloid 4−62322
- lung, Ce and La contamination, spontaneous absorption, meas. in monkey 4−62275
- Mars, euphotic zone at 1 cm subsurface 4−50493
- mitotic oscillator, meas., arc discontinuity 4−83280
- monkey, analysis and synthesis of information in visual system *(Japanese)* 4−50802
- organization of living systems 4−80680
- origin of life, fitness of universe, natural selection in material organization 4−46351

living systems continued
- outer planet atmospheres, composition and structure rel. to origin of life 4−50500
- radionuclide cystography, direct and indirect methods 4−71119
- rats, r.f. absorption at 285 to 4000 MHz 4−65271
- renal medullary countercurrent system, digital computer model 4−76940
- respiratory tract deposition, mathematical model, heat transfer analogy 4−83289
- terrestrial life and atmospheric O_3, consequences of nearby supernovae explosions 4−80600

load (electric)
- pulsed, CERN accelerator supply, e.h.v. system repercussions 4−42863
- pulsed load characteristics of CERN accelerator 4−42862
- H_2-air fuel cell, chem. and electrochem. processes, load-capacity *(German)* 4−50172

lobes (distribution) *see antenna radiation patterns*

local moments in dilute systems
- metal, fine structure splitting of localised moment, diagrammatic anal. 4−76054
- temperature dependence, above Kondo temp. 4−70141
- $Au_{0.6}Pd_{0.4}$:Co, Pd cluster detection *(Russian)* 4−73313
- $Au_{0.6}Pd_{0.4}$:Fe, Pd cluster detection *(Russian)* 4−73313
- Cu alloys, n.m.r. asymptotic region of charge density oscillation around impurities 4−76175
- Cu:Mn, cond. electron spin polarisation near Mn impurities, n.m.r. meas. 4−57262
- Fe-Mo(3.2 at.%) alloy, Mossbauer obs. 4−64199
- Fe-transition metal alloy, moment distrib. and hyperfine fields determ. 4−64198
- α-Mn, evidence for localised mag. moment from multiplet splitting 4−76055
- α-Mn alloys, antiferromag., impurity sites and mag. moments, n.m.r. obs. 4−64269
- β-Mn alloys, antiferromag., mag. moments and ordering, n.m.r. obs. 4−67464
- NiAl-Fe alloy, mag. props. and n.m.r. obs. 4−64188

localised electron states
- alkali halide phosphors, optical transition from valence band to local level 4−79769
- alkali metal, volume depend. of electron-ion coupling determ. 4−60749
- alloy, disordered, of simple metals, quasi-localised electronic states 4−75798
- alloy, substitutional, local environment effect 4−48922
- amorphous semiconductor, electron tunnelling phenomena 4−60887
- amorphous semiconductor, hopping cond. mechanism 4−67215
- amorphous semiconductor, hopping model 4−79354
- amorphous semiconductor, localised band tail state cond. 4−75851
- amorphous semiconductor, review 4−75767
- amorphous system, hopping cond., numerical calc. 4−79357
- Anderson's model for disordered lattices, new criterion for localisation 4−75757
- barrier system, localised states effect on electron tunneling *(Russian)* 4−79404
- chalcogenides vitreous semiconductors, expt. review 4−79268
- coherent potential approximation calculations, absence of localization for any finite disorder 4−75793
- conduction mechanism, semiclassical model, monoenergetic localized states 4−79339
- core states, total-energy and press. calcs., simplification 4−64029
- crystal with extended defect, one-electron approx. and taking into account interelectronic correl. *(Russian)* 4−82377
- cubic crystal, quasi-localised representation of electronic band struct. 4−67151
- diamond:N(B), interstitials, LCAO calcs. 4−48926
- dielectric material, local field corrections to dielec. screening 4−60559
- disordered system, electron localisation and mobility edge sharpness, probabilistic approach 4−53029
- disordered systems, one-dimensional, localization of eigenstates and transport phenomena 4−53023
- disordered systems effect of time depend. pot. fluctuations on localization and mobility edges 4−48918
- electron correlation, linear lattice 4−67142
- energy migration, exciton band model in rel. to population of localized trap states 4−53052
- Frenkel defect, interaction in presence of quantum particle 4−60493
- Hartree-Fock localised canonical wavefunction, nonexistence effect 4−64005
- ion wake in solids, bound electron states, binding energy 4−63844
- ionic crystal, rel. to X-ray photoelectron peak breadth 4−76360
- low mobility solids and liquids, rel. to transport processes 4−64071
- metal, surface plasmon mode, arbitrary density profile 4−70058
- metal, virtual localised states near Fermi level, Friedel sum rule 4−53024
- metal with incomplete shell, photoelectron spectra of core electrons 4−79845
- metallocarboranes, paramag., electron delocalization, ^{11}B and ^{13}C isotropic shift obs. 4−57389
- methanol glass, matrix proton ENDOR at 77 K, trapped electron wavefunction overlapping 4−53341
- molecular crystal, energy spectrum of localised excitons in presence of flat defects 4−60762
- molecular crystal, local and quasilocal exciton states, effect of linear defects 4−64042
- naphthalene, magnetically polarised photo-depolarisation 4−67521
- one-electron level systems, formation in imperfect crystal 4−72707
- ordered systems, perturbation theory, localised Hartree Fock states, existence and appl. 4−75795
- polaron localisation at edge dislocation emergence points 4−82382
- polaron model, localised states versus band states 4−69997
- α-quartz:Fe^{3+}, elec. field effect on e.s.r. spectrum 4−82616
- rare-earth elements and dilute alloys, SXAPS strong 4f reson. 4−64447
- semiconductor, anisotropic, energy levels of two dimensional excitons in electric field 4−67183
- semiconductor, diamond type, g-factor of acceptors 4−69989

localised electron states continued
- semiconductor, Kohn-Luttinger effective mass theory reevaluation 4−79307
- semiconductor, pseudo impurity theory 4−79308
- semiconductor, temp. induced changes, effect on elec. cond. 4−44919
- structurally disordered systems, numerical exam. of Matsubara-Toyozawa model 4−79296
- superconducting alloys with local states within gap, temp. depend. of Josephson tunnelling current 4−45065
- tetracyanobenzene + aromatic, charge-transfer complex, doped, localised excited triplet states, e.s.r. 4−64027
- three-dimensional solids localised defects, appl. of generalised Wannier function concept, perturbation theory 4−64030
- transition metal:rare earth ion, conduction electron contrib. to cryst. electric field 4−60744
- trap distribution, determ. from s.c.l. current curves 4−70030
- trap spectroscopy by thermally stimulated exo-electron emission including electron affinity *(A)* 4−72723
- Al quasi particle energy band calcs. 4−75794
- As, amorphous film, cond. mechanism 4−82503
- As-Te-Se system, binary glasses, cond. mechanism 4−79345
- As_2Se_3, amorphous, rel. to carrier recomb. and photocond. 4−70051
- $As_2(Se_{1/3}Te_{2/3})_3$, amorphous, bulk and film comparison 4−64009
- As_2Te_3, localised band tail and extended states cond. 4−75867
- Be:Fe, electronic properties of Fe impurities from Mossbauer meas. 4−82645
- CaAl alum:Ti^{3+}, Jahn-Teller coupling of Γ_{5g} state to Γ_{3g} vibrational mode, quasi Γ_8 ground state 4−79299
- $CdCl_2$:I^-, optical absorption, luminesc., localized exciton effect 4−57581
- CdS, trap parameter determ. from temp. depend. of acoustic gain 4−48934
- CdTe, compressed, rel. to dislocation effects on dark cond. and photocond. 4−60826
- γ-Ce, cryst. field splitting and level scheme of $^2F_{5/2}$ multiplet determ. 4−82372
- Ce, electronic γ-α transition, thermopower obs. at 7 kbar 4−79302
- Co-Al(Sn) alloy, dil., core and cond. electron polarization fields at ^{57}Fe impurity, Mossbauer obs. 4−64286
- CsBr, V_k-centres, autolocalized holes in luminescing cryst. *(Russian)* 4−73204
- Cu, quasi-localised representation of electronic band struct. 4−67151
- Cu, vol. depend. of total energy calc. 4−63785
- Cu-Fe, determ. of a local level using photoemission technique 4−48921
- $CuBr_4^{2-}$, ground and excited states, absorption spectra *(Chinese)* 4−64026
- $CuCl_4^{2-}$, ground and excited states, absorption spectra *(Chinese)* 4−64026
- $Cu_xV_2O_5$, d-d overlap estimate from e.s.r. meas. 4−82613
- $Eu_xLa_{1-x}Rh_2$, charge fluctuations and local-environment depend. of ^{151}Eu 4f virtual localised level energy 4−79655
- EuP_5O_{14}, cryst., polarised emission, absorpt. spectra, Eu^{3+} symmetry investig. 4−82706
- n-GaAs:Cr, optical absorpt. meas., extrinsic transitions localised levels investig. 4−64413
- n-$GaAs_{1-x}P_x$:N,Zn, photoluminesc., radiative recombination investig. 4−64434
- $GdCoO_3$, spin state equil., localised vs. collective d-electron behaviour 4−61079
- Ge, rel. to self-diffusion mechanism 4−82291
- Ge, twisted specimens, screw dislocations, electronic states, carrier density and Hall mobility obs. *(German)* 4−69991
- $Ge(Se_{1/3}Te_{2/3})_2$, amorphous, bulk and film comparison 4−64009
- GeTe, highly disordered, light absorption evidence 4−76269
- $GeXTe_{1-x}$, amorphous film, photocond., temp. depend. 4−75916
- He, dense gas, electron localization by density fluctuations, electron trapping 4−66550
- InSb, plastically deformed and neutron irrad., defect levels 4−56781
- $Ir(CO)_3Cl$, one-dimens. conductor, stoichiometry, Mossbauer spectrum, mag. susceptibility 4−57433
- KCl:Eu^{2+}, local monoelectronic levels, two zone model *(Russian)* 4−72708
- KCl:Sm^{2+}, local single electron states calc. *(Russian)* 4−67174
- $KMgF_3$:Eu^{2+}, Zeeman effect in Stark lines exam. 4−79303
- $K_{0.33}MoO_3$, localised d-electrons exam., e.s.r. meas. 4−79574
- $Li_xV_2O_5$, d-d overlap estimate from e.s.r. meas. 4−82613
- Mg-Bi alloy, d.c. and a.c. cond. and optical transmission 4−49092
- Mn^{2+}, zero-field splitting, effect of orbital variation of spin-orbit interaction 4−67171
- $NdCoO_3$, spin state equil., localised vs. collective d-electron behaviour 4−61079
- Ni-Al(Sn) alloy, dil., core and cond. electron polarization fields at ^{57}Fe impurity, Mossbauer obs. 4−64286
- $PbZrO_3$ paralelectric phase, investigation from current-voltage characteristics 4−53090
- Pd-Ag, elec. resist. obs., localised d-state model 4−64061
- Se, amorphous, electroabsorption investigation 4−45318
- Se, trigonal, local electronic config. from n.m.r. chem. shift anisotropy *(French)* 4−82626
- Si, 0.4-4.2K, d.c. conductivity, localised states in 2-dimensional band tail 4−48916
- Si, amorphous, m.o.s. obs. 4−72869
- Si, amorphous film, rel. to field induced conductance changes 4−64143
- a-Si, photocond., temp. depend., mechanism 4−79379
- Si, rel. to self-diffusion mechanism 4−82291
- Si inversion layer, Anderson localisation of holes 4−60748
- Si inversion layers, localized wavefunctions, spatial extent 4−70072
- SmS(Se), semiconds., and $Sm_{0.5}Y_{0.5}S$ metal, photoemission spectra localised states, valence mixing investig. 4−61273
- SmS(Se)(Te), semiconds., X-ray photoemission spectra, semicond.-metal transition investig. 4−64476
- SmSb, $Sm_{0.85}Th_{0.15}S$, $Sm_{0.82}Gd_{0.18}S$, metallic, X-ray photoemission spectra, semicond.-metal transition investig. 4−64476
- $TaSe_2$, photoelectron spectra, ang. depend. of photoemission at Ta atomic orbitals 4−53575
- Te, trigonal, local electronic config. from n.m.r. chem. shift anisotropy *(French)* 4−82626

localised electron states continued
Te, Zeeman splitting of acceptor states, anisotropy *(Russian)* 4−64105
Te crystals, with vacancies, LCAO calcs. 4−75809
V_2O_5-KPO_3 glass, evidence of hopping cond. among localized states 4−70021
Zn:W, quadrupole interaction after recoil implantation 4−72711
ZnS, optical transition from valence band to local level, plastic deform. effects 4−79769

localised modes in crystals *see lattice localised modes*

localised states, electron *see localised electron states*

loggers *see data loggers; recorders*

logging (recording) *see recording*

logic circuits
see also current-mode logic; flip-flops; transistor-transistor logic
and counting, classroom demonstration 4−73965
scaler, fast, with dynamic indication, using IC 4−51163

logic gates
and counting, classroom demonstration 4−73965

long-range order
see also order-disorder transformations
amorphous magnetic materials, struct. fluctuations effect 4−79477
amorphous semiconductors, prototype structs. 4−75453
p-azoxyanisole, nematic, press., volume and temp. depend. 4−78909
binary alloy, rel. to Debye characteristic temp. 4−44633
binary alloy with anisotropic interatomic interaction *(Russian)* 4−60430
γ-brass, Cu-rich, long-period superlattice formation obs. 4−52720
β-brass, neutron diffr. obs. 4−64225
α-brass, rel. to Debye characteristic temp. 4−44634
defective crystal, rel. to ordering cluster model *(Russian)* 4−44516
metallic amorphous alloys, hard spheres aggregate model 4−56618
γ-Ni-Fe, low temp. phase diagram construction, ferromag. reson. 4−61354
steel, Fe-Si, type and degree of long-range order, Mossbauer obs. 4−70433
water-water interactions, Monte Carlo method, computer simulation 4−72419
$Ca_2Al_2SiO_7$-$Sr_2Al_2SiO_7$, ordering obs. 4−44517
Cu-Al-Ni alloy, stress-induced acicular β_1' martensite obs. 4−79970
CuAu type alloys, temp. depend. of long- and short-range order parameters calc. 4−73281
Cu(I) complex, $CuCl_2 \times 2(NC_5H_5)$, zero point effects in susceptibility obs. 4−76064
CuPt, multi-ion interactions and $L1_1$ ordering 4−61328
Cu_6Sn_5, $\eta \rightleftharpoons \eta'$ transform. behaviour, metallic bonding 4−45515
Fe-Co, order state and mech. props., non-stoichiometry and V addition influence *(French)* 4−67801
Fe-Si alloys, ordered and disordered, lattice consts., degree of order *(German)* 4−49634
Fe_3O_4, Green function theory of short- and long range order, Verwey ordering 4−57043
Li ferrites, $Li_{0.5-x}Me_xFe_{2.5}O_{4+y}$, (Me = Fe,Co,N) octahedral ion contrib. 4−72985
$Li_{0.4}Ni_{0.2}Fe_{2.4}O_4$, octahedral ion contrib. 4−72985
N_2-type crystals, rot. mol. motion, thermal props. determ. *(Russian)* 4−56889
$NaNO_2$, molecular field theory of long range order parameter 4−76226
Nb_3(Al,Ge) alloys, A15 type 4−45528
$NiCl_2$ solution in D_2O, ion distrib., neutron diffr. obs. 4−44457
Ni_4Mo, short range order and development of long range order obs. 4−67755
NiO, mag. order, crit. behaviour, temp. depend. 4−60959
$Ni_{1+x}Te_2$, (x = 0-0.82), struct., order-disorder transition, neutron diffr. obs. 4−72548
SiC, long period structs., transmission electron microscope obs. 4−60509
V_6C_5, obs. of antiphase boundaries in long range ordered crystals 4−44526
$Ya_yTi_{1-y}D_x$, short- and long-range order in interstitial atom arrangement, neutron diffr. obs. 4−48542

long tailed pair *see differential amplifiers*

loop antennas
frame, in magnetoactive plasma, radiation resistance, calc. *(Russian)* 4−63646
magnetoactive plasma, antenna input impedance, calcs. *(Russian)* 4−63645
v.l.f. input impedance in warm collisionless multicomponent magnetoplasma 4−46087

Lorentz-Lorenz relation *see permittivity; refractive index*

Lorentz transformation
approximate Lorentz invariance and quasi-relativistic Hamiltonians, classical mechanics *(Russian)* 4−81231
approximate Lorentz invariance and quasi-relativistic Hamiltonians, quantum mechanics of spinless particles *(Russian)* 4−81232
causal theory, three-dimensional, of interacting tachyons, rotational invariance and Lorentz transformations 4−43154
deformation of SO(2,C) subgroup of Lorentz group 4−55183
education, gadanken experiment, derivation of time transform 4−71152
four dimens. vectors and Lorentz transforms *(German)* 4−47173
Galilean relativistic thermodynamics, ambiguity in transformation laws 4−71455
gauge fields, role of Lorentz group in framework of tetrad theory of gravitation *(Russian)* 4−55362
general and singular, application of quaternions 4−65757
inhomogeneous Lorentz group, spacelike representation in Lorentz basis 4−47461
local problems in general relativity 4−77543
Lorentz-Dirac equation of motion derivation for classical electrodynamics 4−59221
permittivity invariance, rel. to origin of magnetic field 4−55342
plasma, cold, nonlinear wave propag., Lorentz transform. 4−78752
Rarita-Schwinger charged field, spin 3/2, electrodynamics and propag. 4−51691

Lorentz transformation continued
relativistic interacting massive spin-1 and spin 3/2 fields, constraints, causality, Lorentz invariance 4−55554
SL(2C) group, complete series of infinite-dimensional representations 4−47011
SO(p,1), limit of most degenerate representation for large Lorentz transformations 4−55182
space inversion and time reversal 4−71364
special relativity theory of anisotropic space-time 4−77533
time dilation, physical observability 4−55346

Lorenz number *see electrical conductivity of solids; thermal conductivity of solids*

Loschmidt number *see constants*

loss angle
see also dielectric losses
cellulose, damp, moisture content depend. 4−45242
glasses, effect of thermal treatment and stress *(Polish)* 4−82957
hydrosodalite, phase transition, dielectric anomaly, domain struct. 4−82677
polymer, glass transition region behaviour, mag. field effects 4−45247
$BaTiO_3$-MoO_3 system, dielec. const., loss tangent, ferroelec. props. and elec. conductivity 4−45226
$Fe(CO)_5$-epoxy resin, s.h.f. absorbers *(Russian)* 4−53364
$GdDy(MoO_4)_3$, loss tangent permittivity meas. from 8.78 to 12.26 GHz 4−61117
La metaniobate, electrophys. props., i.r. spectra 4−67511
MoO_3, simultaneous action of a.c. and d.c. voltages 4−73067
Nb-Al_2O_3 codeposited films, prep. and props. 4−70088
(Pb,La)(Zr,Ti)O_3 ceramic, rel. to struct. changes 4−70272

loss-angle measurement
35 GHz cavity and open resonator meas. comparison 4−65491
electro-optic modulator crystals, optical method of loss tangent meas. 4−58779
fluid dielectric characteristics meter, 100 kHz to 10 MHz, −30° to +150°C *(Russian)* 4−80957
helical waveguide cavity dielectric loss meas. at 9 and 35 GHz 4−65489
insulating materials, BS 2067 revision 4−65494
mammalian brain tissue dielectric meas. in S-band 4−65575
microwave ferrites by change of reflection coefficient of resonance cavity *(Chinese)* 4−62488
open resonators for low dielectric loss meas. at millimetric wavelengths 4−65490
temperature-frequency characteristics, without vacuum system 4−49284

loss measurement
a.c. losses in superconductors, measurement apparatus 4−68728
dielectric and magnetic materials 4−65500

losses
see also dielectric losses; eddy current losses; heat losses; loss angle; magnetic leakage
ferrite, partially magnetised, low power loss parameters and high power thresholds meas. at 3 to 16.8 GHz 4−45132
ferromagnetic material, analytical soln. of nonlinear eddy current losses 4−79542
fibre optic materials, transmission losses, ionising radiation effect 4−57492
four mirror ring resonator 4−47362
physical principles of noise-reducing elements and absorbent materials 4−83363
rimmed Cassegrain resonator, modes and losses 4−71566
ring and 90° roof mirror resonators, modes and losses 4−71567
sandwich cantilever, loss factor calc. 4−43107
waveguide lasers, hollow, transverse modes and losses, resonator theory 4−74511
Fe-Si(3%), grain oriented, domain struct. rel. to core losses, review 4−79538

loudness
see also acoustic intensity measurement
acoustics, computer program 4−73935
auditory running-average hypothesis 4−50781
decaying oscillatory waveform, equal loudness pressures determ. 4−50770
discomfort levels, under earphone and in free field, calibration method effect 4−80807
discomfort levels, var. with freq., programmed method of constant stimuli 4−80712
perstimulatory adaptation for cochlear impaired and masked normal listeners 4−80710
reduction of tone in noise 4−68576
scaling, non-metric, 1000 Hz tones, 10 dB rule testing 4−80813
summation, tones from two loudspeakers, anechoic room 4−80790
tones and noise, aversion levels, sound press. levels in humans 4−76951
white noise, loudness rel. to rise time as a function of energy *(Japanese)* 4−68497

loudspeakers
loudness discomfort level, effects of calibration methods 4−80807
loudness summation between tones from two loudspeakers, anechoic room 4−80790
perceived sound quality, judgements and dimension analysis 4−54759
room boundaries influence on power output 4−80791
vibration mode detection by holographic interferometry 4−50970

Love waves
earthquake at Bengough, Saskatchewan, ratio of Love to Rayleigh-wave amplitudes 4−45982
infinite cylindrical surface propagation rel. to layered Earth model 4−80246
leaking mode dispersion curves for one layer crust-mantle model 4−68048
micropolar elastic medium, surface wave investigation 4−55268
propagation, effect of constant initial stress 4−64733
propagation in heterogeneous layer resting on various bases, frequency eqns. 4−55271
seismic Sa phase on shield structure 4−57917

low energy electron diffraction
adsorbed layers on transition metals, struct. and form. mechanism relationship from LEED data *(French)* 4−44777
alkali halide (100) surfaces, LEED observable voltage range 4−75678
alkali halide surface, apparatus design *(French)* 4−52973
antiferromagnetic crystal, intensity behaviour of exchange reflections 4−76069
atomic vibrations of clean and monolayer covered surfaces, model interpret. *(French)* 4−75682
coherent surface bremsstrahlung theory, Bragg beam 4−44567
crystal surfaces structure analysis *(Japanese)* 4−44736
current detector, electron multiplier coupled to freq. modulator, diffraction current meas. 4−46751
disordered overlayers, dynamical theory, appl. to 1-dimens. adsorbates 4−44773
disordered overlayers, dynamical theory, quasicrystalline analysis 4−44772
dynamical LEED theory and surface geometry 4−75670
electrode surface molecular structure determ. by LEED and thin-layer electrochemistry 4−54026
LEED-Auger apparatus, u.h.v. cleavage device 4−52665
molybdenite, surface deformation caused by abrasion, electron techniques *(Japanese)* 4−52970
ordered overlayers, scatt. cross section in terms of substrate layer scatt. matrices 4−75700
perturbation theories, t-matrix and τ-matrix approaches 4−44454
perturbation theory applied to surstructures *(French)* 4−56946
surface crystallography via ELEED, review 4−75669
surface structure determ., direct transform-deconvolution method 4−72621
surface structure determ. via transform-deconvolution method 4−75675
theory, book 4−72623
Ag(111), chemisorption of O_2 4−48860
Al, surface structure determ. 4−75677
Al(100), Al(111), adsorption of Na, ELEED meas. 4−75695
Al(100), surface struct. determ. direct transform-deconvolution method 4−72621
Au, (111) and (110) faces, adsorpt. and surface alloying of Pb monolayers 4−52992
Cr_2O_3, formed by oxidation of Cr(110), symmetry influence on orientation *(French)* 4−44794
Cu, (100) and (111) faces, LEED intensity profiles calc. using inelastic-collision model 4−75673
Cu, intensity profiles from (100) and (111) faces, analysis 4−44737
Cu, surface structure determ. 4−75677
Cu(100), surface structure investigation 4−75671
Fe(100), Fe(110) faces LEED-AES investigation of oxidation 4−75720
GaAs, (100) surface, clean and Cs-coated *(Russian)* 4−48822
GaAs, surface stoichiometry and struct. during growth 4−56947
GaAs, surface vibr. amplitudes investigation 4−56955
Ge, (111) and (100) surfaces, NH_3 adsorpton, surface struct. 4−72631
Ge, surface vibr. amplitudes investigation 4−56955
Ge film on W(110), structure investigation 4−72655
Ge-GeS film interface obs. 4−56949
MgO, (001) cleavage face, surface wave resonance effect 4−44735
Mo, oxidation at 110 surface at 1000K, LEED and RHEED investigations *(German)* 4−57003
NaCl, surface obs., influence on surface charge *(French)* 4−48821
Ni, adsorption of H_2, obs. 4−67097
Ni, surface structure determ. 4−75677
Ni surface, CO adsorpt., build-up of surface carbon layers investig. 4−75692
Ni with chemisorbed S, on (001), (110), and (111) surfaces, location 4−48852
Ni-SiO_2 catalyst, adsorption of acetylene, saturation magnetis., LEED and thermodesorption meas. *(French)* 4−44776
NiO, antiferromag. intensity behaviour of exchange reflections in LEED 4−76069
Ni(001), attenuation, inner potential and lattice dynamics in LEED 4−75672
Ni(001), LEED spectra anal. of c(2 × 2) structures of adsorbed O_2, S, Se, Te 4−75694
Ni(100), interaction with O_2, kinetics 4−48869
Ni(100), surface structure determ. via transform-deconvolution method 4−75675
Ni(110), adsorption of H_2 exam. using LEED, work function and flash desorption meas. 4−75698
Ni(111), interaction with O_2, kinetics 4−48870
PbTe/M interface, M=Pb, In, Al, Sn, Tl epitaxial layers, superconductivity and LEED obs. 4−45038
Pt, (111) face, catalytic oxidation of adsorbed S, obs. *(French)* 4−68026
Pt, correlation between catalytic activity and surface structure 4−73450
Pt surface, adsorpt. of O_2, LEED, Auger spectroscopy, work funct. investigs. *(French)* 4−56988
Re(0001), rel. to Be(0001) 4−44738
Si, (100) face, struct. after oxidation and at high temp. 4−82307
Si, adsorption of H and surface struct. determ. 4−56979
Si, surface vibr. amplitudes investigation 4−56955
Si (111) surfaces, covalent superlattice struct. study by LEED and photoemission 4−52972
Si film on W(110), structure investigation 4−72655
Si(100), adsorption, of Cs and O_2, struct. obs. 4−56982
Si(111) and (100), adsorption of O_2, surface struct. and adsorbate coverage determ. 4−75699
Ta(100), chemisorption surface struct. 4−48856
W(110), adsorbed I_2 4−48844
W(110), chemisorption of O_2, LEED determ. of surface structure 4−75710
W(112) surface, O adsorption, p(1 × 4) surface struct., combined LEED/RHEED Auger obs. 4−63983
low induction loss *see loss angle*
low-temperature phenomena
see also Joule-Thomson effect; Kapitza resistance; liquid helium; solid helium; superconductivity; superfluidity
amorphous and liquid semiconductors, conf., Garmisch-Partenkirchen, Germany (Sep. 1973) 4−72665
bronze, sintered, heat cond. below 0.3K 4−77051
cavitation, acoustic in cryogenic liquids 4−78696
epoxy resin Epilox EG 34, thermal props. at 5 to 80K 4−72592
epoxy resins, work of fracture, 4.2K 4−64637
Frenkel defect accumulation, kinetics *(Russian)* 4−72463
photocathodic film, polarization at low temp., possible appl. to resist. meas. 4−70395
polypropylene, cryst. isotactic, cryogenic crazing obs. 4−67947
semiconductor, exciton refl. spectra, surface charge effects, 2K 4−70059
semiconductor, zero-gap, helicon propag. 4−75909
shock tube study 4−72298
small body, retarded nonlinear attenuation of vibr. at very low temps. *(Russian)* 4−71458
Al, static heat transfer to boiling liq. He 4−77050
$Ce_2Mg_3(NO_3)_{12}.24H_2O$, ballistic phonon propagation 4−56832
Co_{1-x}, Fe_xSi, low temp. study, magnetic behaviour of Co and Fe nuclei 4−70237
Cu, Johnson noise, temp. depend below 10 mK 4−60767
Cu films, electrolytically deposited, ductility and strength *(Russian)* 4−67827
ErAs, low temp. sp. ht., λ-like peak, S' = 3/2 ground state 4−69922
EuS(Se)(Te), sintered, thermal cond., 4-25K 4−44718
Fe:^{57}Fe, ^{119}Sn, Mossbauer thermometry, millikelvin region 4−57434
GaAs, ohmic contacts, elec. props. *(Czech)* 4−60854
Ge, optical pumping electron-hole drops or exciton mols. 4−53061
H, f.c.c. metallic, phonon motion, low temp. thermostatics 4−75606
^{3}He, solid, specific heat meas. below 25 mk 4−56943
^{4}He, superfluidity of thin films on glass substrate at 0.2 to 1K 4−56929
KCl:Ba^{2+}, low temp. creep, derivation of thermal activation parameters *(German)* 4−44592
N_2, liquid, elec. breakdown, electrode area effect 4−53371
PbS, resist., high-field, He temps. 4−72785
Si, n-channel (100) inversion layers in FETs, negative magnetoresistance at 2 to 10K 4−57175
Si, optical pumping, electron-hole drops or excitonic mols. 4−53061
Si m.o.s. devices, peaked struct. in field effect mobility, liq. He temp. 4−82485
Ti alloys, elastic consts., u.s. vel. meas. 4−64572
low-temperature physics *see cryogenics*
low-temperature production
see also Joule-Thomson effect; liquefaction of gases
4.2-300K, simple arrangement to obtain temp. in the case of appreciable heat flux to specimen 4−68651
cooling device for e.p.r. meas. at 35 GHZ down to 4.8K 4−65501
cryostat, continuous flow, limited space application 4−68648
He, supercritical, thermal efficiency of refrigeration system operating below 6K 4−68646
^{3}He adiabatic solidification, Pomeranchuk cooling, low temp. production 4−58766
low-temperature techniques
see also cryostats; refrigeration
Allen-Bradley carbon resistor thermometer, R-T relation 4−46606
cables, miniature, laboratory, for use at 4 K 4−42759
calorimeter for specific heat meas. below 1K, thermal relaxation method 4−54855
calorimetry use *(French)* 4−46611
coupling, indium sealed, rapidly demountable 4−50993
cryogenic shock tube, high-performance 4−81101
cryogenic spark chambers, high resolution, narrow gap 4−62532
cryogenic system for studying properties of ^{3}He between 1 and 15 mK 4−68650
cryogenic voltage comparator system for 2e/h meas. 4−65363
deuterium pellets, 50 μ, production technique 4−56500
Dewar, liquid helium, improved, for Hitachi e.s.r. spectrometer 4−54998
e.m.f. unit monitoring by a.c. Josephson effect, Canadian expt. 4−65334
e.s.r. system operating at 9 GHz in temp. range 4.2 K to 37 mK 4−62494
fatigue testing apparatus for vacuum testing down to 77K 4−61573
fixed point research, reproducibility and variations 4−42760
friction and wear test apparatus for meas. at low temps. in vacuum 4−67965
gravity wave detector, cryogenic antennae for 3 mK detector 4−65812
infrared variable temperature cell and e.m. spraying device, design 4−77074
Josephson junctions, platinum resistance thermometers and quartz crystals application 4−80853
lambda tight cement characterization 4−50992
mechanical heat switch, 0.3 to 4.0K 4−46609
paramagnetic thermometer calibration using supercond. fixed pts. 4−65400
phonon depopulation by negative heat pulse techniques 4−69866
polymer, dynamic elastic modulus and mechanical loss tangent determ. 4−73997
pulsed n.m.r. thermometer for use below 100 mK 4−46605
reservoir suitable for liquid nitrogen, easily made from Eccofoam 4−42758
resistance thermometer for use in He Dewar, 4.2-500K 4−58762
Seeman-Bohlin X-ray camera, modifications 4−44438
semiconductor transport meas. at liquid He temp. using microwave Kerr magneto-optical effect 4−65496
spark chambers, operation down to 118 K, increased resolution 4−46805
specific heat meas., high resolution vacuum calorimeter 4−62436
superconducting transition temp. meas., apparatus *(Spanish)* 4−77125
test instruments, for small quantities of polymers 4−76562
thermometer, resistance, semiconductor materials selection *(Russian)* 4−74022
thermometry, at very low temp. in very high mag. fields 4−42751
ultracold neutrons, mechanical generator 4−51138

low-temperature techniques continued
vacuum layer thermal insulator using diffr. effect 4−42757
vacuum seal, sapphire to Nb, suitable for operation from 2 to 2000K 4−58774
voltage standard monitoring system using a.c. Josephson effect 4−65484
X-ray diffraction cell construction *(French)* 4−52654
Bi solder, thermal contact at very low temp. 4−46608
C resistance thermometry 4−68630
C resistors, high accuracy temperature measurements 4−68631
Co, crystal shape effect on nuclear orientation thermometry at <100 mK 4−79656
Cu-Mn, nuclear specific heat, acquisition and treatment, 20 to 100 mK 4−67051
p-GaAs application in thermometry *(Slovak)* 4−65404
^{2}H liquid target as photon spectrometer using ^{2}H(γ,n) reaction 4−42913
InSb Hall plate for mag. field meas., nonlinearity reduced 4−42840
Si counters, ion implanted, improved noise performance 4−46807
TiT nuclear bomardment target, cooling system 4−58912

LS coupling *see Russell-Saunders coupling*

LSA *see limited space charge accumulation*

LSI *see large scale integration*

lubrication
see also friction
contact endurance, elevated temp., testing apparatus *(Russian)* 4−53938
disulphide and diselenide lubricants with lamellar struct., antifriction props. 4−49911
elastohydrodynamic, of thin elastic layer, Grubin-type formula 4−75202
elastohydrodynamic problems, expansion method development 4−48697
fluid films with directional variable viscosity, rheological model 4−75201
hydrodynamic films, effect of jumps *(French)* 4−44598
liquid film thickness meas. by fluoresc. technique 4−73984
micropolar squeeze film bearing between circular plates, theory 4−75568
oil, thin film, electrical conduction 4−48694
oil film, dynamic response on rollers *(Japanese)* 4−44597
pneumatic control and drive systems, oil mist lubrication, transport behaviour *(German)* 4−44688
Reynolds equation, general form. and applic. to rough surfaces 4−52813
rotary pumps, use of fluorocarbon polyether to avoid H$_2$ emission 4−51003
squeeze film behaviour in porous circular discs 4−75199
squeeze films, thermohydrodynamic performance 4−75198
steel surfaces, viscoelastic effects in boundary lubrication 4−79096
Taylor vortices in flow between eccentric rotating cylinders 4−52406
vacuum pumps, comment on use of fluorocarbon polyether 4−51005
Al surface, lubricant interaction during combined plastic deform. and u.s. exposure *(Russian)* 4−45604
MoS$_2$ diffusion coatings with various cryst. structs., lubricating props. *(Russian)* 4−44599

Ludwig-Soret effect *see diffusion in solids*

luminance *see brightness*

luminescence
see also cathodoluminescence; chemiluminescence; electroluminescence; fluorescence; fluorescent screens; luminescence of gases; luminescence of liquids and solutions; luminescence of solids; luminescent devices; phosphorescence; phosphors; photoluminescence; sonoluminescence; stimulated emission; thermoluminescence; triboluminescence
aromatic molecules, polar, review 4−63455
atom, fixed, spontaneous radiation in strong field, spatial anisotropy *(Russian)* 4−78343
bimolecular reactions, approximate method for solving kinetic eqn. 4−73149
bioluminescence in Black Sea *(Russian)* 4−80301
bioluminescence in sea, recorded at different distances from sensor, contrib. to total light signal *(Russian)* 4−80302
Dicke superradiance, investigation, suggested expt. 4−69417
dielectric interface, electric point dipole luminescent lifetime, polarization method approx. *(German)* 4−49413
dye, luminesc. under steady-state and impulse excitation *(Russian)* 4−45361
excitation spectra, measurement 4−64415
free to bound luminescence intensity distribution, nonequilibrium states 4−61219
heterocyclic organic compounds, spectral-luminescent and generating characts. *(Russian)* 4−63451
hot, comparison with reson. Raman scatt., density matrix approach 4−53447
ionoluminescence and sputtering, plasma excitation of neutral sputtered particles *(French)* 4−53560
molecular excited states, book 4−63452
molecular geometry change for compounds with strong attenuation 4−48070
molecule, isolated, luminesc. decay law *(Russian)* 4−75013
molecule lifetime near partially reflecting surface 4−56268
phase relations in luminescent materials, quantitative calc. 4−49409
pyrazine molecule, S$_1$(n,π*) excited state, luminesc. and radiationless transitions from single vibr. levels 4−66465
retinal isomers, effect of geometry on excited state electron structure 4−47919
trans-tetraene, deformation under electron excitation, elementary configuration changes *(Russian)* 4−43884
Cr(NCS)$_6^{3-}$ ion, electronic absorption, luminescence, infra-red and Raman spectra 4−72187

luminescence chambers *see scintillation chambers*

luminescence of gases
acetones, halogenated, photochem., fluoresc., radiative, nonradiative decay rate consts. investig. 4−75009
anthracene, light emission from singlet states during pulse radiolysis of argon 4−54045

luminescence of gases continued
aromatic vapours, fluorescence lifetime dependence on vibrational energy, effect of foreign gas 4−72222
atmospheric organic pollutants, determ. by laser induced i.r. fluorescence, remote sensing 4−80402
3,4-benzpyrene, vap. phase, 'anomalous' fluoresc. investig., vibr. redistribution 4−48066
biacetyl, vapour, phosphoresc. sensitized by triplet state energy transfer from naphthalene 4−72219
1-chloropentafluoroacetone, photochem., vibr. relax. investig., one- and two-step mechanisms 4−75010
1,3-dichlorotetrafluoroacetone, photochem., excited state quenching investig., correl. with ionisation pots. 4−75011
1,3-dichlorotetrafluoroacetone, photochem., vibr. relax. investig., one- and two-step mechanisms 4−75010
naphthalene, light emission from singlet states during pulse radiolysis of argon 4−54045
nonlinear absorpt. of weak e.m. field in intense field in reson. fluoresc. 4−72221
pyrene, isolated mols., fluoresc., effect of collisions with inert gas mols., vib. relax., intermediate strong coupling 4−78524
pyrene, vapour, fluoresc., sequence congestion and temp. effects investig. 4−69509
pyrene, vapour, relative S$_2$ emission yield investig., intermediate strong coupling considered 4−69510
1,1,3-trichlorotrifluoroacetone, photochem., excited state quenching investig., correl. with ionisation pots. 4−75011
BCl$_3$, visible luminescence in field of CO$_2$ laser 4−48182
Ba + LiCl→BaCl + Li, crossed beam react., internal stages investig., laser fluoresc. method 4−83020
CN radicals, prod. by flash photolysis, laser induced fluoresc. investig. 4−50185
H$_2$, excited electronic states investig. by microwave mag. res. induced by electrons 4−52201
HF, vib.-vib. exchange rate for excited vib. levels, meas. 4−52290
HF(ν=1), deactivation by F. O and H laser induced fluoresc. investig. 4−75045
Hg vapour, spontaneous radiation, noise spectrum *(Russian)* 4−69421
Hg(^{3}P$_1$) + Q, Q=gas molecule, absolute quenching cross section investig., photolytic studies 4−72049
I vapour, educational demonstration *(Russian)* 4−65325
N$_2$, rot. temp. meas. using electron beam technique, Smith's model applic. 4−81802
NH$_2$-radicals, electron impact form., e.s.r., ion cyclotron resonance, emission spectroscopy investig. 4−52267
NO$_2$, photoexcited, fluoresc., lifetime investig. near predissoc. limit 4−52194
Na, very low vapour density, optical reson. fluoresc. meas. 4−48173
O$_2$, laser excitation, singlet dimol emission 4−75001
OH radicals, prod., fluoresc. investig. using tunable freq. doubled dye laser 4−52195
Rb-inert gas complexes, fluoresc. spectra meas., mol. pots. determ. 4−60089
RbXe*, form. by terat. recombination, rate determ. from fluoresc. meas. 4−61582
SO$_2$, ^{3}B$_1$-^{1}A$_1$ transition, radiative lifetime calc., radiationless processes investig. 4−52198
SO$_2$, electronic and vibrational relax. in vapour, phosphorescence quantum yield determ. 4−78475

luminescence of inorganic solids
:- *(Russian)* 4−67032
alkali halide:Ga$^+$, luminesc. decay times obs. at 295 and 77K 4−70354
alkali halide crystals, self-trapped excitons 4−45357
alkali halide phosphors, optical transition from valence band to local level 4−79769
alkali metal halide anomalous solid soln. crystallophosphors *(Russian)* 4−82731
alkali-alkaline earth phosphates:Eu^{2+}, as phosphors 4−76295
alkali-borate glass:S^{2-}, blue binary, optical absorpt., emission and excitation spectra 4−70328
alkaline earth mixed halides, M$_{1-x}$Eu$_x$FCl, M=Ca, Sr, Ba luminescence spectra *(French)* 4−64430
alkli metal halide, catholuminesc., elec. cond. relax. *(Russian)* 4−73202
ammonium halide: In, Tl, Sn, activator exciton bands, 2-7 eV *(Russian)* 4−73157
anthracene, optically induced fission spectrum 4−80201
anti-Stokes luminophors L44 and L45, luminescence spectra and colour coords. *(Russian)* 4−73151
apatite halophosphates, Sb^{3+}, Mn^{2+} activated, extrinsic absorption bands, 140 to 190 nm, obs. 4−57605
borosilicate glasses, Eu^{3+} fluorescence excitation, emission and absorption spectra obs. 4−49432
cathodic luminophors with short after-emission, photolum. *(Russian)* 4−79800
chalcogenides vitreous semiconductors, expt. review 4−79268
colour centre emission bands, polarised luminesc., uniaxial stress effects 4−57592
crystallophosphors, recomb. luminesc., ultralinear effects *(Russian)* 4−82759
diamond, 5032 Å transition, symmetry breakdown 4−79755
diamond, H3 cathodolum., decay time reduction rel. to defect interactions 4−53538
diamond, natural and synthetic, linearly polarised luminescence from linear defects 4−79804
diamond, p-type semicond., thermoluminesc., pre-excitation and excitation investig., energy level model 4−76324
diamond crystals, 4152 Å system, absorpt. and luminesc. meas., wavelength modulation technique 4−67608
dielectric crystal, energy transfer from VO$_4^{3-}$ ion 4−49437
F-centre emission, comparison of rotator model with ENDOR obs. 4−49447
fluorides:Yb^{3+}(Er^{3+}), fluorescence decay, cathode-ray excitation 4−49471
glass, Li$_2$O-SiO$_2$, activated by Dy, luminescence of two types of centre, effect of alkali metal oxide content *(Russian)* 4−45347

luminescence of inorganic solids continued
glass, Pr^{3+} activated, cathodolum. and induced absorpt. bands *(Russian)* 4−53539
glass, silicate, luminescence of Eu^{3+} and Tb^{3+}, effect of thermal history 4−53486
glass ceramic, microstruct. characteriz. by cathodolum. 4−49892
halophosphate luminophors, colour centre form. by u.v. and X-ray excitation *(Russian)* 4−82757
III-V semiconductor, crystal orientation and imperfection obs. by cathodoluminesc. obs. *(Czech)* 4−66801
inorganic azides, u.v. irradiated 4−76160
leucosapphire luminescence, fast electron excitation *(Russian)* 4−73201
luminophors containing O, X-ray excitation, trapless mechanism *(Russian)* 4−82724
models of luminogene centres, validity *(French)* 4−70358
orthophosphate luminophors, Sn activated ageing activation valency state changes *(Russian)* 4−73441
oxysulphides:Eu^{3+}, Tb^{3+}, additional centres, electron-hole processes *(Russian)* 4−82729
phosphors, X-ray excitation efficiencies, obs. 4−49435
quartz:Ge, colour centres, heating effects 4−73141
α-quartz, effect of Ag electrolysis on spectral props. *(German)* 4−49415
quartz, glassy and crystalline states, electronic processes *(Russian)* 4−73105
rare earth borates, influence of composition on luminesc. *(Russian)* 4−73153
rare earth complexes with β-diketones, stereoisomers of tetraligand complexes, struct. by vibrational spectrum method *(Russian)* 4−48624
rare earth oxysulphide, commercial cathodoluminophors *(Russian)* 4−82754
rare-earth ions in scheelite and fergusonite type crystals, virtual charge exchange 4−53513
rare-earth phosphates, Nd^{3+} fluorescence concentration quenching obs. 4−49434
rare-earth phosphates, X-ray excited luminescence at 1800 to 6000 Å, obs. 4−57608
recombination centres, carrier capture cross section modulation effect *(Russian)* 4−73148
ruby, luminescence, fast electron excitation *(Russian)* 4−73201
semiconductor, biexcitons influence on edge absorption and luminesc. 4−57627
semiconductor, GaAs-type, deform. effect on polariz. of luminesc. and absorpt. in tunnel transitions 4−49453
semiconductor, heavily doped, impurity radiative recomb., theory 4−49454
semiconductor, heavily doped theory of electroluminesc. 4−67663
semiconductor, Urbach's tails, hot phonon contrib. 4−57624
semiconductors, bulk-excited, effect of increasing degeneracy on spontaneous emission line width at relatively higher temps. 4−49424
α-Sic(15R), i.r., rhombohedral struct., fundamental absorption region 4−61222
silicate glasses, quantum efficiencies and transition probabilities of Eu^{3+} 4−64432
transparent dielectric, due to fracture by laser light 4−74518
uranyl trinitrate, vibr. struct. of low temp. luminesc. spectrum, 4.2K *(Russian)* 4−61225
vibroelectronic models, spectral distrib. of emission probability *(French)* 4−61218
vitro-ceramic materials, rare-earth-doped, for i.r. up-conversion 4−57612
zeolite monocrystal, natural, emission centres from e.p.r. and luminescent data *(Russian)* 4−49394
$[Cr\ urea_6]X_3$ complex single crysts., emission and absorpt. spectra, emission lifetimes, temp. depend. *(German)* 4−57631
Ag halides, photochromic glasses, luminescence *(Russian)* 4−70362
AgBr, AgCl, u.v. excited thermoluminesc., trap levels 4−82762
AgBr, Bose-Einstein condensation of free excitons, photoluminesc. obs. 4−60766
AgBr, recomb. luminesc. of free indirect exciton phonon participation 4−57622
AgBr, recomb. radiation, luminesc. centre form. *(Russian)* 4−73162
AgCl, luminescence after ruby laser excitation 4−49422
$AgGaS_2$, sharp-line and broad-band emission, 4.2K 4−53496
AgI, absorpt. and luminesc. excitation spectra obs. 4−67651
β-AgI, pure and Cu-doped, optical emission and absorption obs. 4−57604
$AgXTe_2$, X=Al, Ga, In, band struct. obs. using luminesc. and electroreflectance spectra 4−75778
Al surface, ion bombardment induced light emission, influence of reactive gases 4−45345
AlAs, excitonic band gaps determ. 4−48909
$Al_xGa_{1-x}As$, optical orientation of spins of free and bound electrons 4−79793
$Al_xGa_{1-x}As$:Ge, Sn, epitaxial layer photoluminesc., rel. to semicond. laser applic. 4−57095
$Al_xGa_{1-x}As$:Si, electrolum. spectra of l.e.d. 4−67662
$Al_xGa_{1-x}As$-$Al_yGa_{1-y}As$, p-n heterojunction, on GaAs substrate, $(y>x)$, electrolum. characts. 4−49468
$Al_xGa_{1-x}As$-GaAs, DH laser material, fluorescence deterioration after microscopic damage 4−57591
$Al_xGa_{1-x}P$, epitaxially grown, donor-acceptor pair and bound exciton recomb. 4−73179
$Al_xGa_{1-x}P$ solid solns., epitaxial film, forbidden band width determ. from photoluminesc. spectra 4−67657
AlN:O, luminesc. of O impurity centres 4−79776
Al_2O_3, prebreakdown electrolum. stimulated by active centres of sorption nature *(Russian)* 4−73197
Al_2O_3:Cr^{3+}, ruby, first nearest neighbour Cr^{3+} pairs, absorpt. and emission spectra obs. 4−57585
α-Al_2O_3:Ti^{3+}, zero phonon transitions and interacting Jahn-Teller phonon energies determ. 4−49429
β-Al_2O_3-BaO(La_2O_3, K_2O):Eu, Mn, depreciation under u.v. irrad. 4−61213
AlP, excitonic band gaps determ. 4−48909
AlSb, impurity radiative recomb., 4.2K 4−82747

luminescence of inorganic solids continued
Ar, diffusion of O_2 at 33K, phosphorescence obs. 4−52930
Ar, solid, efficient fluoresc., 10 to 30 kV electron excitation 4−61198
Ar-Ne, electron excited, exciton spectra, at. and mol. centres 4−67667
Ar-Xe solid solutions, radiative annihilations of excitons 4−79781
As_2S_3, As_2Se_3, amorphous, photoluminesc. excitation spectra 4−57616
$As_2Se_2(S_3,Te_3)$, 0.4-1.8 eV, recomb. mechanism 4−45355
$As_2Se_3(S_3)$, vitreous and cryst., mechanism 4−73177
BaFX:Eu^{2+}(X=Cl,Br) 4−64429
BaO.6Al_2O_3:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
$BaSO_4$, γ-irradiated, thermoluminescence 4−57640
$BaSO_4$, impurity doped, thermoluminesc. and e.s.r., trapping and emission centres 4−70372
$BaSO_4$:Sm(Eu), thermoluminesc. mechanism 4−82761
$BaYF_5$:Yb,Ho luminophors, thermodynamic limits on efficiency *(Russian)* 4−53526
$BaYF_5$:Yb^{3+}-Er^{3+} base, anti-Stokes luminesc. *(Russian)* 4−73152
Ba_2ZnS_3:Mn^{2+} phosphor efficiency obs. 4−57603
BiSI, ferroelectric semiconductor, photoluminesc. obs. at 80K 4−67634
(Ca, Cd)S phosphors, structural and luminescence properties 4−49427
CaF_2, coloration, and luminesc. in oxygenated samples and u.v. absorpt. 4−53520
CaF_2: rare earth ions, fluorite crystal, photostimulated thermolum. obs. 4−49474
CaF_2:Er^{3+}, low temp. luminesc., vibronic sideband 4−64418
CaF_2:Er^{3+}, thermoluminesc., fluoresc., symmetry 4−82763
CaF_2:Er^{3+}:TR^{3+}, (TR=La-Lu), optical centre equilib. 4−53481
CaF_2:Eu^{2+}, short term X-ray excitation, exciton role *(Russian)* 4−73159
CaF_2:Eu^{3+}:TR^{3+}, (TR=La-Lu), optical centre equilib. 4−53481
CaF_2:rare earth, fluorite, radiation-induced defects unstable at 77K, photostimulated thermolum. obs. 4−49475
$Ca_3(PO_4)_2CaX_2$ (X=halogen) based commercial luminophors, struct. characts. and optical props. *(Russian)* 4−73150
$Ca_3(PO_4)_2.CaF_2$ based luminophor activated by Sb and Mn *(Russian)* 4−73193
CaS:As phosphor, cathodoluminesc., decay studies 4−82756
CaS:Bi, Tm phosphor, thermally stimulated, electron traps 4−70370
CaS:Bi:Tm phosphor, phosphorescence decay at 96 and 300K 4−57599
$CaSO_4$:Eu, Mn, sensitised photoluminesc. obs. *(Russian)* 4−61205
$CaSO_4$:Mn, i.r. stimulation, differential thermal quenching *(Russian)* 4−57596
$Ca_xSr_{1-x}F_2$:Er^{3+}, anti-Stokes luminescence, matrix disorder effect 4−53515
$CaWO_4$:V, effect of V additions on optical props. *(Russian)* 4−73209
$CaWO_4$(:Pb), photoluminescence, radiothermoluminescence and conductivity after X-ray irradiation *(German)* 4−64436
$CdCl_2$, $CdBr_2$, O addition, comp. depend., 77-450K *(Russian)* 4−82732
$CdCl_2$:I^-, layer struct., localised exciton effect 4−57581
CdF_2:Er^{3+}, Yb^{3+}, Tm^{3+}, Ho^{3+}, Tb^{3+} absorption and fluorescence spectra, obs. 4−57610
CdF_2:Mn, luminescence, evidence for two channel excitation 4−79791
$CdInGaS_4$:Au, trapping and recomb. energy levels in forbidden band determ. 4−67254
CdS, biexciton energy level spectra and related optical transitions 4−82381
CdS, CdSe, fine struct. of exciton spectrum of luminesc. *(Russian)* 4−73165
CdS, effect of two photon transitions, obs. of stimulated light emission 4−51645
CdS, exciton orientation by circularly polarized light 4−48948
CdS, exciton spectra, high intensity excitation 4−75829
CdS, free to bound recomb., temp. and excitation depend., screening effects, 4.2-80K 4−49420
CdS, highly excited, thermal relax., I_1 line shape as temp. probe 4−79789
CdS, I_1 luminesc. line as phonon spectrometer 4−79788
CdS, long wavelength bound exciton emission 4−49421
CdS, luminescence at 1.3 K not due to biexcitons, but to radiative decay of exciton-impurity complexes 4−48941
CdS, red band luminescent field effect kinetics *(Russian)* 4−61224
CdS, temp. depend. of exciton luminesc. intensity 4−57626
CdS, three-photon luminesc. obs. 4−67644
CdS, transmission at boundary for exciton reson. 4−57629
CdS, two-photon absorption by lower power CW laser 4−64427
CdS film, heteroepitaxial, optical transmittance and photolum., 77-400K 4−76335
CdS single crysts., cond. inhomogeneity effects on elec. and optical props. 4−70015
CdS:Cl, high temp. green photolum. obs. 4−76307
CdS:Eu^{3+}, 4.2K *(Russian)* 4−79797
CdS:N^+, deep centre luminesc., electronic transition 4−82738
CdS:Te, single crystals, obs. of radioluminesc. 4−53488
CdS(Se), luminesc. of high density excitons, 4.2-90 K 4−67641
CdS_xSe_{1-x}, elec. field excited, light generation at intensity of 10^9 W/cm^2 *(Russian)* 4−73199
CdSe, dynamical processes of high density single excitons and excitonic molecules, obs. 4−44877
CdSe, exciton condensation evidence 4−76312
CdSe, exciton condensation, optical spectra evidence *(Russian)* 4−82379
CdSe, luminesc. from acoustoelec. domains 4−53534
CdSe, photoexcited hot electrons and excitons, obs. of recomb. radiation at 2K 4−53519
CdSe, photolum., effects of deep centres and impurities 4−73170
CdSe, single cryst., exciton-exciton and exciton-electron interaction *(Russian)* 4−76298
CdSe single crystals, refl., absorpt. and luminesc. fine struct. obs., surface effects 4−73136
$CdSnP_2$-InP heterojunction, electroluminesc. 4−57708

luminescence of inorganic solids continued
p-CdTe, electron irrad., defect annealing behaviour 4−60755
CdTe, exciton-neutral donor complex, Zeeman effect, energy shift 4−73181
CdTe, high purity single crystal, elec. props., photoluminescent props. 4−64424
CdTe:O, photoluminescence spectra 4−76309
CsBr, homologous activators, low temp. thermal stability *(Russian)* 4−82758
CsI:Na, nature of luminesc. centres *(Russian)* 4−82730
CsI:Tl, heavy ion scintillation efficiency, track effect theory 4−49412
CsI:Tl, scintillator kinetics, single photon method *(Russian)* 4−73160
CsI(Na), anionic impurities effect on optical and scintillation characts. *(Russian)* 4−61230
CsI(Tl), luminescence spectra and light yield meas., effects of gamma irradiation 4−79774
$Cs_2(UO_2)_2(SO_4)_3$, luminescence phononless lines, temp. broadening, line shift 4−53516
$CsYF_6$:Yb^{3+}:Er^{3+}(HO^{3+}) phosphor, conversion of i.r. to visible emission 4−49425
Cu surface, ion bombardment induced light emission, influence of reactive gases 4−45345
$CuAlS_2$, synthesis, elec. and opt. props., doping effects 4−61210
$CuAlS_2$:Fe^{3+}, near i.r. luminesc. 4−67640
CuCl, biexciton excitation 4−75833
CuCl, energy level spectra of biexcitons and related optical transitions 4−82381
CuCl, S induced traps as exciton luminesc. killers 4−57620
$CuGaS_2$, vap. grown, electroluminesc., minority carrier injection 4−70366
$CuGaS_2$:Fe^{3+}, near i.r. luminesc. 4−67640
Er^{3+}, in germanate and tellurite glass, transition probabilities 4−45333
Eu activated phosphates, halophosphates and silicates *(Russian)* 4−82726
Eu complex, europium benzoylacetonate, luminesc. kinetics of dissoc. forms 4−76299
Eu complex, with dibenzoylmethane in cryst. state, isomeric, rel. to struct. *(Russian)* 4−48624
Eu II frozen acid soln., photoluminescence, phototransfer, thermoluminescence 4−53512
EuP_5O_{14}, cryst., polarised emission, absorpt. spectra, Eu^{3+} symmetry investig. 4−82706
EuS single crystal, melt-grown, characterization 4−61289
GaAs, Ar^+ bombarded, ejected particle characterisation 4−53564
GaAs, edge luminesc., bound exciton line origin determ. 4−44878
GaAs, epitaxial, 1.0 eV impurity band in photolum. spectrum 4−61221
GaAs, epitaxial layers, impurity level obs. from photolum. spectra 4−70342
n-GaAs, heavily doped, luminesc. centre diffusion 4−72590
n-GaAs, impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
GaAs, impact ionised, recomb. radiation from Landau states 4−82751
GaAs, layerwise inhomogeneity in crucible-free zone refined three-dimensional single crystals 4−45434
GaAs, optical orientation of spins of free and bound electrons 4−79793
p-GaAs, optical pumping, excitation effects above band gap 4−49446
GaAs, optically pumped, emission under drifting field 4−73138
GaAs, picosecond speetra, television camera system 4−77083
GaAs, using laser excitation *(Russian)* 4−76290
GaAs epitaxial layers, electron density and mobility, photoluminescence and deep traps obs. *(Japanese)* 4−45025
GaAs epitaxial layers, grown in $AsCl_3$-Ga-N_2 system, characterization 4−53611
GaAs film, in GaAs-$Al_xGa_{1-x}As$ double heterostruct. 4−53549
n-GaAs obs. of temp. quenching in 1.28-1.30 eV emission band 4−53521
n-GaAs:Cu, field-induced deform. of impurity luminesc. spectrum 4−49457
p-GaAs:Cu, temp. quenching of Cu-induced 1.35 eV emission band 4−79790
GaAs:Ge, LPE, electrolum., photolum. and minority carrier diffusion length, dislocation effects 4−53008
GaAs:Ge, Si-Te, epitaxial layer photoluminesc., rel. to semicond. laser applic. 4−57095
GaAs:Na, electroluminesc. theory 4−67663
GaAs:O energy spectrum of impurity levels, photocond. and photoluminesc. meas. 4−67656
n-GaAs:Te, photoluminesc. spectra in strong mag. field to 300 kOe 4−49455
GaAs:Te 70 keV ion implantation, annealing effects, photoluminescence and He ion channelling obs. 4−49610
GaAs:W(Ti)(Co)(Mo)(Cr), deep level impurities, photolum. identification 4−76308
$GaAs_{0.62}P_{0.38}$, electroluminesc., effect of reactant gas vapour pressure during growth 4−57709
$GaAs_{1-x}P_x$, electroluminesc. obs. at 77 and 295K with x corresponding to indirect band struct. 4−67665
$GaAs_{1-x}P_x$, uniaxial stress effects on red emission characts. of l.e.d. 4−53535
$GaAs_{1-x}P_x$:N, ion implanted, photolum. 4−53497
$GaAs_{1-x}P_x$:N, ion-implanted, $(x=0.52)$, photolum., 2K 4−76296
$GaAs_{1-x}P_x$:N,Zn, recomb. transitions in direct and indirect comp. regions 4−53494
$GaAs_{1-x}P_x$:N^+, radiative recomb., behaviour of above-gap NN pair states, 77K 4−59432
$GaAs_{1-x}P_x$(:N), spontaneous and stimulated carrier lifetime meas. 4−49416
$Ga_xIn_{1-x}P$, epitaxial, $0.45<x<0.5$, photolum., 4.2-300K 4−82746
GaN, epitaxial, built-in strain effect on luminescence and absorption spectra 4−82740
n-GaN, epitaxial vapour deposition, carrier conc., mobility and photoluminescence *(Japanese)* 4−45438

luminescence of inorganic solids continued
GaN, fundamental energy gap, determ. from photolum. excitation spectra 4−79291
GaN, GaP:N, from GaP + NH_3 reaction, luminescence spectra, 77K 4−45444
GaN, u.v., violet and yellow-green cathodolum. obs. 4−76323
GaN:Cd, epitaxial layer, 1.6-300K, energy depend. 4−61207
GaN:Zn, photoluminesc., implanted ion conc. depend. 4−45348
GaN:Zn, photoluminescence 4−61206
GaP, annealing effect 4−49012
GaP, conduction band X_3 effective mass and spontaneous emission time of X_1 and X_2 conduction band transitions 4−60739
GaP, electrolum. spectra, 77-293K *(Russian)* 4−53537
GaP, GaP:Al and GaP:In free excitons in luminescence spectra 4−73183
GaP, ion-implanted, disorder obs. 4−61307
GaP, radiative exciton recomb. on isoelectronic impurities *(Russian)* 4−79803
GaP crystals, luminesc. quality, optical techniques for characterisation, review 4−73194
GaP:Ge, cond. and photoluminesc., behaviour of Ge 4−79348
GaP:Ge, mechanism, 80-180 K, conc. depend. *(Russian)* 4−45349
GaP:Ge, photluminesc., pair emission bands, temp. depend. 4−53507
GaP:Ge, photoluminesc., pair emission band shapes 4−53506
GaP:N, 1.6K photoluminesc. at high N concs. 4−49451
GaP:N, decay time, excitation density depend. 4−73139
GaP:N, diode, hydrostatic press. effect on electroluminesc. 4−45365
GaP:S,C, luminesc. obs. at 8K, use of pulsed dye laser system 4−65425
p-GaP:Zn,O, dope-dependent luminescence efficiency degradation, obs. 4−49465
GaP:Zn(S), minority carrier diffusion length, lifetime, conc. depend. 4−72763
$GaP_{0.3}As_{0.7}$:Zn, excess circular polarization of luminesc. as result of optical orientation of spins 4−57625
GaP_xAs_{1-x}, optical orientation of spins of free and bound electrons 4−79793
p-GaSb, optical pumping, excitation effects above band gap 4−49446
GaSb, quasiexciton nature, phase transition possibility in electron-hole plasma 4−76310
GaSe, electron-beam excited, spontaneous and stimulated emission, possible laser appl. 4−82716
GaSe, photoluminescence spectra meas. at 4.2 to 300K, following laser excitation 4−67643
GaSe, single cryst., edge luminesc. band assignments 4−76311
GaSe single crystals, edge emission at high excitation levels, temp. depend. 4−67645
Gd-Ga garnet, crystal defect mapping 4−44547
Ge, decay kinetics of electron-hole-drop and free-exciton luminescence 4−49445
Ge, density-depend. luminesc. props. of electron-hole liquid 4−57623
Ge, doped, exciton condensation, threshold phenomena and hysteresis, electron-hole drops 4−67654
Ge, luminescence decay of electron-hole drops, vol. and surface effects 4−76304
Ge, mag. field effect on i.r. absorption and luminesc. of electron-hole droplets 4−73188
Ge, photoluminesc., theory of exciton, biexciton recomb. 4−49456
Ge, polarisation of low temp. photoluminesc. due to deformations *(Russian)* 4−73190
Ge, radiative two-electron transitions in electron-hole droplets 4−49452
Ge, recombination radiation, free-carrier compression in crossed elec. and mag. fields 4−70359
p-Ge electron-hole drops due to laser irrad. 4−70352
Ge electron-hole fluid, liquid-gas phase diagram, recombination luminescence 4−64045
Ge:As,Sb, far i.r. recomb. radiation from impact-ionized donors 4−76315
Ge:As(P)(Sb), impact ionisation, far i.r. recombination spectra, electron transitions investig. 4−64442
Ge-S glasses, photoluminescence, laser excitation, structure sensitivity 4−73169
HCl:Ag^+, temp. decay of luminesc. quantum yield, 77-160K *(Russian)* 4−67659
α-HIO_3, anomalous resonance in emission spectrum *(Russian)* 4−57632
H_3PO_4:Ag^+, temp. decay of luminesc. quantum yield, 77-160K *(Russian)* 4−67659
H_2SO_4:Ag^+, temp. decay of luminesc. quantum yield, 77-160K *(Russian)* 4−67659
H_2SO_4:UO_2^{2+}, frozen soln., thermoluminescence, UO_2^{2+} lifetime, structural transitions 4−53517
HfP_2O_7, self-activated, efficiency and emission energies, obs. 4−57638
HgI_2, high density laser excitation, exciton behaviour *(Russian)* 4−82734
$HgMoO_4$, u.v. excitation, thermal quenching temp. 4−70351
$HgWO_4$, u.v. excitation, thermal quenching temp. 4−70351
$In_{0.48}Ga_{0.52}P$, on GaAs, carrier lifetime determ. 4−49417
$In_{1-x}Ga_xP$, laser quality cryst., direct-indirect transition 4−76303
InP, edge luminesc., bound exciton line origin determ. 4−44878
InP, exciton effect, surface characts. and field depend. 4−45325
K halides, O_2^- mol. centres, thermal broadening and shift of phononless lines, luminesc. obs. 4−73185
K_2AgI_3, absorpt. and luminesc. excitation spectra obs. 4−67651
KBr, KBr:Cu, X-irradiated at 80K, thermolum. rel. to F'-centres 4−53540
KBr, low temp. exciton migration, luminesc. centres *(Russian)* 4−82378
KBr:Tl, thermal trap ionisation energy spectrum, charged centre interaction *(Russian)* 4−73205
KBr(:I), radiation defect distrib. determ., tunnelling centres *(Russian)* 4−73156
KCL:Nd^{3+}, ababsorption and fluorescence emission spectra 4−61193

luminescence of inorganic solids continued
KCl, KBr, KI, field excited phosphoresc., X-ray irrad. effect 4−73196
KCl, KCl:Cu, X-irradiated at 80K, thermolum. rel. to F'-centres 4−53540
KCl, luminesc. and optically detected e.p.r. of close F-centre pairs 4−57619
KCl, thermal annealing kinetics, luminesc., decay of F' centre, 80 to 300K 4−82739
KCl, with divalent impurities, X-irrad., thermolum. 4−67670
KCl:Ag, photoionisation of Ag^0 centres obs. 4−79766
KCl:AgCl(TlCl), luminesc., tunnelling recombination of trapped electrons and holes 4−70356
KCl:Cu(Ag), dislocation interaction with electron and hole centres, deform. luminesc. obs. 4−56755
KCl:Eu, photolum., struct. and disintegration of active centres *(Russian)* 4−82749
KCl:Eu^{2+}, many photon ionization process saturation 4−79796
KCl:In,Na, thermolum. peaks with photon activation, thermal field ionisation of electron traps 4−79806
KCl:Tl, luminesc. flash excitation spectra investigation *(Russian)* 4−53510
$K_3Co(CN)_6$:Cr, polarised luminesc. spectrum of $Cr(CN)_6^{3-}$ ion, internal and lattice mode assignments 4−67642
KI, probability of electronic transitions in V_k+e centres *(Russian)* 4−82733
KI, S_2^- mol. centres, thermal broadening and shift of phononless lines, luminesc. obs. 4−73185
KI:Ag, absorpt. and luminesc. excitation spectra obs. 4−67651
KI:In, energy transfer from excitons to activator at 30K *(Russian)* 4−82744
KI:Tl, emission band, fast component 4−73167
KI:Tl, kinetics of self-trapped holes, time resolved emission and absorpt. meas. 4−45356
KI:Tl, X-ray radioelectroluminesc. obs., brightness waves 4−79794
KI:Tl-type phosphors, luminesc., spin-orbit Jahn-Teller interactions with vibr. modes investig. 4−70355
$KMGF_3$, e.s.r., optical absorption and luminesc. spectra obs. 4−73146
$KMgF_3$:Eu^{2+}, f-f transition luminesc., Stark and vibr. struct. obs. 4−67650
K_2O-Ga_2O_3-GeO_2 synthesis and luminesc. props. *(Russian)* 4−73154
$K_2O.11Al_2O_3$:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
$KTaO_3$, vibr. props. at Brillouin zone crit. points, differential Raman and fluoresc. meas. 4−61161
Kr, solid, efficient fluoresc., 10 to 30 kV electron excitation 4−61198
Kr, solid film, photolum. due to intrinsic excitons and impurities 4−61216
Kr:Rb, optical emission spectra, 5p→5s resonance transition obs. 4−76313
$LaAlO_3$:Pr^{3+}, fluoresc. line narrowing by laser excitation *(French)* 4−49440
$La_{1-x-y}Ce_xTb_yPO_4$, quantum efficiency of diffusion limited energy transfer 4−53498
$LaCl_3$:Pr^{3+}, nd^{3+} sequential two-photon excitation and energy transfer up-conversion obs. 4−57611
LaOBr:Tb X-ray phosphor emission obs. 4−57609
LaOCl phosphors, lanthanide ion luminesc. spectra excitation *(Russian)* 4−53530
$La_2O_3.11Al_2O_3$:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
$LaPO_4$, luminescence and absorpt. spectra, activated by Nd^{3+}, Eu^{3+} and Tb^{3+} 4−57590
$LiBaF_3$:Eu^{2+}, e.s.r., optical absorption and luminesc. spectra obs. 4−73146
LiBr:Ag^+, temp. decay of luminesc. quantum yield, 77-160K *(Russian)* 4−67659
LiCl:Cu single crystal, photo, thermo and X-ray luminesc, 79-450K *(Russian)* 4−82737
LiD, activated by Ge^{2+}, Sn^{2+}, B^{3+}, Sb^{3+}, X-ray and thermostimulated luminescence *(Russian)* 4−70363
LiD, mercury-like ion activated, luminesc. and excitation spectra *(Russian)* 4−61229
LiF, colour centre form. near Li X-ray K-absorpt. edge, thermolum. and photoemission meas. 4−79813
LiF, correlated thermolum. and thermally stimulated cond., simple recomb. model 4−45368
LiF, excitation and absorption spectra, 450 nm band, γ-irrad. 4−64417
LiF, thermolum., role of Mg 4−70371
LiF, X-ray and thermoluminesc., recomb. process *(Russian)* 4−82735
LiF single crystals, luminesc. meas. rel. to colour centres, X-ray excitation 4−67652
LiF:Mg, thermally stimulated, complex capture centre *(Russian)* 4−73206
$LiGaO_2$, synthesis and luminesc. props. *(Russian)* 4−73154
LiH(:Na), forbidden zone width, indirect transitions *(Russian)* 4−73164
LiI, zone refined, intrinsic luminescence, absorption and emission spectra 4−82709
Li_2O-Ga_2O_3-GeO_2, synthesis and luminesc. props. *(Russian)* 4−73154
Li_2O-SiO_2 glasses, Dy^{3+} activated, luminesc. centre types 4−70343
$LuPO_4$:Ce^{3+}, electronic and vibronic spectra 4−45352
$LuPO_4$:Ce^{3+}, zero-phonon and vibronic lines obs. in near u.v. luminesc. 4−61215
MgO, powder, emission spectra, surface states 4−64420
MgO-SnO_2-B_2O_3:Ti, cryst., comp. *(Russian)* 4−45363
$Mg_4Ta_2O_9$:Mn, fine structure in the low temperature luminescence 4−64425
Mn complex, $(EMPH)_2MnCl_4$, luminesc. props. obs. by absorption, excitation and reflectance spectra 4−70353
Mn complex, $MnX_4^{2-}(X=Cl^-,Br^-,I^-)$, excited state decay, luminescence quantum yields 4−53493
MnF_2:Er, fluorescent energy transfer $Mn^{2+}\rightarrow Er^{3+}$, temp. depend. 4−45354

luminescence of inorganic solids continued
NH_4Cl:Tl, absorpt., excitation and fluoresc. spectra 4−73178
NaCl, NaCl:Cu, X-irradiated at 80 K, thermolum. rel. to F'-centres 4−53540
NaCl, powder, doped and undoped, prep. and thermoluminesc. *(German)* 4−79805
NaCl, σ, π luminesc. rel. to self-trapped excitons 4−67184
NaCl:Nd^{3+}, absorption and fluorescence emission spectra 4−61193
NaCl:Sr, thermally pretreated, glow curves, impurity-vacancy dipoles 4−82760
NaI, probability of electronic transitions in V_k+e centres *(Russian)* 4−82733
NaI, V_k+e centre luminesc. kinetics *(Russian)* 4−67658
NaI:Tl, decay times, temp. depend. 4−57613
NaI:Tl, kinetics of self trapped holes, time resolved emission and absorpt. meas. 4−45356
NaI:Tl, recomb. luminesc., complex activator centres *(Russian)* 4−73158
$NaMgF_3$:Eu^{2+}, f-f transition luminesc., Stark and vibr. struct. obs. 4−67650
$NaNO_2$:Tl^+ crystal, spin-orbit interaction enhancement by heavy cation influence 4−73147
Na_2O-Ga_2O_3-GeO_2 synthesis and luminesc. props. *(Russian)* 4−73154
$(Na_2O)_{0.5}(Li_2O)_{0.5}(SiO_2)_2$, glass, thermoluminesc. centres nature 4−61237
$X(Na_2O.P_2O_5)yWO_3$ glass, Eu^{3+} fluorescence obs. 4−49433
$Na(UO_2)_2(HPO_4)(C_2O_4)_2.4.5H_2O$, luminescence phononless lines, temp. broadening, line shift 4−53516
$NaYF_4$:Eu^{3+}, photoluminescence, u.v. activated 4−57597
$NaYF_4$:Yb^{3+}:$Er^{3+}(Ho^{3+})$ phosphor, conversion of i.r. to visible emission 4−49425
Na_2ZnGeO_4:Mn, properties of ionisation domains, luminous spots obs. 4−67664
$NdNa_5(WO_4)_4$, crystal structure and fluorescence lifetime, laser material 4−63815
P_2O_5-Al_2O_3-MgO:MnO, glass, fluoresc. and thermoluminesc., depend. on Mn conc. and temp. 4−70338
$PbBr_2$, $PbCl_2$, cation exciton localisation, no V_k-centres *(Russian)* 4−73163
$PbCl_2$:Sn^{2+}, energy transfer mechanism *(Russian)* 4−79801
PbI_2, band edge photoluminesc., anisotropic polariton model 4−73180
PbI_2, polytypism and photoluminesc. obs. at 4.2K 4−73189
Pr^{3+}, in scheelite and fergusonite type crystals, virtual charge exchange 4−53513
RbI:Tl, emission band, fast component 4−73167
SbSI, ferroelectric semiconductor, photoluminesc. obs. at 80K 4−67634
$SbSI_{1-x}Br_{1-x}$, ferroelectric semiconductor, photoluminesc. obs. at 80K 4−67634
Se, amorphous, photoluminesc. excitation spectra 4−57616
Si, condensation of injected electrons and holes, recomb. radiation spectra 4−67655
Si, exciton spectra, high intensity excitation 4−75829
Si, non-ideal exciton gas and condensation into electron-hole plasma drops, luminesc. spectra 4−76302
Si, surface metallized by high laser excitation, electron-hole liquid 4−70360
Si:Al(Ga), electron irradiated, impurity effects on photoluminesc. 4−76305
Si:B, compression and low temp. laser irradiation, obs. of exciton recombination spectra 4−49438
Si:B, low-temp. photoluminesc., lattice damage due to ion implantation 4−75547
Si:Li(B)(P), obs. of photoluminesc. line due to multiexciton decay at impurity centre 4−49448
Si:P, semiconducting and metallic, photoluminescence, electron-hole droplets 4−70337
SiC, 6H and 15R, i.r. stimulated 4−70347
6H SiC, H- and D-implanted, luminescence centres 4−49449
SiC, i.r., deep donor centres 4−79795
β-SiC:Al,N crystals, edge emission, effect of temp. and excitation intensity 4−49443
SiC:Sc, single crystal, doping processes obs., solubility of Sc and luminescence spectra 4−82185
6H-SiC:Ti, low temp. ABC spectrum, Ti role 4−61220
$SrCl_2$, luminesc., self-trapped exciton obs. from e.p.r. *(French)* 4−70339
SrF_2:Eu^{2+}, short term X-ray excitation, exciton role *(Russian)* 4−73159
SrFX:$Eu^{2+}(X=Cl,Br)$ 4−64429
$SrGa_2S_4$:Ce^{3+}, Pb^{2+} white emitting phosphor for flying spot scanner tube 4−57637
$SrGa_2S_4$:Sn^{2+}, Pb^{2+} red emitting phosphors for flying spot scanner tube 4−57637
SrS:Cu, electroluminescence, voltage and freq. depend. of brightness 4−57635
SrS(Cu, Mn) phosphors, photoluminescence emission spectra, sensitization and energy transfer 4−49426
Sr_2SiO_4:Eu, synthesis conditions effect, struct. depend. *(Russian)* 4−82725
Ta, ion bombarded, secondary ion and light emission 4−76344
Tb^{3+} activated glass 4−70344
Tl complexes, $Tl(H_2O)Cl_x$, $TlCl(H_2O)_y$ and $TlCl_2(H_2O)Cl_4$, luminesc. spectra and kinetics *(Russian)* 4−82748
V garnets, spectral and temp. characts. *(Russian)* 4−82728
Xe, solid, efficient fluoresc., 10 to 30 kV electron excitation 4−61198
Xe, solid, electron excited, excitonic luminesc. spectrum 4−49472
Xe, solid film, at fundamental absorption edge 4−53504
YAG: rare earth, energy and charge transfer mechanism, radiation defects *(Russian)* 4−73203
YAG:Cr^{3+}, high temp. radiative efficiency mechanism 4−61211
YAG:Nd laser, $^4F_{3/2}\rightarrow{}^4I_{15/2}$, fluoresc. quenching by multiphonon relax. 4−74503
YAG:Nd^{3+}, fundamental line obs., use of laser rapid spectroscopy 4−65439
YAG:rare earth crystals, γ-irrad., thermolum. meas. 4−67669

luminescence of inorganic solids continued
- $YAlO_3$, monocrystals, colour centre spectra when activated with transition metal ions 4−45339
- $YAlO_3:Cr^{3+}$, fluoresc., 77-300K 4−53495
- $Y_3Al_5O_{12}:Er^{3+}(Eu^{3+})(Ho^{3+})(Pr^{3+})$, f→f and d→f radiationless relax., coupling strength and band gap depend. 4−53499
- $Y_3Al_5O_{12}:Nd^{3+}$, absorption and fluorescence spectra 4−53473
- $Y_3Al_5O_{12}$-Ce-$Gd_3Al_5O_{12}$-Ce, synthesis and luminesc. props. *(Russian)* 4−73155
- $Y_2BSbO_7:Bi^{3+}$, b=Ga, Lu, Y, photoluminesc. spectra anal. $^1S_0 \rightarrow {}^3P_1$ and $^3P_1 \rightarrow {}^1S_0$ transitions *(French)* 4−61214
- YIG, optical emission, impurity distrib. obs. 4−64498
- Y_2O_3:Eu(Bi), phosphors, radical recomb. luminesc., atomic H excitation mechanism *(Russian)* 4−76576
- $YOCl:Yb^{3+}$-Er^{3+} base, anti-Stokes luminesc. *(Russian)* 4−73152
- Y_2O_2S-Er-Ho-Yb, radiative and non-radiative transitions 4−53518
- YPO_4, luminescence and absorpt. spectra, activated by Nd^{3+}, Eu^{3+} and Tb^{3+} 4−57590
- $YPO_4:Ce^{3+}$, electronic and vibronic spectra 4−45352
- $YPO_4:Ce^{3+}$, zero-phonon and vibronic lines obs. in near u.v. luminesc. 4−61215
- $Y_2SiO_5:Nd^{3+}$, $^4F_{3/2} \rightarrow {}^4I_{11/2}$, $^4F_{3/2} \rightarrow {}^4I_{13/2}$, laser appl. 4−51600
- $YV_{1-x}P_xO_4:Eu^{3+}$ energy transfer and concentration quenching obs. 4−49410
- (Zn, Cd)S-Cu, Cl phosphors 4−53490
- Zn complex, binucl., of zinc chloride with zinc salicyal-n-toluidinate, spectral-luminescent props. *(Russian)* 4−53528
- Zn complex, with salicylal anilide, luminescence and photochromy 4−49441
- ZnCdS:Ag, l.v., factors affecting efficiency *(Russian)* 4−82755
- $ZnGa_2S_4:Mn^{2+}$, obs. and comparison with Ga_4S_3 and ZnS 4−57602
- $ZnIn_2S_4$, photoluminesc., 80K-room temp. 4−57135
- ZnO, exciton interaction in photoluminesc., obs. at 1.9K 4−57617
- ZnO, field effect modulated photoluminesc. 4−45351
- ZnO, high u.v. excitation, 4.2K, bound exciton recomb. 4−73182
- ZnO, prepared from zinc oxalate, green luminesc. characts. 4−70340
- ZnO m.i.s. structure, u.v. electrolum. obs., 100 and 300K 4−76317
- ZnO phosphors, emission spectra at 77 and 293 K 4−45350
- ZnO-$B_2O_3:Mn^{2+}$, devitrification process anal. 4−60417
- ZnS, cubic, Cu^{2+} centre i.r. absorpt. and emission meas., Zeeman effect 4−67621
- ZnS, deform. stimulated luminesc., dislocations role *(Russian)* 4−79775
- ZnS, growth conditions effect, defect struct. 4−82126
- ZnS, i.r. stimulation kinetics, donor-acceptor pair recomb. 4−45359
- ZnS, monocrystal, polarisation luminesc., centre orientation *(Russian)* 4−82736
- ZnS, optical transition from valence band to local level, plastic deform. effects 4−79769
- ZnS, single cryst. from Ga melt trapping states, thermoluminesc. 4−70369
- ZnS:Ag,Cl phosphors, photoluminescence, u.v. activated 4−57598
- ZnS:Cu, Cl, Nd, thin film, electroluminescence, photoluminescence 4−64440
- ZnS:Cu, correlation between photodielectric effect and Gudden-Pohl effect *(Russian)* 4−53536
- ZnS:Cu,In, effect of trap filling on shift of thermoluminesc. peak 4−53541
- ZnS:Cu,Mn, electroluminesc., trap spectrum 4−82750
- ZnS:Cu,Mn,Cl films, electrolum. and photoelectrolum. *(Japanese)* 4−76318
- $ZnS:Cu^{2+}$, Jahn-Teller effect in $^2T_2$ state, near i.r. absorpt. and emission spectra 4−57584
- ZnS:Mn, cryst. struct. depend., zero-phonon and phonon-assisted emission 4−70349
- ZnS:Mn, electron emission during radical recomb. luminesc. *(Russian)* 4−82723
- ZnS:Mn, polarisation of visible luminesc. under excitation with light obs. 4−57618
- ZnS:Pb, time-delayed luminescence spectra excited by ruby laser at e=178 eV *(Russian)* 4−61202
- ZnS-CdS phosphors, H press. effect, temp.-time cycles *(Russian)* 4−61204
- ZnS-CdS phosphors, luminescence, extinction effects of Ni, Co and Fe *(Russian)* 4−45346
- ZnS-CdS:Cl phosphor, H_2O chemisorption effect *(Russian)* 4−72633
- ZnS-Se:Mn, Mn ion investigation by photoluminesc. and optical absorpt. 4−45360
- ZnSe, edge emission and deep centre luminesc. 4−76314
- ZnSe, elec. and optical props. 4−61235
- ZnSe, elec. field excited, light generation at intensity of 10^9 W/cm^2 *(Russian)* 4−73199
- ZnSe, luminesc., donor-acceptor pair lines, energies listed 4−70357
- ZnSe, luminesc. of high density excitons, 4.2-90 K 4−67641
- Zn_2SiO_4:Mn, fine structure in the low temperature luminescence 4−64425
- Zn_2SiO_4:Mn, Ti, X-ray luminesc. characts., temp. and conc. depend. *(Russian)* 4−79802
- Zn_2SiO_4:Mn surface, electron-induced desorption of $O_2 \propto$ cathodoluminescent efficiency change 4−48849
- ZnTe-CdS heterojunction, emission mechanism, expt. 4−61232
- ZrO_2-CaO system, Bi-activated luminesc. *(German)* 4−49459

luminescence of liquids and solutions
- 3-acetylpyrene, dil. soln., fluorescence quantum yield, excitation wave length dependence *(German)* 4−49458
- alkylphenols, stereochem. effects in fluorescence quenching 4−57634
- 4-aminophthalimide, fluorescence spectrum, comparison expt. and theory *(Russian)* 4−73166
- 4-aminophthalimide in n-propanol, luminesc. spectra, orientation relax. kinetics investig. 4−73174
- 2-aminopyrimidine in p-xylene, phosphoresc., zero-field transitions and sublevel emissions 4−72211
- anthracene, in soln., delayed fluoresc., radical ion quenching rel. to conc., mag. field 4−48065
- anthraquinones, donor-acceptor interactions of excited molecules with solvent 4−61223

luminescence of liquids and solutions continued
- aromatic amines, effect of electron-accepting solvents on spin-orbit coupling *(Russian)* 4−45929
- aromatic hydrocarbons in soln., fluoresc. emission from π-singlet states, temp. depend. 4−54062
- benzene, phosphoresc., absorpt. spectra, lower electronic states, vibrs. investig. 4−66472
- o-benzoylbenzoate in ethanol-water soln., fluoresc. meas. of energy transfer to Eu(III) 4−57601
- 3-benzoylpyrene, dil. soln., fluorescence quantum yield, excitation wave length dependence *(German)* 4−49458
- Brownian motion influence on intermolecular energy transfer 4−49331
- camphorquinone, circularly polarized luminesc., stereochem. 4−67637
- chlorophyll a, fluoresc. quenching by radiationless singlet-triplet energy transfer, intramol. relax. meas. 4−48068
- chlorophyll-a, solution absorpt. and fluoresc. spectra, monomers, dimers and polymers 4−52122
- cryptocyanine solns., laser-excited, red and blue fluorescence 4−61200
- cyanine dyes, fluoresc. lifetimes investig. 4−79780
- p-dimethylaminobenzonitrile, formation and decay of dual fluorescences 4−54056
- all-trans-1,6-diphenylhexa-1,3,5-triene, time depend. fluoresc. polarisation obs. using liq. cryst. solvent 4−54060
- 1,3-diphenylisobenzofuran, self-sensitised photo-peroxidation, $O_2{}^1\Delta_g$-acceptor re-encounter probabilities 4−70611
- donor-acceptor interactions of excited molecules with solvent 4−61223
- dye, anti-Stokes luminescent quantum yield reduction effect on laser efficiency *(Russian)* 4−77673
- dye lasers, influence of radiative fluorescence lifetime on action 4−51586
- dye lasers, time-resolved spectral characteristics *(Russian)* 4−59410
- dye solution lasers, spontaneous and induced emission *(Russian)* 4−59413
- erythrosin B, in soln., spontaneous fluoresc. meas., picosecond kinetics 4−67646
- exchange interaction transfer of electronic excitation energy 4−79786
- fuchsine dye, aggregation, exciton emission and phosphorescence enhancement 4−49428
- hydronaphthyl radicals, isomeric forms, photolysis, radiolysis of rigid naphthalene solns. 4−80200
- luminophor, inorganic, thermo-optical distortion *(Russian)* 4−49393
- mesitil, non-polar solvent, conformational equilib. 4−74927
- metalloporphyrin molecules, triplet-triplet energy transfer, radiationless processes 4−79784
- 4-methylumbelliferone, exciplex formation, influence of water 4−76292
- optical purity determination by circular polarisation of luminesc. 4−67638
- organic dielectric liquids, electrolum., pressure dependence, experimental results 4−49467
- organic solutions, laser properties, conference, Szeged, Hungary, Aug (1973) 4−59409
- 3-oxybenzofuran-2-aldehyde, fluorescence, non-radiative transitions, absorption spectrum 4−49377
- perylene, n-hexane soln., hot vibronic luminescence 4−79783
- phenanthrene, excitation dependent fluoresc. 4−69511
- phenazines, donor-acceptor interactions of excited molecules with solvent 4−61223
- phenyl-3-propionamide, triplet state lifetimes meas. by sensitisation of biacetyl phosphoresc. *(French)* 4−57614
- photodecomposition effects on parameters of solution lasers *(Russian)* 4−59412
- phthalimide derivatives, glycerine solution, fluoresc. mols. conc. effect of emission spectra polarisation *(Russian)* 4−43862
- phthalimide solutions, substituted, induced singlet-singlet absorpt. in fluoresc. band region *(Russian)* 4−61228
- poly-DL-phenylalanine, triplet state lifetimes meas. by sensitisation of biacetyl phosphoresc. *(French)* 4−57614
- polymethine dye solns., luminescent and generating props., struct. depend. *(Russian)* 4−45362
- polymethine dyes, anomalous fluoresc. behaviour 4−81785
- pyrazoline derivatives, glycerine solution, fluoresc. mols. conc. effect on emission spectra polarisation *(Russian)* 4−43862
- pyrene in micellar water/detergent solns., fluorescence and excimer kinetics 4−61201
- pyrene solutions in cyclohexane, charge transfer reaction obs. *(Russian)* 4−54043
- pyrene-3-aldehyde, dil. soln., fluorescence quantum yield, excitation wave length dependence *(German)* 4−49458
- pyronine-B dye, aggregation, exciton emission and phosphorescence enhancement 4−49428
- rare earth ions, nonradiative deactivation, effect of H_2O intramol. vibr. anharmonicity 4−79785
- resonance migration of excitation energy *(Russian)* 4−61199
- rhodamine 6G in glycerol, spontaneous fluoresc. with picosecond resolution 4−49439
- rhodamine 6G solutions, phosphores. spectra and quantum yields at 77K *(Russian)* 4−79798
- rhodamine C in dimethylformamide and dimethylsulphoxide solns., decolorizing, spectroscopic studies *(Russian)* 4−49414
- rhodamine dyes, in alcohol solns., luminesc., conc. quenching investig. 4−73176
- rhodamine solutions, absorpt. and fluorescence spectra, soln. concen. and acidity effects 4−67580
- rigid solution, acceptor luminesc. decay for dipole-dipole interaction transfer 4−79787
- seawater, u.v. absorption rel. to luminescent props. *(Russian)* 4−70672
- tetracyanoethylene charge transfer complexes, rigidity influence on fluoresc. 4−82742
- trehalose dihydrate, lyoluminescence 4−49411
- 1,3,5-triphenylpyrazoline, fluorescence spectrum, comparison expt. and theory *(Russian)* 4−73166

luminescence of liquids and solutions continued
uranine-type dyes, O_2 quenching investig., rate const. determ. 4−48067
water, sonoluminescence accompanying high voltage discharge 4−75173
$Ba:TiO_2.P_2O_5 + Ba_2P_2O_7$ luminophor, interactions with phosphoric and perchloric acids *(Russian)* 4−73417
Cr(III) complex, $Cr(CN)_6^{3-}$, intersystem crossing efficiency investig., $Ru(dipy)_3^{2+}$ sensitised phosphoresc. method 4−72220
Eu complex, europium benzoylacetonate, luminesc. kinetics of dissoc. forms 4−76299
Eu II, acid aq. soln., photoluminescence, phototransfer, thermoluminescence 4−53512
Eu^{3+}, in dimethylsulphoxide, fluoresc. enhancement by Tb^{3+} 4−82741
Eu^{3+} complexes, chelates in fluoresc., quenching, ligand-ion energy transfer investig. 4−81786
$Eu^{3+}(^5D_0)$, in dried and undried solvents, luminescence decay time, temp. depend. 4−53514
Eu(III) complexes with decafluorodibenzoylmethane, fluorescent props., quantum yields *(Russian)* 4−79799
^{4}He, superfluid, electron-bombarded, pressure shifts and quenching of atomic and mol. metastable states 4−44729
KCl, γ-irrad., kinetics of aquoluminesc. 4−57589
$NaPO_3$-ZnO melts, annealing effect *(Russian)* 4−57594
O_2, in freon 113 soln., laser excitation, singlet emission 4−75001
$POCl_3 + SnCl_4:Nd^{3+}$ laser materials, spectral luminescent characts., effec of oxidizing agents *(Russian)* 4−43312
$(POCl_3.SnCl_4):Nd^{3+}$ soln., Stark struct. of $^4I_{9/2}$ and $^4F_{3/2}$ levels *(Russian)* 4−49460
$POCl_3.SnCl_4.Nd^{3+}$ solns., temp. depend. of luminescent props., 4.2-473K *(Russian)* 4−53529
Pr^{3+}, in aprotic solvents, fluoresc. and absorpt. spectra 4−53491
Tb chelates, fluoresc. quantum efficiency, solvent quenching 4−76306
$Tb^{3+}(^5D_4)$, in dried and undried solvents, luminescence decay time, temp. depend. 4−53514

luminescence of organic solids
2,3-dichloroquinoxaline, phosphorescence microwave double resonance, energy transfer in various hosts 4−49500
acetones, halogenated, photochem., absorpt., emission spectra determ., radiative, nonradiative decay investig. 4−75008
acridine, extinction of fluorescence, effect of acid-base interactions *(Russian)* 4−70364
acridine, microwave induced delayed phosphoresc., spin-forbidden radiationless transition anal. 4−60090
anthracene:tetracene delayed fluorescence, triplet exciton interactions, magnetic field effects *(German)* 4−79778
anthracene, cryst., hot band $S_0 \rightarrow T_1$ transitions investig. 4−67639
anthracene, crystals, singlet exciton-charge carrier interaction, fluorescence meas. 4−82745
anthracene, doped and pure, electroluminescence calcs. 4−61233
anthracene, microwave induced delayed phosphoresc., spin-forbidden radiationless transition anal. 4−60090
anthracene, recomb. electrolum. and enhanced double injection 4−67660
anthracene, single cryst., fluorescence reabsorption, lifetime variations 4−67631
anthracene crystal time resolved fluorescence spectra reabsorption and high density excitation effects 4−73173
anthracene crystals, dye sensitized, delayed fluoresc. of triplet excitons, mag. hyperfine modulation 4−61217
anthracene film, electrolum. quenching, 70-330K *(Russian)* 4−67666
anthracene single crystals, determ. of singlet exciton surface annihilation rate 4−57630
anthracene-perdeuteroanthracene, mixed cryst. system, fluoresc., mixed exciton band investig. 4−70341
anthracne, in Shpolskii matrices phosphoresc., fluoresc. investig., line widths, intersystems crossing 4−64431
aromatic amines, absorpt., emission spectra, CNDO/2-CI calcs., electronic struct. rel. to mol. geometry 4−56261
aromatic amines in rigid solution, u.v. excited delayed emission 4−82743
aromatic complexes, external deuterium isotope effect, spectroscopic obs. 4−45353
benzene, charge recomb. in luminesc. matrices, luminesc. obs. 4−73207
benzophenone, diphenylpicrylhydrazyl solid soln., fluorescence, singlet-doublet and triplet-doublet energy transfer 4−49442
benzophenone to phenanthrene triplet-triplet energy transfer, orientation effects, photoselection obs. 4−61631
p-benzoquinone, in isotopic mixed cryst., e.p.r. ODMR studies of lowest $n\pi^*$ triplet state 4−53502
biacetyl, biacetyl-benzene(pyridine) mixtures, triplet states, energy transfer investig. by opto-acoustic spectroscopy 4−66463
biphenyl-carbazole guest-host mixed crystal, delayed emission 4−79779
carbazol, naphthalene-d_8, diphenylpicrylhydrazyl solid soln., fluorescence, singlet-doublet and triplet-doublet energy transfer 4−49442
cuprous halide-pyridine compounds, fluorescence thermochromism *(German)* 4−57615
1,3-diazaazulene, in naphthalene cryst., phosphoresc. state, e.p.r. meas., transient effects 4−79777
1,4-dibromonaphthalene, linear chain excitons, optical and magnetic resonance spectra 4−48939
p-dichlorobenzene, in p-dibromobenzene host cryst., MODR spectrum of $^3B_{1u}$ state 4−61208
n-dimethylaminobenzalanilines, photoisomerisation *(Russian)* 4−61634
diphenylene oxide, frozen n-paraffin matrix, absorption and fluorescence spectra 4−53480
diphenylene oxide, in n-heptane frozen soln., centres of quasi-line absorpt. and fluorescence 4−67579
etioporphyrin I and its metallocomplexes, absorpt. and luminescent props. of dimers, 77K *(Russian)* 4−49461
etioporphyrin I and light metal complexes, phosphoresc. *(Russian)* 4−53531

luminescence of organic solids continued
glasses irrad. at 4.2 and 77K, deferred isothermal luminescence 4−57600
heterocyclic nitrogen bases, nucleic acid constituents, u.v. absorpt., luminesc., mol. excitation investig. 4−75012
hexachloroacetone, cryst. $T_1 \leftarrow S_0$ absorpt., $T_4 \rightarrow S_0$ phosphoresc. spectra investig. 4−67633
hexachlorobenzene, phosphorescence microwave double resonance, low temp. triplet energy gaps, mag. axes determ. 4−49499
hexafluoroacetone, cryst., phosphoresc., spectra investig., comparison with hexachloroacetone 4−67633
n-hexane:1,12-benzoperylene, temp. depend. of phononless lines in luminesc. spectra 4−73184
n-hexane:coronene, temp. depend. of phononless lines in luminesc. spectra 4−73184
indole, in glycol/H_2O glass, X-ray-, u.v.-induced luminesc., scavenger effects 4−76293
indole, optically detected mag. reson. obs. of phosphorescent state 4−57862
isoquinoline in frozen solns., quasilinear struct. of luminesc. spectra 4−49418
merocyanine dye, EDR, lowest triplet state spectral obs. 4−75007
3-methoxybenzanthrone containing solid solns., luminescent characts. *(Russian)* 4−53525
2-π-methoxyphenyl-5-phenyl-oxazole-1,3, excimeric fluoresc. investigation *(Russian)* 4−45364
methylcyclohexane glass, e_t^- stimulated recombination luminescence spectrum 4−64419
methylcyclohexane glassy solns. of biphenyl, γ-irrad. at 4.2 and 77K, deferred isothermal luminescence 4−57600
3-methylisoquinoline in frozen solns., quasilinear struct. of luminesc. spectra 4−49418
3-methylpentane glass, e_t^- stimulated recombination luminescence spectrum 4−64419
3-methylpentane glassy solns. of biphenyl, γ-irrad. at 4.2 and 77K, deferred isothermal luminescence 4−57600
molecular crystal, bound exciton state creation, biexciton emission 4−72735
molecular crystal with impurity spectral-selective excitation, luminesc. polarisation characts. 4−64437
naphthalene:diarylethylenes, phonon wing struct. in fluorescence spectra 4−73187
naphthalene:lumogen A, anthracene, impurity incorporation, luminesc. polarization diagram obs. 4−48642
naphthalene, in n-pentane frozen soln., centres of quasi-line absorpt. and fluorescence 4−67579
naphthalene, singlet excitons lifetime and diffusion 4−49436
naphthalene and nitrile-derivative, fluoresc. quenching by triethylamine in solid soln. *(Russian)* 4−61226
naphthalene-d_8, diphenylpicrylhydrazyl solid soln., fluorescence, singlet-doublet and triplet-doublet energy transfer 4−49442
n-octane: porphin, cryst., fluoresc., mol. orientation 4−81795
phenanthrene:anthracene, in n-hexane frozen soln., fluoresc. centres investig. 4−76300
o-phenanthroline in n-heptane matrix, 77K, phosphorescence spectrum 4−49419
phenazine, microwave induced delayed phosphoresc., spin-forbidden radiationless transition anal. 4−60090
phenyl alkyl ketones, rigid glass solns., dual phosphoresc. rel. to solvent, substituents 4−48064
phenylisocyanide and deuteroderivative, 77K, in polycrystalline matrices 4−63450
PMMA-3,4 benzpyrene solid solution, two photon transitions 4−64416
poly(ethylene 2,6-naphthalene dicarboxylate), photo-oxidized, thermally stimulated chemilum. 4−54059
poly(N-vinylcarbazole) and poly(N-vinylcarbazole):trichloracetic acid, films, photogeneration processes investig. 4−82449
poly-N-vinyl carbazole photothermoplastic layers, investigation of quantum efficiency *(Russian)* 4−57633
polymer transformation determ. by luminescent visible spectra 4−48158
polystyrol, triplet exciton existence, doping effect *(Russian)* 4−57595
pyrene, cryst., absorpt., fluoresc. props., harmonic approx. model 4−67632
pyrene, cryst., hot band $S_0 \rightarrow T_1$ transitions investig. 4−67639
pyrene, crysts., absorpt., fluoresc. props., vibr. relax. investig. 4−64422
pyrene, doped with perylene, fluorescence decay curves 4−73168
pyrene, triplet-triplet exciton annihilation rate const. 4−45358
rhodamine 6G in polyacrylonitrile matrix, quantum efficiency 4−65934
rhodamine B, electronic absorpt. and emission spectra, effect of dimer form. 4−70345
styrol, triplet exciton existence, doping effect *(Russian)* 4−57595
styrol divinyl copolymers, and poly-N-vinyl carbazole thermoplastic layers, investigation of quantum efficiency *(Russian)* 4−57633
terphenyl, diphenylpicrylhydrazyl solid soln., fluorescence, singlet-doublet and triplet-doublet energy transfer 4−49442
tetracene:pentacene crystals, fluorescence, heterofusion of triplet excitions 4−48938
tetracene, optically induced exciton fission, energy depend. 4−49430
tetracene film, anthracene doped, X-centre obs. 4−53508
tetramethyl-1,3-cyclobutanedione, microwave triplet spectrum, vibr. assignments and conformation 4−48053
toluene, in benzene cryst., lowest triplet state, MIDP, zero-field splitting 4−60015
2,4,5-trimethylbenzaldehyde, in durene host cryst., dipole moments for singlet, triplet states determ. 4−49398
triphenylene:copper porphin, luminescence spectrum 4−45331
triphenylene:vanadyl porphin, luminescence spectrum 4−45331
tryptophan, in glycol/H_2O glass, X-ray, u.v.-induced luminesc., scavenger effects 4−76293
L-tryptophan, u.v. and X-ray induced recombination luminesc. in polar matrices 4−61209
tryptophan in multiple protein sites, phosphoresc. resoln. using ODMR 4−57863

luminescence of organic solids continued
$CaWO_4$, luminesc. excitation in fund. absorpt. region using synchrotron emission *(Russian)* 4−61227
CdSe, film, sensitizing centre form., Li effect 4−60890
$CdWO_4$, luminesc. excitation in fund. absorpt. region using synchrotron emission *(Russian)* 4−61227
Ru complex, tris(2,2′-bipyridine) ruthenium(II) sulphate, charge-transfer photoluminescence 4−64421
sulforhodamine B, electronic absorpt. and emission spectra, effect of dimer form. 4−70345

luminescence of solids
see also luminescence of inorganic solids; luminescence of organic solids
alkaline earth sulphate, V^{5+} and rare earth doped 4−76297
anti-Stokes luminophors, thermodynamic limits on efficiency *(Russian)* 4−53526
cubic crystal, optical orientation of bound excitons in longit. and transverse mag. fields *(Russian)* 4−76291
dielectric, elec. field excited, new method of light generation *(Russian)* 4−73199
donor system interacting with acceptors, relaxation *(Russian)* 4−79782
electroluminescence, multiphoton effects and electron relax. times 4−57636
electron excitation transfer during oscillatory relax., Weber effect *(Russian)* 4−70336
electronic excitation transfer, solid with impurity centres 4−79792
laser system, pulsed dye, for Raman and luminesc. spectroscopy in solids 4−65425
localized centres, relation between Huang-Rhys-Pekar and the single-configuration-coordinate models 4−64426
mechanoluminescent strength determ. 4−61552
mirror symmetry breakdown of optical absorption and luminesc. spectra, theory 4−79767
molecular crystal, phosphoresistence, heat pulse modulation obs. 4−76294
multiphonon transitions, static coupling scheme, imperfection parameters calc. 4−79773
nonradiative electron transitions, temp. depend. 4−53511
recombination capture cross section investigation 4−73186
scintillators based on naphthalene, X-ray 4−42887
semiconductor, elec. field excited, new method of light generation *(Russian)* 4−73199
semiconductor, Oje recomb. during intense excitation *(Russian)* 4−53524
solid solution with energy transfer by dipole-dipole interaction, luminescence kinetics 4−67647
solid solution with energy transfer by exchange interaction, luminescence kinetics 4−67648
solid solutions, luminesc. quenching, migration of excitation investig. 4−73175
trypaflavine adsorbed on silica gel, O_2 extinction *(Russian)* 4−61203
Eu_2O_3-La_2O_3-Ta_2O_5 system, cross section with 25 mole % Ta_2O_5 4−44649
(Zn,Cd)S(Cu), radioluminescence produced by Ni β-rays 4−76321

luminescent devices
see also fluorescent screens; phosphors; scintillation counters
cathodoluminescence mechanisms, hypotheses, exptl. tests and applications 4−49469
cathodoluminophor barrier screen for electron beam apparatus *(Russian)* 4−73200
electroluminescent condenser, ageing of ZnS:Cu, Cl electroluminophors *(Bulgarian)* 4−53532
electroluminescent condenser, electron traps in ZnS:Cu, Br *(Bulgarian)* 4−53533
lamp, linear program anal. of luminophosphor light outputs *(Russian)* 4−73192

luminophors *see luminescence*

luminors *see luminescence*

lunar geology *see lunar rocks and minerals*

lunar rocks and minerals
heading is late addition, see also luner structure; moon
Apollo 12 samples, size distrib. of spherical particles 4−46189
Apollo 15 samples, ^{40}Ar-^{39}Ar chronology and cosmic ray exposure ages 4−68379
Apollo 16 samples, magnetic props. rel. to mode of formation 4−73643
Apollo 17 boulder-2 rocks and soils, chem. comp. 4−80529
artificial soil, 600 MeV proton produced thermoluminescence depth profile 4−50504
breccias, Apollo 16 specimens, kamacite and Fe-Ni grains *(French)* 4−68373
bronzite crystals, new pyroxene polymorph structure 4−83190
charged-particle track studies and galactic cosmic ray simulation 4−62058
chemical composition from space probe alpha particle scatt. expts. *(Norwegian)* 4−68372
crust, formation by accretion or differentiation 4−62055
dark mantling material identification, Apollo 17 soil samples 4−68385
deep crustal rock 76535, petrology 4−68376
fines, pore struct. induced by water vapour adsorption 4−58264
fossil nuclear particle tracks, artificial aging 4−62056
fracture surface examination by Auger spectroscopy 4−67921
geological classification from i.r. remote spectral reflectance meas. 4−50510
glass spherules, magnetic susceptibility of antiferromagnetic inclusions 4−46188
halogen contents, meas. 4−62083
highland samples, evidence of crustal impacts 4−46187
impact heating, Al porous target 4−68377
impact melt unit, sample 76315, petrology 4−68375
inert gas diffusion in lunar soil particles and implanted glasses 4−62057
magnetic remanence mechanisms in Fe and Fe-Ni alloys 4−54438
meteoritic metal, in Apollo 16 samples 4−65111
microcraters in glass rel. to lunar sample bombardment 4−73664

lunar rocks and minerals continued
palaeointensity determ. by anhysteretic remanent magnetization method 4−80530
palaeointensity from Apollo 15 crystalline rocks, ARM method 4−80528
plagioclase, anomalous composition and coexisting melt composition 4−76800
plagioclases, unit cell parameters, compositions and 2V meas. 4−54437
pore structure, form mechanism, microscopy and adsorption studies 4−58263
primary cosmic radiation on surface, intensity meas. 4−80422
regolith, density and mech. props., terrestrial volcanic soils compared 4−83192
regolith, from continent and maria, i.r. spectra 4−50512
rock 15555, effects of Fe oxidation state on viscous flow 4−54432
rusty rock 66095, origin of inert gases 4−65109
soil sample 15301, 38, electrical properties 4−54433
spectral reflectance for powdered mixtures of hypersthene, labradorite, and ilmenite 4−54434
synthetic pyroxenite, electrical conductivity rel. to internal lunar temp. 4−68384
Taurus-Littrow highlands, morphology and structure rel. to origin and evolution 4−58267
thermoluminescence effects and emission spectra 4−65110
very high alumina basalt, prod. by impact mixing and remelting 4−68387
^{26}Al saturation activity as function of chemical composition 4−68374
TiO_2 content of soils from i.r. remote spectral reflectance meas. 4−50510

lunar seismology
moonquake predetermination and tides, rel. to 6 yr physical libration 4−50506

lunar structure
see also lunar rocks and minerals; moon
crater classification by multivariate analysis 4−54108
crater morphology, test of erosional models by micrometeorite bombardment 4−50507
craters, i.r., radar and geologic mapping 4−68383
craters, multivariate classification and mode of origin 4−57909
crust, formation by accretion or differentiation 4−62055
crustal impacts from isotope abundance in highland samples 4−46187
dark mantling material identification, Apollo 17 soil samples 4−68385
Deslandres area, components of lunar grid and azimuths 4−50508
exploration, motives and results, review *(German)* 4−83193
Gargantuan Basin, oldest and largest lunar basin 4−65112
mascons, techniques in Doppler gravity inversion 4−58262
moonquake belts and lunar topography 4−65108
radar map, 70 cm wavelength 4−68382
release patterns of trapped gases, calc. and measurement 4−62053
rille formation, role of lava erosion 4−58243
ring dikes, catalogue of candidates from Lunar Orbiter photographs 4−54435
secondary crater chains, simulation of herringbone pattern 4−54439
small crater distribution density, evolution models 4−46186
solid convection, effect of variable viscosity 4−73642
subsurface probing, Apollo 17 r.f. interferometry theory 4−62049
surface, high-resolution radar maps at 3.8 cm wavelength 4−68381
surface, simple-layer density 4−62059
surface origin by chain reaction of volcanic eruptions 4−70947
surface structure, review 4−46185
Taurus-Littrow highlands, morphology and structure rel. to origin and evolution 4−58267
thermal evolution, review 4−54431

lutecium *see lutetium*

lutetium
thermal conductivity, obs. in temp. range 0.7 to 5K 4−48961
X-ray $N_{4,5}$ emission spectra obs. 4−57647
Lu:Tb(Dy)(Er), cryst. field parameters determ. from mag. meas. 4−76053

lutetium alloys
$LuAl_2$ Seebeck coefficient measurement between 4 and 300K 4−82392
$LuAl_3$ Seebeck coefficient measurement between 4 and 300K 4−82392
LuBi:Er^{3+}, crystalline field effects, e.p.r. obs. 4−57372
Lu_2Fe_{17}, helimag. transition, negative thermal expansion 4−72963
Lu_5Pd_2, cryst. struct. and lattice const., X-ray obs. 4−75480
LuSb:Er^{3+}, crystalline field effects, e.p.r. obs. 4−57372

lutetium compounds
see also lutetium alloys
(Er,Lu)AlO_3 crystals, containing Ho^{3+} and Tm^{3+} ions, stimulated emission 4−53471
LuAl garnet, diamag., Mn^{2+} e.p.r. meas., temp. depend. 4−73020
$Lu_3Al_5O_{12}$:Cr^{3+}, e.s.r. of Cr^{3+}, isomorphic substitution *(Russian)* 4−82609
$LuAsO_4$, elastic consts. and Debye temp., Brillouin scatt. determ. 4−72517
LuB_{12}, mag. suscept. investigation between 100 and 300K 4−45089
LuF_3 solid electrolyte, ionic cond. 4−53102
$LuFe_2O_4$, synthesis of new compound, unit cell parameters determ. 4−82144
$Lu_2Fe_3O_7$, lattice parameters *(French)* 4−48567
LuGa garnet, diamag., Mn^{2+} e.p.r. meas., temp. depend. 4−73020
$LuGd_2Al_{0.6}Fe_{4.4}O_{12}$ film, epitaxial, dynamic conversion effects 4−60999
$Lu_xM_{10-2x}Na_x(PO_4)_6F_2$, (M=Ca, Sr, Ba), cryst. struct. obs. 4−72449
Lu_2O_3, glass formation, laser spin melting 4−45802
Lu_2O_3 surface, catalysis of p- to o-H_2 conversion 4−57882
$LuPO_4$, elastic consts. and Debye temp., Brillouin scatt. determ. 4−72517
$LuPO_4$:Ce^{3+}, electronic and vibronic spectra 4−45352
$LuPO_4$:Ce^{3+}, energy levels, crystal field theory calcs. 4−79311
$LuPO_4$:Ce^{3+}, zero-phonon and vibronic lines obs. in near u.v. luminesc. 4−61215

lutetium compounds continued
$Y_{3-x}Lu_xFe_5O_{12}$, growth-induced anisotropy, temp. and comp. depend. 4−57303
Luxemburg effect *see ionospheric electromagnetic wave propagation*
Lyapunov methods
asymptotic stability applic. 4−65621
difference equations, ordinary, stability of system with respect to manifolds 4−51276
gyrocompass, two-rotor, with dampers, stability of motion in given coordinates *(Russian)* 4−55287
linear differential equation, second order, with periodic coeffs., zones of stability and instability *(Russian)* 4−55207
linear lumped-parameter elastic system, Lypunov functional for stability analysis 4−77435
matrices with spectra in open positive convex cone 4−65613
MHD stability of hot rotating fluid layer, Liapunov method 4−52475
multi-dimensional differential set, averaging method in stability theory 4−74239
nonlinear differential sets, stability, boundedness and quadrature integrability 4−74238
oscillator system, weakly interacting, stability near critical point *(Russian)* 4−51403
pseudo-dynamical system, generalized stability of sets and motions 4−51266
rigid body, appl. to active control of rotation *(Russian)* 4−77385
second method, in study of instability problems 4−77371
ship stability criteria, theoretical approach 4−81143
stability of finite solutions of integro-differential equations *(Russian)* 4−55202
stochastic functional differential eqns., stability and boundedness conditions from comparison principle 4−59048
M-centres *see colour centres*
M-regions *see sun*
Mach number
see also acoustic wave velocity; shock waves
binary gas mixture, accelerating compressible laminar boundary layer flows, Mach no. effect 4−81883
compressible viscous fluid motion equations, with gravity, low Mach number 4−81904
critical lowering, viscoelastic lamina, forced vibr. in plane supersonic gas stream *(Russian)* 4−81195
entropy production on either side of shock branching theorem 4−78634
film-cooled wall, influence of Mach numbers on dimensionless eigentemperature *(German)* 4−63563
flight-buffeting response at subsonic and transonic speeds 4−48282
inviscid swirling flows through choked nozzle 4−48300
jet engine exhaust noise rel. to Mach number 4−78583
Mach 8 shock wave generation technique at atm. press. 4−69587
mixed transonic flow, oscillatory kernel function method for lifting surfaces 4−48283
noise propagation, nonlinear, farfield, lossless and dissipative media 4−80780
Preston Tube calibration eqns. 4−46971
reduction of incident shock Mach number, test gas increase in preheated driven tubes 4−72320
shock structure in Maxwell gas, Mach no. depend. length scale 4−81913
spacecraft shrouds, in-flight fluctuating, vibration response 4−69582
three-dimensional blunt-body flow, time-split finite-volume method 4−48259
three-dimensional unsteady flow in shear layer, linearised integral theory 4−81900
unsteady transonic flow over oscillating airfoils, loading prediction method 4−48284
Van Driest generalization applic. to wall meas. in Mach 7.4 wind tunnel 4−48264
Mach principle *see cosmology; space-time configurations*
machine bearings
air bearing, circular, moving at low forward speed, analysis of flow 4−81860
gyroscope gas bearings, micro-ion milling 4−51664
polymer film formed on metal in sliding contact, Auger anal. 4−75567
machine testing
MHD generator, direct coal fired 4−63704
radiation therapy machine operation checking system 4−46443
reversible pump turbine, on-site efficiency tests 4−42970
machine theory
equivalent field analysis, for cct. parameters 4−55428
machine tools
see also numerical control
automatic height control using gas laser *(German)* 4−80931
NC, position meas. by laser interferometer 4−46572
noise, impact, OSHA regulations, measurement 4−65314
noise, measurement and control methods *(French)* 4−54760
noise reducing enclosure 4−65316
noise shields, experiments 4−68575
numerically controlled milling machine, prod. of random rough surface 4−74008
spherical diamond tool for optical component grinding 4−80883
under-sea oil and gas prospecting *(Dutch)* 4−58151
machine windings
see also rotors
MHD generators, particle accelerators, mag. field analysis *(Russian)* 4−55006
synchronous machines, end-winding zone, external mag. field, calc. *(Russian)* 4−55421
machines, electric *see electric machines*
machining
see also cutting; electrolytic machining; electrolytic polishing; grinding; laser beam machining; metalworking
chatter marks detection, light reflection method *(Japanese)* 4−50960
gyroscope gas bearings, micro-ion milling 4−51664
micro-ion milling with 1μ periodicity 4−53626
machining continued
Be, grinding induced machining damage 4−49772
Si single crysts., effect of machining on structure of surface layer *(Russian)* 4−69951
macromolecular bulk properties
butadiene-styrene copolymer, irradiation effects 4−61533
polymers, crystalline, mech. props. rel. to cryst. struct. 4−63770
macromolecular configurations and dimensions
ABA block copolymer, statistical thermodynamics, microstructural transitions 4−56328
amino acids in aqueous soln., dielec. increments w.r.t chain conform. 4−56326
amylose tripropionate, dilute soln. conformation 4−56329
aspartate-amino transferase, electronic-conformational interactions investig. rel. to enzymatic activity 4−52307
asymmetric molecules, i.r. spectra, spontaneous planar orientation, attenuated total reflectance technique 4−63505
asymmetry in biomolecules, origin 4−65241
bacteriophage DD2, size, shape, small angle X-ray scattering 4−83276
biological macromolecular structure exploration by X-ray diffraction and electron microscopy 4−68831
bond orientation correls., applic. to relax. phenomena *(French)* 4−48159
cellulose triacetate, conform. states, a priori calc. *(Russian)* 4−56332
chain molecules, linear, flexible, excluded volume expansion and second virial coeff. 4−52300
choline derivatives, conform., PCILO calcs. 4−56331
copolymer, linear, ang. correlations from dipole moment comp. depend., random copolymerization 4−56327
crystallography, small-angle X-ray scatt. intensity, computer calc. using macromolecule model 4−48477
1,2,7,8-diepoxyoctane, electron diffr. exam. of struct. 4−76935
dihedral angle for biomolecular structures 4−66531
DNA, double spiral flexibility *(Russian)* 4−48162
enzyme control, structural changes *(Hungarian)* 4−81814
F-actin helix, geometrical analysis 4−58478
ferrocytochrome, polarisation meas. for Raman tensors, symmetry assignment 4−52314
heterogeneous vulcanizers, complex vinylpyridine compounds, structural characteristics and props. *(Russian)* 4−82983
inorganic polymer characteristics 4−52309
i.r. Zimm plots for characterisation, mol. wt., gyration radius 4−48166
Ising linear chain kinetics and u.s. absorpt. of polypeptide solns. *(French)* 4−52298
linear chain partition function from sequence conditional probabilities 4−52301
lysozyme, Raman spectra, conform. changes rel. to chem. denaturation 4−78543
macrozwitter ions, in solution, dissociation constant calc. *(Russian)* 4−82986
nucleic acid molecule, configuration control by ion bombardment of C films 4−65568
optimal biomacromolecular model, computation criteria 4−62271
PBLG polypeptide, interaction with acidic mols. in mag. field rel. to orientation, ordering 4−44463
pectic acid, conformation 4−43891
phenylon, concentrated solns. supramolecular structure obs. by turbidity spectrum method *(Russian)* 4−82988
PMMA, glassy state, structure rel. to dielectric behaviour 4−56626
poly(N-methyl laurolactam), crystal structure determ. 4−56622
poly-p-xylene, comparison of laser Raman and far i.r. spectra 4−52175
poly-p-xylylene, alpha form mol. conformation, crystal structure, X-ray diffraction data 4−44528
cis-1,4-polybutadiene, free volume and chain constraints, high resoln. n.m.r. linewidth 4−78541
polybutylisocyanate, chain flexibility *(Russian)* 4−48162
polycarbonate, conform. determ. by flow and mag. birefringence 4−60136
polycondensate between L-lysine and 1,3 benzene disulphonyl chloride, dielec. behaviour and conform. 4−82656
polydiacetylenes, Raman spectral shifts meas., P electron delocalisation investig. 4−75061
polyester, POLA, dil. soln. characteriz. 4−53875
polyester, POLA, rot. isomeric state approx. for unperturbed dimens. 4−52302
polyester fibres, orientation measurement *(Bulgarian)* 4−57768
polyethylene, chain defects effect on thermal behaviour 4−61545
polyethylene, high-density, subjected to cyclic tensile stress, e.s.r. study of structural changes 4−45169
polyethylene, thermal analysis, macroconformations in solid state 4−48161
polyethylene configurations with kinetic energy recording 4−56324
polyethylene oxide, soln., laser Raman spectrum, conformational changes 4−49345
polyethylene terephthalate, thermal analysis, macroconformations in solid state 4−48161
polyisobutylene, cryst. struct. 4−66901
polyisobutylene, optical anisotropy, strain birefringence 4−52303
polyisoprene in soln., chlorinated, mol. props. *(Russian)* 4−50022
polymer, bulk, review of exptl. research 4−52299
polymer, chain model, excluded volume effect, optical anisotropy 4−56330
polymer, coil-stretch transition under ultrahigh velocity gradients investig. 4−75062
polymer, comblike, long-chain branching parameters determ. *(Russian)* 4−48163
polymer, crosslinked, chain flexibility and packing density *(Rumanian)* 4−78932
polymer, glass transition region, relationship of critical volume to chemical struct. 4−43900
polymer, length density function, influence of random degradation 4−72260
polymer, methyl group torsional vibrs., microstruct. effect 4−60137
polymer, structure/property relationships 4−52699
polymer chain in dilute solution, first-order phase transition, model 4−60135

macromolecular configurations and dimensions continued
- polymer conformational structure, symposium, Prague, 28 Aug-7 Sep 1972 4-52305
- polymer molecule configuration on adsorption and subjected to solvent effect 4-43892
- polymer physics, conf., Shrivenham, England (Sept. 1973) 4-60134
- polymer Raman laser spectroscopy 4-60079
- polymer structure determination, summary of instrumental methods *(Polish)* 4-78860
- polymer transformation determ. by luminescent visible spectra 4-48158
- polymers, bulk and amorphous structure rel. to Newtonian viscosity mol. wt. independence *(Russian)* 4-81816
- polymers, structural data from thermal analysis 4-48161
- polymers in irregular conformation, simplified B-matrix 4-75060
- polyoxyethylene esters, of N-benzoylhistidine, mono-and disubstituted, conformational modes *(Russian)* 4-72261
- polyparaxylylene, thermal analysis, macroconformations in solid state 4-48161
- polypeptides, α-spiral flexibility *(Russian)* 4-48162
- polypeptides, proteins, native conform. determ. wing domains of short range interactions investig. 4-52306
- polypeptides, synthetic, conformational anal. using n.m.r. techniques, applics. 4-52308
- polypropylene, monomer configs. distrib. determ. with ^{13}C n.m.r. 4-69542
- polypropylene-polyethylene, mixture, supramol. structure obs. rel. to composition and heat treatment *(Russian)* 4-82984
- polystyrene/polyisoprene-1,4-cis, block copolymers, conform. in dil. soln. investig., using viscosity meas. *(French)* 4-43893
- polyvinylidene fluoride, laser Raman spectrum, conformational changes 4-49345
- polywater, extended plane structure, experimental and theoretical evidence compared 4-78542
- PVC, tacticity, n.m.r. obs. 4-69541
- PVC, thermomech. props. and pot. energy differences 4-49988
- rubbery network, intramol. crosslinks number, effect of crosslink density and length 4-52304
- rubredoxins, oxidised, active site complex, EFG, quadrupole splitting and h.f. interactions 4-58481
- rubredoxins, oxidised, active site complex, electron distrib. and electronic energies w.r.t. conform. 4-58480
- rubredoxins, oxidised, active site complex, zero zero field splittings, mag. moments and e.s.r. spectra 4-58482
- rubredoxins, reduced, MO calc. of h.f. interactions, EFG and quadrupole splitting, conform. 4-54630
- semirigid molecules with vibr. mechanism of flexibility, dimens. *(Russian)* 4-48162
- steroids, ^{13}C chem. shifts compared to extended Huckel mol. orbital calcs. 4-69544
- structure, image analysis, electron microscopy 4-68825
- thermoplastic polymers, rel. to mech. fabrication 4-53867
- tricopolymeric copeptide system, helix-coil transition, cell model 4-56325
- vinylidene copolymers, block struct., i.r. spectra 4-63504
- Cd complex, polyethylenepolyaminecadmium(II), configuration from i.r. spectrum 4-48165
- Co complex, polyethylenepolyaminecobalt(II), configuration from i.r. spectrum 4-48165
- Cu complex, polyethylenepolyaminecopper(II), configuration from i.r. spectrum 4-48165
- phenylacetylene o- and p-substituted, Huckel molecular orbitals calc., comparison with expt. data *(Russian)* 4-81815

macromolecular dynamics
- chain motions, applic. of time-dependent Ising model 4-43898
- diffusion, intermacromolecular interaction effects, three-component solutions 4-52320
- diffusion, intermacromolecular interaction effects, two-component solutions 4-52319
- diffusion-controlled interchain reactions involving terminal reactive groups 4-53987
- intensity fluctuation spectroscopy, cumulant analysis method 4-63506
- Ising linear chain kinetics and u.s. absorpt. of polypeptide solns. *(French)* 4-52298
- michelles formed from block copolymer, mol. wt. and hydrodynamic dimens. determ. 4-53920
- motion in solution, internal correlations, Rouse model 4-43899
- phospholipid dispersions, mol. motional correl. times calc. from n.m.r. linewidths, particle size effect 4-54628
- plasma lipoprotein solutions, translational diffusion, laser self-beat spectroscopy 4-68479
- polybutylisocyanate, in solution, rotational friction, dipole moments, conformation, rigidity *(Russian)* 4-72262
- polybutylisocyanate solutions, sedimentation, diffusion and viscosity *(Russian)* 4-52321
- polymer, molten, anisotropic chain motion, solidlike contrib. to n.m.r. 4-57391
- polymer, one-dimensional arrays, occupied sequences distrib., model for reaction of substituents 4-66536
- polymer solution, dynamical viscosity theory 4-75063
- polymer solutions, conc., viscoelastic props., mol. theory 4-57770
- polymer solutions, dynamics, Rouse-Zimm model 4-56336
- polymers, diffusion-controlled intrachain reactions, theory 4-53986
- polymers mol. dynamics investig. by photon correlation spectroscopy 4-48169
- ring polymers, Monte Carlo calcs. 4-56338
- self-avoiding walk, interacting solid barrier, config. props. 4-51465
- solution nonzero crit. exponent existence 4-56337

macromolecular spectra
- m-acrylamide-styrene copolymer, amide groups assoc. *(Russian)* 4-61612
- albumin, ovuline, resolved pseudo-Raman spectra 4-66533
- asymmetric molecules, i.r. spectra, spontaneous planar orientation, attenuated total reflectance technique 4-63505
- bovine carbonic anhydrase, γ-ray directional correlation obs. 4-80690
- Brillouin, macromolecular solns., mol. weight determ. 4-48164

macromolecular spectra continued
- copolymers of unsaturated acids with styrene, hydrogen bond form., struct. influence *(Russian)* 4-56334
- DNA bases and derivatives, electron and u.v. irradiation, i.r. spectra 4-54629
- ferrocytochrome, polarisation meas. for Raman tensors, symmetry assignment 4-52314
- ferrocytochrome c, resonance Raman spectrum, antisymmetric scattering 4-56333
- haemoglobin, resonance Raman excitation profiles 4-52313
- Kapron, oriented at elevated temps., breakage of polymer chains, i.r. spectra 4-45818
- lysozyme, Raman spectra, conform. changes rel. to chem. denaturation 4-78543
- nylon-6, γ and α cryst. forms, X-ray diffraction, i.r. spectra 4-48523
- organic polymers, conformationally impure, vibr. spectra; i.r., Raman, neutron scattering, struct. investig., review 4-52317
- plasma lipoprotein solutions, translational diffusion, laser self-beat spectroscopy 4-68479
- poly(2-vinylnaphthalene), excimer formation, rigid soln. obs. 4-78545
- poly(ethylene terephthalate), vibr. spectra, crystn. induced changes, valence force field interpret. basis 4-53426
- poly(vinylidiene fluoride), planar zigzag, uniaxially oriented samples, Raman spectra, elec. polarisation effects 4-70295
- poly-n-phenyleneterephthalamide, i.r. spectra and structure *(Russian)* 4-53456
- poly-p-xylene, comparison of laser Raman and far i.r. spectra 4-52175
- polyarylenalkyls, absorpt. band intensity for $\pi\rightarrow\pi^*$ transition *(Russian)* 4-81817
- cis-1,4-polybutadiene, free volume and chain constraints, high resoln. n.m.r. linewidth 4-78541
- cis-1,4-polybutadiene, normal coord. analysis, fund. vibr. freqs. 4-66534
- polycaprolactam, moisture and mech. stress effects on i.r. spectra 4-49354
- polydiacetylenes, Raman spectral shifts meas., P electron delocalisation investig. 4-75061
- polydispersity in intensity correlation spectroscopy, cumulant expansion evaluation 4-52312
- polyethylene, band struct., density of states investigs. using ESCA and calc. methods 4-52311
- polyethylene, free and under load, half-widths of bands due to skeletal vibrs. 4-78546
- polyethylene, laser Raman spectrum, cryst. structure determ. 4-49345
- polyethylene, laser Raman spectrum, longitudinal acoustic mode 4-57521
- polyethylene oxide, for i.r. and Raman spectra 4-72263
- polyethylene oxide, soln., laser Raman spectrum, conformational changes 4-49345
- polyglycine, polycryst., ^{14}N n.q.r. 4-80683
- polymer, exptl. data, rotation operator anal. 4-76546
- polymer, fracture, atomic mechanism, i.r. spectra 4-57775
- polymer, free and loaded, nonlinear vibrs. theory 4-43895
- polymer, friction, material transfer process, i.r. spectra obs. 4-45825
- polymer, long chain, dynamics, intensity fluctuation spectroscopy 4-78547
- polymer conformational structure, symposium, Prague, 28 Aug-7 Sep 1972 4-52305
- polymer transformation determ. by luminescent visible spectra 4-48158
- polymers, conjugated, optical absorpt., paramag. investig. 4-72264
- polymers, vibrational spectra, spectral distrib. absorpt. coeffs. 4-72185
- polymers mol. dynamics investig. by photon correlation spectroscopy 4-48169
- polyoxymethylene, laser Raman spectrum, cryst. structure determ. 4-49345
- polypropylene films, orientation meas. using polarised i.r. spectrum *(Russian)* 4-53455
- polystyrene, excimer formation, rigid soln. obs. 4-78545
- polystyrene latex spheres mixture, intensity correlation 4-56335
- polyvinyl acetate, low temp. i.r. spectrum analysis 4-57508
- polyvinylidene fluoride, laser Raman spectrum, conformational changes 4-49345
- poly[($\pm$)-β-aminobutyric acid], drawn film, orientation phenomena, i.r. dichroism, X-ray diffraction 4-48525
- R17 virus, soln., light scatt. obs., macromol. ordering 4-52316
- Raman data acquisition, macromol. in soln., fluorescence interference reduction 4-48167
- rhodopsin, laser resonance Raman spectroscopy of visual process 4-52315
- sodium fluorescein in water-glycerol, rotational relaxation meas. by single-photon counting method *(German)* 4-66535
- solution, intensity fluctuation spectra, least squares integration method 4-43894
- steroids, ^{13}C chem. shifts compared to extended Huckel mol. orbital calcs. 4-69544
- vinyl polymer, excimer formation 4-78545
- vinylidene copolymers, block struct., i.r. spectra 4-63504

macromolecules
- *see also DNA; polymers; proteins*
- adsorption, lattice model, computer simulation 4-52988
- adsorption, simulation, loop form., segment density distrib. 4-52989
- aliphatic hydrocarbons, chain and ring mols., local and overall vibrs., modes, freq. calc. 4-52318
- amylose tripropionate, dilute soln. conformation 4-56329
- aspartate-amino transferase, electronic-conformational interactions investig. rel. to enzymatic activity 4-52307
- bacteriophage C_d, low angle X-ray scatt., weight and hydration 4-83273
- bead-rod model for solutions, linear unsteady flow props. 4-61536
- biopolymers, H-D exchange, rapid transfer apparatus for obs. of i.r. absorption spectrum 4-58808
- biopolymers, order-disorder transitions, theory 4-66532

macromolecules continued
- bovine carbonic anhydrase, γ-ray directional correlation obs. 4−80690
- code sequences, informational, computer matching 4−65239
- complexes formed by chloramine-T radioiodination of proteins 4−46356
- crystallization from melt and solution, nucleation 4−56623
- cysteamin, rot. isomerism, Raman spectrum 4−66359
- diffusio-birefringence, macromolecules and colloid particle diffusion in optically isotropic liq. 4−67549
- dilute solutions of flexible macromolecules, kinetic theory and rheology 4−52800
- dilute solutions of flexible macromolecules, kinetic theory and rheology 4−52801
- flow, deformability, light scattering expt. 4−48323
- historical review and challenges for future research 4−52297
- long linear chain molecules, approx. translational symmetry effect on electron scatt. *(Russian)* 4−72259
- macromolecular science trends, symposium, Midland, USA (Sept. 1972) 4−52296
- nucleic acid, poly(rG), salt-induced struct. transition, Raman studies 4−63503
- optically controlled growth model 4−52713
- PBLG polypeptide, interaction with acidic mols. in mag. field rel. to orientation, ordering 4−44463
- phase transition, detection, positron annihilation 4−67041
- phospholipid, lateral diffusion in dipalmitoylphosphatidylcholine vesicles 4−65237
- poly-DL-phenylalanine, triplet state lifetimes meas. by sensitisation of biacetyl phosphoresc. *(French)* 4−57614
- polymer conformational structure, symposium, Prague, 28 Aug-7 Sep 1972 4−52305
- polypeptide chain, local and overall vibrs., modes, freq. calc. 4−52318
- polypeptides, proteins, native conform. determ. wing domains of short range interactions investig. 4−52306
- polypeptides, synthetic, conformational anal. using n.m.r. techniques, applics. 4−52308
- proteins, n.m.r. studies, spin-lattice relaxation times of imidazole protons 4−62272
- quantum chemical characts. calc. by Huckel method, computer program 4−69543
- satellite tobacco necrosis virus, cryst., interpretation of 10Å rotation function 4−56690
- steroids, ^{13}C chem. shifts compared to extended Huckel mol. orbital calcs. 4−69544
- tricopolymeric copeptide system, helix-coil transition, cell model 4−56325

Madelung constant *see lattice energy*

magamps *see magnetic amplifiers*

Magellanic Clouds *see galaxies*

Maggi-Righi-Leduc effect *see magnetothermal effects*

magnesium
- adsorption on Ge single crystals, mol. beam obs. of reactive nucleation 4−53012
- atom, $^{3}P_{1}$ metastable state, dye-laser excited, lifetime meas. 4−47860
- atom, K Auger spectra, electron ionisation 4−52001
- atom, monolayer, L-shell ionisation cross section by backscattered electrons 4−49514
- atom, resonance line excitation, Born, cross sections 4−51953
- atom photoionisation of (3s, 3p:^{1}P) state 4−66309
- atomic oscillator strengths determ. using new valence and Rydberg orbitals generation procedure 4−51942
- α Bootis (Arcturus), high spectral resolution meas. of H I 1216 A, Mg II 2800 A emission 4−50587
- bright stars, Mg II u.v. doublet rel. to spectral type 4−54475
- chemiluminescence during chemisorption of O_2 4−53001
- deformed, helical dislocations obs. by transmission electron microscopy 4−56751
- diffusion and electrodeposition of Li in propylene carbonate 4−61619
- diffusion in Al, coeff. and activation energy determ. 4−48802
- dislocation glide by dispersed local obstacles, activation vol. stress depend. 4−63831
- dislocation interactions during shear *(Russian)* 4−73248
- electron exoemission obs., Mg deform. by stretching 4−57676
- epitaxy on MoS_2, temp. depend., annealing effect, Moire fringe obs. *(French)* 4−60707
- Fermi surface, stress depend., oscill. magnetostriction 4−82355
- fine particles, oxide layer growth rate and morphology, electron microscope obs. 4−63994
- flames, temp. distrib., colour and luminance obs. 4−57815
- Fuchs model of metallic binding forces 4−78947
- hardening by lattice defects 4−61361
- hexagonal, phonon dispersion curves in modified Sharma-Joshi model 4−44610
- hexagonal crystal, third order eqn. of state *(French)* 4−63885
- internal photoemission contrib. to KLM Auger spectra determ. 4−76365
- ion, in silicate glasses, role, from density and viscosity meas. *(German)* 4−45798
- ion implantation in GaP:S 4−79876
- laser, Mg vapour in Ne, He buffer gas, stimulated emission at 0.9244, 0.9218 μ 4−51566
- metastable states prod. by discharge in heat pipe, absorpt. spectra 4−59911
- oxidised, interfacial Auger transitions obs. 4−57656
- plasmon damping, ang. depend. meas. *(Japanese)* 4−44875
- plasmon damping, loss peak meas., ang. depend. 4−57055
- plasmon satellite band in X-ray K-emission spectra 4−45384
- positron scattering, large angle, Landau-Lifshitz anal. 4−49515
- powder, vacuum condensation, degree of dispersion *(Russian)* 4−45729
- powder samples, preferred orientation, rel to X-ray diffr. 4−66796
- solar Mg I 4571 Å line formation, empirical and synthetic analyses 4−58230
- thermal nitridation at N_2 atm. lower temps., and pressures 4−70488

magnesium continued
- trace metals in crude oil determ. by nonflame atomic absorption spectroscopy 4−77284
- twin modes, hexagonal lattice criterion for determ. 4−72478
- X-ray absorption thresholds, many electron theory, comparison with expt. 4−79811
- X-ray atomic scattering factor meas. 4−66861
- X-ray emission spectra, obs. of low energy plasmon satellite bands 4−49493
- X-ray K-edge emission spectra, many-electron theory assessment 4−64453
- X-ray scattering, thermal diffuse intensity *(Russian)* 4−60377
- inAl-Zn alloy, effect on phase transform. during ageing, hardness variations *(Polish)* 4−67746
- LiF, thermolum., role of Mg 4−70371
- LiF:Mg, impurity states effect on yield stress *(Russian)* 4−66964
- LiF:Mg, low temp. deformation and dislocation mobility 4−79045
- LiF:Mg, precipitation kinetics at low annealing temps., thermal cond. meas. 4−67049
- LiF:Mg, thermally activated polarisation effects 4−82659
- LiF:Mg, thermoluminesc., complex capture centre, absorpt. spectrum *(Russian)* 4−73206
- LiF:Mg positron annihilation, obs. of lifetime spectra in γ-irradiated samples 4−56772
- LiF:Mg^{2+}, strain rate sensitivity of flow stress, obs. of activation parameters 4−52809
- Mg and Mg^{n+}, s, p, d valence states, energy evaluated, electron affinity estimated *(French)* 4−55985
- Mg II, spectrum, np^{2} terms effect on singlets, quantum defect anal. 4−63325
- Mg II 2795 and 2803 Å solar resonance line profiles, centre-to-limb analysis *(French)* 4−83176
- Mg II equatorial dayglow intensity distrib. TD1-A satellite obs. in 2796-2803 Å range 4−64936
- Mg XI, Mg XII, X-ray spectra in laser plasma, satellites to resonance transitions 4−51959
- Mg:Gd, fine structure splitting of localised moment, diagrammatic anal. 4−76054
- Mg-$NaNO_3$, pyrotechnic flame, radiative transfer model for predicting spectral radiant flux 4−76597
- Mg + Si, binary elemental standards for electron microscope microprobe anal. 4−58993
- Mg^{+} + He collisions, excitation of Mg 2p^{6} configuration, 15-75 keV 4−74918
- Mg^{2+} ions, influence on Ca-^{45}Ca isotope exchange on surface of calcite crysts. 4−50207
- MgII, oscillator strength, photoionisation cross section calcs. 4−66292
- YIG:Mg, d.c. cond. and Seebeck coeff. meas. under varying O press., 1200-1700K 4−67214

magnesium alloys
- *see also magnesium compounds*
- Al-Mg, creep, deformation and initial anisotropy 4−82947
- binary, undercooling meas. for mutual nucleation 4−45493
- stacking variation of brass-like two atom replacement structures, model 4−56649
- AL-Zn-Mg, grain boundary sliding role in superplastic deform. 4−67844
- Ag-Mn, Morse potential appl. 4−44617
- AgMg, internally oxidized, oxide phase conc. depend. of mech. props. *(Russian)* 4−49780
- Al coatings deposited in vacuum, effect of condensation conditions on adhesion and structure *(Russian)* 4−70480
- Al-Be-Mg-Zn quaternary, solidification 4−79910
- Al-Mg, dilute, solute-vacancy binding energies, theory 4−52751
- Al-Mg, extension rate and temp. influence on mech. props. and microstruct. 4−67882
- Al-Mg, high temp. deform., dip test applic. to internal stress meas. *(Japanese)* 4−45638
- Al-Mg, high temp. steady-state creep, activation parameters 4−64585
- Al-Mg, high-angle grain boundaries, annealing of dislocations 4−82862
- Al-Mg, network deform. due to GP zones, X-ray scatt. obs. in Bragg spot region *(French)* 4−61366
- Al-Mg (7.2 mass %), solute depleted zone effect on stress-corrosion susceptibility 4−57752
- α-Al-Mg$_2$Si eutectic, spiral growth 4−79899
- Al-Mg$_2$Si(1.3 wt.%), two-step ageing behaviour *(Japanese)* 4−45637
- Al-Mg$_2$Si(1.35 at.%), reversion treatments effect on precip. mechanisms 4−45563
- Al-Mg-Si, plastic deform. effect on precip. 4−64565
- Al-Mg-Si, serrated yielding, strain effect on ageing time 4−53703
- Al-Mg-Si, strain distrib. during inhomogeneous deform. 4−49815
- Al-Mg-Si, weakly precip. hardening, low temp. thermomech. treatment 4−61440
- Al-Mg(5.5 at.%) solid soln., effective stress in steady state creep 4−53702
- Al-Mg(5.83 wt.%), discrete creep during repeated static loading 4−49830
- Al-Si-Cu-Mg-Ni piston alloy, copper influence on microstruct. and mech. characts. *(German)* 4−61398
- Al-Si-Mg, occurrence of metastable β'' phase 4−70469
- Al-Zn-Mg, growth kinetics of Guinier-Preston zones 4−79958
- Al-Zn-Mg, multiple ageing, structural changes 4−45562
- Al-Zn-Mg, precip. hardening high-strength, extended ductility 4−49770
- Al-Zn-Mg, SCC vel. and grain boundary precipitates 4−80007
- Al-Zn-Mg, stress corrosion susceptibility, heat treatment influence 4−45648
- Al-Zn-Mg, stress corrosion of normal and welded specimens *(Russian)* 4−73317
- Al-Zn-Mg, stretched zone size correl. with fracture toughness 4−67821
- Al-Zn-Mg, ternary, Guinier-Preston zones, X-ray diffuse scatt. 4−49735
- Al-Zn-Mg, trace Ag additions influence on stress corrosion 4−49743
- Al-Zn-Mg alloys, stress corrosion cracking, microstructure 4−70594

magnesium alloys continued
AlMg, dilute alloy, impurity screening, one electron model *(French)* 4−44864
AlMg, dilute resistivity between 0 and 100°C generalised model approach 4−82388
Cd-Mg alloys, distorted struct. formation 4−64533
Cd_3Mg based nonstoichiometric alloys, deform. and strength characts. 4−76451
Fe-Mg, cast, pearlite decomp. and ferrite form. on heating *(Russian)* 4−45707
$GdMg_{1-x}Zn_x$, magnetic and n.m.r. studies 4−73036
In-Mg, superconducting transition temp. exam. 4−75996
Li-Mg, disordered alloy, binding energy of equilib. lattice parameter calc. 4−72444
Li-Mg, organic battery anode, intermetallic diffusion 4−61619
Li-Mg lattice parameters by X-ray diffraction 4−78948
Li-Mg system pseudopotential theory, quasi-localised electronic states 4−75798
Mg-Al, Mg-Mn and Mg-Al-Mn, phase comp. influence on corrosion behaviour *(Russian)* 4−45714
Mg-Al, stress role in stress corrosion cracking 4−49754
Mg-Al, superconducting transition temp., Mg content depend. 4−53172
Mg-Al-Zn-Mn, aged, precipitate morphology and orientation relationships 4−64542
Mg-Be, reactor construction material, corrosion properties, effect of organic coolant *(Czechoslovakian)* 4−43648
Mg-Bi, amorphous film, d.c. and a.c. cond. and optical transmission 4−49092
Mg-Bi, liq., compound molecule form., effect on conc.-conc. correl. function, long-wavelength limit 4−82100
Mg-Bi, liq., thermodynamic obs. using e.m.f. method with CaF_2 electrolytes 4−51879
Mg-Bi, molten, conc. fluctuations and partial struct. factors, phenomenological model 4−52676
Mg-Cd, preferred orientation in powder samples, rel. to X-ray diffr. 4−66796
Mg-Cd, superconducting transition temp., Mg content depend. 4−53172
Mg-Cd (below 10 at.% and above 90 at.%), Hall effect, resist., and lattice parameter 4−48967
Mg-Cu-Si, superconducting transition temp., Mg content depend. 4−53172
Mg-Hg, superconducting transition temp., Mg content depend. 4−53172
Mg-In, superconducting transition temp., Mg content depend. 4−53172
Mg-In (20-30 at.%Mg), positron study of corrosion and voids 4−79063
Mg-Li, heating effect on mech. props. 4−76483
Mg-Li-Al, $\alpha+\beta$ type, stability of mech. props. rel. to thermal and thermomech. treatment *(Russian)* 4−53743
Mg-Mg_2Si eutectic, morphology obs. by selective sublimation technique 4−49691
Mg-Mn, fatigue crack growth characts. 4−45591
Mg-Nd, precipitation hardening, effect of additions 4−61472
Mg-Nd (2.8wt.%)-Zn (1.3 wt.%), precipitation hardening 4−61472
Mg-Nd-Zn system, mutual solubility *(Russian)* 4−70454
Mg-Sb, amorphous, soft X-ray absorpt. thresholds, many electron theory, comparison with expt. 4−79811
Mg-Sb, liq., thermodynamic obs. using e.m.f. method with CaF_2 electrolytes 4−51879
Mg-Sb(Bi), amorphous, core excitons, absorpt. obs., 40-200 eV 4−79810
Mg-Sn, liq., thermodynamic obs. using e.m.f. method with CaF_2 electrolyte 4−51879
Mg-Th, precipitation hardening, effect of additions 4−61472
Mg-Zn, superconducting transition temp., Mg content depend. 4−53172
Mg-Zr fatigue crack growth characts. 4−45591
Mg_3Bi_2, small forbidden energy gap, rel. to props. *(Bulgarian)* 4−57031
Mg_3Cd, powder samples, X-ray diffr. at room temp., preferred orientation, Debye temp. 4−66797
Mg_3Cd, two-phase region, electron microscopy, continuous precipitation phase transformations 4−53639
Mg_2Ge, ht. of formation 4−64706
Mg_5Hg_3, prep. and elec. behaviour, 4.2 to 297K 4−79325
$MgNi_2$, thermal expansion 4−63933
Mg_2Pb, small forbidden energy gap, rel. to props. *(Bulgarian)* 4−57031
$MgZn_2$, grown-in and fresh dislocations, velocities, comparison 4−73302
$MgZn_2$, mobility of grown-in dislocations during prismatic slip 4−79957
$MgZn_2$, phonon dispersion curves obs. 4−60565

magnesium compounds
see also magnesium alloys
acetate tetrahydrate p.m.r. obs., hydrogen bonding scheme for water molecule protons 4−45189
ferrite, effect of non-magnetic ions on Curie temp. 4−53229
ferrites, substituted, Mossbauer effect of ^{119}Sn impurity 4−45224
oxalates, dihydrated, stacking fault struct. *(French)* 4−56757
rare earth systems, R_2O_3-MgO phase equilibrium curves 4−69893
stearate, multilayer system, low angle X-ray diffr., electron-density functions determ. 4−66889
talcum powder contamination on crystal cleavage *(German)* 4−72640
Al-MgF_2, light absorbing coatings on glass and metals, vacuum prod. method 4−68674
Al-MgF_2 interference filters, u.v., surface plasmon effect due to roughness 4−51010
Al-MgF_2-Al-MgF_2-Al type, Fabry-Perot interference filter, transmission in far u.v. 4−58818
Al_2O_3-MgO-Cr_2O_3, alumina substrate, surface props. 4−57757
$Ca_{18}Mg_2H_2(PO_4)_{14}$, synthetic Mg-whitlockite, cryst. struct. 4−63803
CaO-MgO-Cr_2O_3-SiO_2 system, compatibility relations of periclase 4−64614
CaO-MgO-Fe_2O_3-SiO_2 system, compatibility relationships of magnesiowustite phase in air 4−64615

magnesium compounds continued
CaO-MgO-ZrO_2-SiO_2 system, compatibility relationships of periclase 4−76524
$Ce_2Mg_3(NO_3)_{12}.24H_2O$, ballistic phonon propagation 4−56832
$Ce_2Mg_3(NO_3)_{12}.24H_2O$, paramag. thermometer calibration using supercond. fixed pts. 4−65400
$Ce_2Mg_3(NO_3)_{12}.24H_2O$, thermal boundary resist. with liquid ^3He 4−44740
CoO-MgO-Cr_2O_3-TiO_2SnO_2 system, spinel solid soln. form. and colour *(Japanese)* 4−49919
$Cs_2Mg(MoO_4)_2.4H_2O$, crystal structure *(French)* 4−69772
Fe-Mg-O system, phase relations, low temperature, magnesiowustite 4−70239
Ga_2O_3-MgO system, decomp. of nonstoichiometric spinel, periodic antiphase struct. of intermediate phase 4−56858
$K_2H_6Mg_4Mo_4O_{20}$, non-stoichiometry meas. 4−60449
K_6MgO_4, hexagonal, space groups, lattice parameters *(French)* 4−48571
$K_xMg_{x/2}Ti_{(8-x/2)}O_{16}$ Hollandite structure, dielec. loss and a.c. conductivity obs. 4−52934
Li_2MgGeO_4, orthorhombic, cryst. struct. *(French)* 4−48565
Mg complex, with 1-hydroxyanthraquinone, i.r. absorpt. spectra, bonding, vibr. assignment 4−48041
Mg ferrite, $MgFe_{2-x}Sc_xO_4$, X-ray and Mossbauer spectra, change in electronic struct. of Mg and Sc ions *(Russian)* 4−45379
Mg-Al spinel crystals, X-ray exam. of growth and microstruct. 4−49574
$MgAl_2O_4$, calc. nucl. quadrupole couplings, dipole polarizability of O ion, spinel struct. 4−82634
$MgAl_2O_4$, solid soln. with $NiAl_2O_4$, Ni ions distrib., octahedral, tetrahedral sites 4−75496
$MgAl_2O_4$, stoichiometric spinel, dislocation dissociation, weak beam electron microscope obs. 4−60505
$MgAl_2O_4$-Al_2O_3 system, liquidus-solidus determ. 4−53816
$MgAl_2O_4$ stoichiometric spinel single crysts., X-ray topographic obs. of stacking faults and dislocations 4−79057
$Mg_3B_7O_{13}Cl$, improper ferroelectric, optical absorpt. edge in transition region 4−45257
$MgCO_3{}^{\circ}$ ion pair, thermodynamic props., 10 to 50C 4−64724
$MgCl_2$, $K\beta$-emission and K-absorpt. X-ray spectra obs. rel. to band struct. 4−61248
$MgCl_2$ + n-butyl alcohol, 5 MHz, u.s. velocity depend. on temp. and conc. 4−75576
$MgCl_2$ + n-propyl alcohol, 5 MHz, u.s. velocity depend. on temp. and conc. 4−75576
$Mg_7Cl_2B_{16}O_{30}$, ferromagneto-electric crystal, magneto-electric susceptibility and polarisation to magnetisation ratio 4−82555
$MgCr_2O_4$, oxygen activity influence on sintering behaviour 4−53812
MgF, chemical laser, pumping by $Mg+F_2$ reaction, pulse characts. 4−65899
MgF, dissociation energy calcs. 4−78509
MgF_2, hot-pressed, investigation of thermal and ultrasonic props. 4−63877
MgF_2, induced neutron scattering by i.r. beam calc. 4−82237
MgF_2, lattice dynamics 4−69867
MgF_2, mag. susceptibility of gamma-irrad. single crysts. 4−66934
MgF_2, n.m.r., polarised ^{20}F nuclei, electric quadrupole interactions *(German)* 4−64285
MgF_2, optical film, refractive index control in reactive sputtering 4−49503
MgF_2, optical mode gammas, press. derivatives of elastic and dielectric consts., rigid ion model 4−75592
MgF_2, permittivity, meas. at 300K, 1000 Hz 4−79666
MgF_2, single crystal, linear thermal expansion coeff., interferometric meas. 4−60631
MgF_2 window in Lyman-alpha radiation detector 4−83267
$MgF_2{:}Fe^{2+}$, near i.r. absorption spectra, multiphonon sideband anal. 4−49407
MgF_2-Al, double layer mirrors, high transmission triple refl. polariser for Lyman α-radiation 4−65415
MgF_2-Al alternate layers, interference coatings of low reflectance *(French)* 4−65412
MgF_2-$LaF_3(NdF_3)(MgO)$, multidielectric component mirrors for far u.v. 4−58775
MgF_2-Nb_2O_5, multiple phases, electron microscope obs. of intergrowths defects, disordered crysts. 4−69819
MgF_2-ZnS, multilayer gradient index film behaviour 4−45390
MgF_2-ZnS, multilayer nonpolarizing laser beam splitter 4−58847
$MgFe_{2-x}Al_xO_4$ spinel ferrites for magnetic bubble domain memory 4−57308
$MgFe_2O_4$, polycryst., elastic behaviour, mag. field effect 4−61009
$Mg_{1.12}Fe_{0.88}Si_2O_6$, nature of filling of positions by isomorphous elements 4−48587
Mg_2Ge, chemical bond, spin-orbit splitting 4−67173
Mg_2Ge, formation by reactive nucleation of Mg film on Ge, mol. beam obs. 4−53012
Mg_2Ge, growth from melt, elec. characts. 4−82816
Mg_2GeO_4, elastic parameters from u.s. meas. 4−45967
Mg_2GeO_4, olivine-spinel transition, enthalpy, olivine-spinel-phenacite stability relations, thermodynamics 4−67043
MgH, $A^2\pi-X^2\Sigma$ system, Franck-Condon factors, r-centroids evaluated 4−81758
MgH, virial partitioning of charge distributions and properties of diatomic hydrides 4−74952
$MgHPO_4.3H_2O$, dehydration to give $Mg_2P_2O_7$ 4−69889
MgMn ferrite film, domain substructure obs. 4−79548
$MgMn_2O_4$, cation redistrib., dilatation obs. 4−56909
$MgMn_2O_4$-$MgAl_2O_4$, X-ray diffraction electrical cond., mag. susceptibility and Seebeck coeff, meas. 4−82409
$Mg(NH_3)_6Cl_2$, Raman spectrum, vibrational anal., deuteration effect *(French)* 4−57528
$Mg(NO_3)_2.6H_2O$, Raman spectra of dehydration products 4−57513
$Mg(NO_3)_2.nH_2O$; effect of water of crystallisation on Raman spectra *(Russian)* 4−70315
MgNi ferrites, high-temp. X-ray structure anal. 4−79165
MgO, (001) cleavage face LEED, surface wave reson. effect 4−44735
MgO, ab initio investigation of electronic props., density of states of valence and cond. bands 4−67160

magnesium compounds continued
MgO, adsorpt. of NO, i.r. investig. 4-67105
MgO, and isoelectronic series, ionic radii and electronic polarizabilities 4-78945
MgO, as-grown, subgrain boundaries 4-53805
MgO, calcination and sintering research 4-67910
MgO, close collisions of 20 MeV positrons and electrons with string atoms 4-75551
MgO, cryst., second-order polarised Raman scatt. calc. 4-70307
MgO, cryst. fused periclase, struct. defects 4-44530
MgO, double-hole V^0 centre, e.s.r. and optical absorpt. obs. 4-45185
MgO, elec. field induced dichroism of V^--centre 4-73102
MgO, elec. props., meas. by graphite tube elec. furnace 4-58764
MgO, electron channelling, dynamical theory 4-63847
MgO, electron diffraction energy loss analysis in Bloch waves 4-56595
MgO, epitaxial metal growth, electron bombard. effect 4-44800
MgO, fast neutron dosimetry using F-centres and exoelectron emission 4-54732
MgO, form. and stability of V^-, V_{al} centres, ENDOR identification 4-44535
MgO, fracture surface examination by Auger spectroscopy 4-67921
MgO, gaseous, absorpt., emission spectra, energy levels, bond dissoc. energy investig. 4-74977
MgO, high defect conc. surface, interaction of H_2 investig. 4-76621
MgO, Kikuchi pattern line shapes including absorpt. effects, theory 4-75429
MgO, low temp. reorientation of V-centres from ELDOR and uniaxial stress expts. 4-67490
MgO, machined crysts., residual stresses 4-49893
MgO, mass transport equation for diffusional creep, 1200-1600 degrees C 4-49884
MgO, microcrystal, i.r. absorption coeff. calc. 4-70299
MgO, mirror image cleaved surface pairs, elec. struct. 4-57157
MgO, Ne^+ bombard., u.v. spectroscopic investigation of radiation damage 4-76286
MgO, neutron irradiated, X-ray diffr. profiles, (200) refl. 4-82205
MgO, one electron interpretation of optical absorpt. and soft X-ray data 4-44847
MgO, permittivity at 300K, 1000 Hz 4-79666
MgO, polycryst., strain hardening and recovery during compressive creep 4-61491
MgO, pore growth during initial sintering stages 4-53818
MgO, powder, emission spectra, surface states 4-64420
MgO, prep. and sintering 4-82961
MgO, press-powder comp. influence on physicomech. props. 4-67916
MgO, pressurization effects on microstruct. and mech. props. 4-61498
MgO, pure dense, grain growth 4-49898
MgO, radiometric vol. determ. for closed extended defects 4-79034
MgO, single cryst., $Fe^{3+(2+)}$ impurity, dislocation dynamics 4-56741
MgO, sliding friction behaviour, chemomech. control 4-61489
MgO, stress corrosion cracking, four-point bend and static fatigue tests 4-73358
MgO, transient and steady state creep 4-61496
MgO, transition moment variation with internuclear distance and eff. vib. temp. in $B^1\Sigma$-$X^1\Sigma$ system of emission spectrum 4-47985
MgO, vaporisation, crystal morphological changes 4-56873
MgO, vapour growth, starting materials influence on chem. reaction process *(Japanese)* 4-70406
MgO, whiteness standard spectrophotometric investigations *(German)* 4-54927
MgO additive in Si_3N_4, hot pressing behaviour 4-53810
MgO crystal, paramag., resonant scattering of thermal phonons 4-60576
MgO dispersion strengthened Ag, stability and elec. cond. *(Russian)* 4-49782
MgO film, on amorphous substrate, preferred orientation, HEED obs. 4-53009
MgO film, r.f. sputtered, struct., X-ray obs. 4-67135
MgO film on Mo, secondary electron emission 4-70386
MgO glass content, 15 wt. % Na_2O, also Al_2O and CaO, Tb^{3+} activated luminesc. 4-70344
MgO whiskers, morphology and internal structure *(Japanese)* 4-48881
MgO:Co^{2+}, dynamical Jahn-Teller effect in ground $^4T_{1g}$ and excited $^4T_{2g}$ orbital triplets 4-48920
MgO:Co^{2+}, mag. circular dichroism in visible-u.v. region 4-64410
MgO:Cr^{2+}, dynamic Jahn-Teller effect, acoustic attenuation 4-44858
MgO:Cr^{2+}, far i.r. spectra, ion conc., phonon scatt. 4-61148
MgO:$Dy^{3+}(Yb^{3+})$, e.p.r. 4-57362
MgO:Er^{2+}, spin-lattice relax. with spherical lattice waves and cubic cryst. field 4-64259
MgO:Fe^{2+}, far i.r. absorption, spin-orbit levels 4-57583
MgO:Fe^{3+}, single cryst., dislocation dynamics 4-56742
MgO:$Fe^{3+}(Cr^{3+})(Ni^{3+})(Rh^{2+})$, e.p.r. of ^{17}O superhyperfine struct. 4-45182
MgO:Li, ENDOR spectrum of V_{li} centre at 4.2K, nuclear quadrupole coupling meas. 4-70233
MgO:Mn^{2+}, e.p.r. many-quantum transitions 4-57368
MgO:Mn^{2+}, hyperfine coupling const., temp. var. 4-44865
MgO:$Ni^+(Ni^{3+})$, dynamic Jahn-Teller effect in e.p.r. spectrum 4-53310
MgO:V^{2+} (Mn^{2+}), flexural-strain-modulated e.s.r. spectra 4-49227
MgO:ZrO_2, solid soln. form., solubility 4-45737
MgO/Au, charging effect of specimen in scanning electron 4-69699
MgO-Al_2O_3-Fe_2O_3 system, nonstoichiometric ferrites, phase comp. 4-67896
MgO-Al_2O_3-SiO_2 system, disperse hardening phase of metals *(Russian)* 4-80064
MgO-Al_2O_3-SiO_2-TiO_2 system, liquation in 4-system glass 4-69726
MgO-$Cr_2O_3(Al_2O_3)$, obs. on aliovalent cation diffusion 4-48788
MgO-MO solid solutions, M=transition metal, chemisorption of O_2, e.p.r. obs. 4-48851
magnesium compounds continued
MgO-$MgAl_2O_4$ eutectic, directional solidification microstructures 4-45741
MgO-MgF_2, multidielectric component mirrors for far u.v. 4-58775
MgO-NaCl composite, pressure intensification, obs. and model 4-53830
MgO-NiO low angle scattering, solid solution 4-69766
MgO-P_2O_5, glass, crystn. kinetics *(Japanese)* 4-48513
MgO-SiO_2 system glasses, radiation paramag. centres in liquation phases 4-61034
MgO-SiO_2-Al_2O_3-CeO_2-TiO_2, glasses, effect of heat treatment during crystn. 4-44475
MgO-Sno_2-B_2O_3:Ti, cryst., luminescent props. and comp. *(Russian)* 4-45363
MgO_x, ozone matrix reaction, i.r. spectra, isotope shifts 4-48025
$Mg(OAc)_2.4H_2O$, 'ideal glass' transition temp. investig., thermodynamic props. determ. 4-69729
$Mg(OH)_2$, single crystal, X-ray photoelectric emission 4-57666
MgO.Cr_2O_3, prep. and sintering 4-82961
MgO.3.5 Al_2O_3 single crystals, precipitation, electron microscope obs. 4-48766
MgO.3.5 Al_2O_3 spinel, nonstoichiometric, precip. strengthening and effects 4-73356
MgO.nAl_2O_3, (n=1, 1.2, 2.2), O_2 self-diffusion coeff. 4-75643
MgP_4, prep. and cryst. struct. 4-49616
$Mg_2P_2O_7$, dehydration of $MgHPO_4.3H_2O$ 4-69889
Mg_2Pb, thermal cond., 2-200K, mechanisms 4-67073
$MgSO_4$, luminescence of V and rare earth ions 4-76297
$Mg(SO_3F)_2$, i.r. spectra 4-49334
Mg_3Sb_2, cryst. struct. determ., α-phase 4-66871
Mg_2Si, chemical bond, spin-orbit splitting 4-67173
$MgSiO_3$, content of glass ceramic substrate ST-50-1 4-70541
$MgSiO_3$, exsolution lamellae interfaces, transmission electron microscope obs. 4-57935
Mg_2SiO_4, growth, props., of large single crysts. 4-76387
Mg_2SiO_4-MgF_2, cryst. flux growth with vapour transported Si 4-73250
Mg_2Sn, chemical bond, spin-orbit splitting 4-67173
MgTBP(χ) laboratory spectra rel. to interstellar microwave lines 4-54564
$Mg_4Ta_2O_9$:Mn, fine structure in the low temperature luminescence 4-64425
$MgTiO_3$, formation, mechanism and kinetics, from oxalates by coprecipitation 4-67995
Mg_2TiO_4, cryst. growth by flame fusion (Verneuil) method 4-67716
MgV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4-72448
$Mg_2V_2O_4$, cryst. struct. 4-78984
$Mg(VO_3)_2.6H_2O$ crystals, optical consts. and differential thermal anal. 4-53389
MgX_4^{2-}, (X=Cl, Br, I), force constants, mean vibr. amplitude, valence force field calcs. 4-56154
MgZn ferrites, high-temp. X-ray structure anal. 4-79165
$Mg[B_3O_3(OH)_5](H_2O)_4.H_2O$, kurnakovite, cryst. struct., hydrogen-bonding investig. 4-78958
Mg complexes of phthalocyanine and tetrazaporphin, extended Huckel calculations 4-52049
$Mn(CH_3COO)_2.4H_2O$, cryst. struct. determ. 4-78964
$Mn_xMg_{1-x}(HCOO)_2.2H_2O$, two-dimens. mag. lattice, e.p.r. rel. to anisotropic exchange 4-53298
$(NH_4)_2Mg(MoO_4)_2.2H_2O$, crystal structure *(French)* 4-69772
$Na_2Mg_2Ti_6O_{14}F_2$, low temp. form, cryst. struct. *(French)* 4-48566
Na_2O-K_2O-CaO-MgO-Al_2O_3-SiO_2 system, subsolidus struct. 4-67021
NiO-MgO solid solns., comp. depend. of ^{63}Ni diffusion 4-44701
P_2O_5-Al_2O_3-MgO:MnO, glass, fluoresc. and thermoluminesc., depend. on Mn conc. and temp. 4-70338
TiO-MnO, solid soln., therm. conductivity meas. over temp. range 100-1100K 4-70006
ZnS-MgF_2 homogeneously mixed film, optical dispersion, refl. and transmittance obs., 2000-7000 Å 4-53552
magnetic aftereffect
ferrites substituted with Sn or Ti 4-64240
ferromagnetic materials, magnetic cold-work peak theory 4-76104
film, oxidised, particle interactions, thermal fluctuation aftereffect model of exchange anisotropy 4-79558
Fe, b.c.c., carbon and nitrogen interstitial content by mag. aftereffect meas. *(German)* 4-70178
Fe, interstitial carbon influence on mag. props. 4-79552
Fe-Ni-C alloy, dil., magnetostrictive aftereffect due to interstitial redistrib. 4-79563
Fe_3O_4, as function of vacancy conc. 4-70180
Ni, ferromagnetic after effect, due to interstitials 4-72998
$Ni_3(Fe,V)$ alloys, vanadium effects on mag. and mech. props. *(Russian)* 4-64235
magnetic amplifiers
cyclotron, power supplies reliability 4-74104
three-phase, input to rectifiers, analysis *(Russian)* 4-47257
magnetic anisotropy
antiferromagnet, uniaxial, press. effect on magnetoacoustic reson. *(Russian)* 4-76135
cubic complex $^2T_2$ perturbed by trigonal field, vibronic coupling and paramagnetic anisotropy *(French)* 4-53207
cubic systems, crit. behaviour 4-57229
e.s.r., Hasegawa's phenomenological theory extension for coupling between conduction and localised electrons 4-45184
ferrite, permeability tensor in mag. field, invariant theory 4-64229
ferromagnet, easy plane, spin wave damping 4-60967
ferromagnetic film, large-angle ripples, stripe domains, micromag. theory 4-70187
ferromagnetic film, rel. to magnetostatic spectrum 4-76129
ferromagnetic films, with uniaxial mag. anisotropy in a.c. mag. fields of low intensity *(Rumanian)* 4-70188
ferromagnetic insulator, anisotropic, surface e.m. waves investigation 4-79568
ferromagnetic plate, local variation in anisotropy const. influence on mag. state *(Russian)* 4-72990
ferromagnetic single-domain particles, susceptibility dispersion *(Russian)* 4-82590

magnetic anisotropy continued
ferromagnetic with uniaxial anisotropy, numerical results for spin-one systems 4−53250
ferromagnets and antiferromagnets, spin wave spectrum, effect of one-ion anisotropy 4−79529
ferromagnets and ferrimagnets, magnetocryst. anisotropy, review 4−76100
film, oxidised, particle interactions, thermal fluctuation aftereffect model of exchange anisotropy 4−79558
furan, diamag. anisotropy, ring currents and chem. shifts 4−52063
garnet, bubble domain, liq. phase epitaxial, neutron irrad. effects on mag. props. 4−57309
garnet, LPE bubble films, local control of uniaxial anisotropy 4−76124
garnet bubble film, effect on homogeneous nucleation 4−82591
garnet bubble film anisotropy variation by rotation rate increase and quenching 4−53263
garnet bubble film uniaxial anisotropy and mag. moment rel. to rotation rate 4−49201
garnet bubble film uniaxial anisotropy rel. to substrate rotation rate 4−53262
Hubbard model *(Russian)* 4−72948
Invar, unidirectional anisotropy below 50K, coexistence of antiferromag. and ferromag. phases *(Russian)* 4−79534
kinetics, influence of different contributions to mag. anisotropy 4−70175
liquid crystal, nematic, mol. orientation mechanism 4−48508
local levels in anisotropic ferromagnet with impurities 4−70150
magnetocrystalline anisotropy and other non-linear anisotropic properties, advantages of using spherical harmonics to analyse data 4−64233
MBBA nematic phase volume diamagnetic anisotropy from 274K to 318K 4−70139
from n.m.r. data, calculation for the bonds C-C, C-H, C=C, C=O 4−75015
oxadiazoles, diamag. anisotropy, ring currents and chem. shifts 4−52063
paramagnetic cubic crystal, temp. and mag. field depend., calc. 4−70136
paramagnetic powder magnetisation, mag. anisotropic compounds 4−72989
Permalloy, mag. annealing, agreement of expt. data with theory of induced anisotropy *(Russian)* 4−67389
Permalloy, quenched single crysts., annealing effect on rolling induced anisotropy *(Russian)* 4−49187
Permalloy film, cathodically sputtered, mag. props. depend. on deposition parameters *(Russian)* 4−53261
Permalloy film, interaction energy of dislocations with magnetostriction, anisotropy explanation 4−53267
polycrystalline ferromagnet, singular points on magnetisation curve 4−82583
rare earth alloys, microscopic theory 4−53252
rare earth Co_5, mag. domain wall pinning by regions of weak exchange or anisotropy 4−67400
rare earth Co_5, theory using two-sublattice model 4−76102
rare earth Co_5 permanent magnets, easy domain wall nucleation investigation 4−60984
rare earth intermetallics, $R_2(Co_{1-x}T_x)_{17}$, R=Sm, Er, and T=Fe, Ni, mag. characts. and lattice consts. 4−53260
rare earth orthoferrites, dipolar interactions 4−82568
rare earth-Co, permanent magnets, cryst. defect effects 4−57306
rare earth-Ni equiatomic alloys, importance for magnetic properties *(French)* 4−53239
rare earth-transition metal amorphous alloys, struct. role 4−63762
rare-earth-Co, RCo_5, crystal field theory 4−57307
silicon iron, mag. props. stabilising domain struct., closing surface *(Russian)* 4−67391
steel, transformer grade, textured, surface coatings influence on mag. props. *(Russian)* 4−60976
steel rimmed thin sheet, magnetocryst. anisotropy, crystallite orientation distrib. influence 4−72983
surface boundary condition for spin wave reson. spectra 4−67457
system with biquadratic exchange, spectrum of elementary excitations, uniaxial and biaxial anisotropy effects 4−76031
uniaxial crystals with twinned orientations, mag. reversals *(Russian)* 4−60975
X-Y anisotropic coupling of linear chain, instability leading to second order phase transition *(French)* 4−53190
$BaFe_{12-x}Ti_xO_{19}$, $BaFe_{12-y}Sb_yO_{19}$, mag. anisotropy and saturation 4−82579
BiSeI, susceptibility meas., chain like struct. anal. 4−72700
$CaF_2:Dy^{3+}$, spin-lattice relax., mag. circular dichroism obs. 4−79768
$CdCr_2S_4$, obs. by ferromag. reson. method at 10 GHz 4−49205
Co, evaporated film, mechanism 4−57305
$Co_2BaFe_{16}O_{27}$, W-type hexaferrite, magnetocrystalline anisotropy energy constants detern. 4−73007
$CoBr_2.6H_2O$, antiferromag., zero point spin deviations 4−60965
$CoCl_2$/graphite laminar cpds., mag. ordered state with easy plane type anisotropy *(Russian)* 4−67406
$(Co_xFe_{1-x})_2P$, orthorhombic, magnetocryst. anisotropy 4−82578
CoO, from exchange interaction and mag. struct. 4−49188
$CsFeF_4$, layer antiferromagnet, sublattice magnetisation, Mossbauer obs., spin wave calcs. 4−64241
Cu-Fe, Kondo alloy, exchange energy and spin scatt. anisotropy, de Haas-van Alphen meas. 4−49159
CuMn-Pt, dilute alloy, e.s.r. linewidth, anisotropy due to heavy impurities 4−45173
Dy, exchange and one-ion anisotropies calcs. 4−57257
Dy-Gd, hyperfine interactions, ^{161}Dy Mossbauer obs., spin wave and single-ion anisotropy models 4−64316
Dy_2O_3, Mossbauer study, relaxation, anisotropy, site depend. 4−70236
$DyPO_4$, Ising antiferromagnet, Mossbauer spectra, relax., anisotropy and site depend. 4−70236
Er, exchange and one-ion anisotropies calcs. 4−57257
$(Eu,Y)_3(Fe,Ga)_5O_{12}$ mag. bubble films, rot. effects on epitaxial growth and mag. characts. 4−45431
Eu monochalcogenides, energy interaction theory 4−45128

magnetic anisotropy continued
EuO, temp. depend. of first and second-order anisotropy constants from ferromag. reson. 4−53315
$Eu_xY_{3-x}Fe_5O_{12}$ film, effect of growth temp. and substrate orientation 4−57329
EuYbY garnet films, LEP, charact. 4−49202
Fe, interstitial carbon influence on mag. props. 4−79552
Fe, nitride precipitation effect, precipitate struct. 4−64228
Fe, particle suspension, 4.2-300K 4−60989
Fe complex, phthalocyanineiron (II), Mossbauer spectra in mag. field, mol. symmetry investig. 4−64302
Fe-Ni alloys with directional order, uniaxial anisotropy consts., equil. values, temp. and conc. depend. *(Russian)* 4−60968
Fe-Si (3 wt.%), torque magnetometer obs. *(Russian)* 4−67388
Fe-Si(3%), grain oriented, domain struct. rel. to mag., metallurgical props., review 4−79538
Fe-zNi alloy, oxygen content influence on mag. props. 4−72960
$FeBO_3$, Faraday effect anomalous increase with onset of magnetization inhomogeneity 4−49329
$FeCl_2$, selfconsistently renormalized spin wave approximation 4−45124
$FeCl_2$-graphite compounds, Mossbauer spectra and mag. susceptibility obs. 4−61071
$Fe(ClO_4)_2.6H_2O$, anomalous behaviour at low temp. 4−60952
Fe(III) complex, $Fe(dtc)_2Cl$, paramag. anisotropy, zero-field splitting 4−67351
$Fe(Pd_xPt_{1-x})$ alloy, rel. to ordering, cluster model 4−57273
Fe_2TiO_4, positive anisotropy const., theory 4−45159
Gd-Co alloy film, amorphous, for bubble domain and magneto-optical applic. 4−57338
Gd-Th, h.c.p., magnetocrystalline anisotropy 4−49190
Gd-Y (6-64 at.% Gd), magnetisation and microwave reson., mag. struct. 4−45099
Gd-Y alloy, magnetocrystalline anisotropy, conc. depend. 4−57272
GdCo, amorphous bubble domain material anisotropy factor affected by local heating 4−64236
$Gd_{1-x}Co_x$ film, amorphous, r.f. sputtered, perpendicular anisotropy 4−57330
Ho, exchange and one-ion anisotropies calcs. 4−57257
$HoFeO_3$, dipolar interactions 4−82568
$Ho_xY_{3-x}Fe_5O_{12}$, field depend. *(Russian)* 4−72988
$KMnF_3$, spin reorientation in low temp. phase, antiferomag. reson. anal. 4−76084
K_2NiF_4, selfconsistently renormalized spin wave approximation 4−45124
$LaFe_{12}O_{19}$, anisotropy and saturation 4−82579
Li ferrite with rect. hysteresis loop, Co addition, dynamic unidirectional anisotropy 4−57304
Li ferrites, $Li_{0.5-x}Me_xFe_{2.5}O_{4+y}$, (Me=Fe,Co,Na), long-range ordering, octahedral ion contrib. 4−72985
$Li_{0.4}Ni_{0.2}Fe_{2.4}O_4$, long-range ordering, octahedral ion contrib. 4−72985
Mn-Bi-Te film, magneto-optical material, temp. depend. 4−57331
MnBi film, temp. depend. obs., appl. to thermomag. writing 4−53271
$Mn_xFe_{3-x}O_4$, induced anisotropy by annealing in const. mag. field 4−64231
$Mn_xFe_{3-x}O_4$ spinels, 290-600K 4−53248
$Nd_3Ga_5O_{12}:Nd^{3+}$, mag. moment anisotropy 4−64230
Ni, band theory, review 4−72984
Ni, electrolytic, anisotropic effects in magnetoelastic behaviour 4−49207
Ni, obs. of stage I recovery after low temp. electron irradiation 4−53249
Ni (001) film, crit. thickness rel. to magnetisation direction, magnetoresist. meas. 4−57339
Ni-Cr alloys, determ. by ferromag. reson. 4−61038
Ni-Fe(30 at.%) alloy, low vacancy conc. obs. using mag. anisotropy method *(French)* 4−53670
Ni-Pd, magnetocrystalline anisotropy, hydrostatic press. effects 4−49189
Ni-Sc ferrite, conc. depend., saturation approx. method *(Russian)* 4−61007
$NiCl_2$/graphite laminar cpds., mag. ordered state with easy plane type anisotropy *(Russian)* 4−67406
NiCoCuM ferrite, piezomagnetic, static magnetic props. 4−64252
NiZnCo ferrite film, rotatable mag. anisotropy const. determ. 4−70176
$NpAl_3$, meas. 4-300K, ferromag. ordering 4−64211
$SmCo_5$, cryst. field anisotropy of Sm^{3+} 4−72987
$(Sm_{1-x}R_x)Co_{17}$, (R=Pr, Gd, Y), mag. characts. and lattice consts. 4−53260
$Sm_{0.4}Y_{2.6}Ga_{1.2}Fe_{3.8}O_{12}$, variously oriented epitaxial films, growth-induced mag. anisotropy 4−53268
Sn deformation magnetothermal effects *(Russian)* 4−82396
Tb, exchange and one-ion anisotropies calcs. 4−57257
Tb-Er(83.2%), semi-cone angle of Tb, nucl. polarization method 4−82577
$TbAl_2$, isothermal magnetization in single crystals 4−45129
$Tb_{0.5}Y_{0.5}Ni$, narrow domain wall propag. and metamag. props. 4−45149
Tm, exchange and one-ion anisotropies calcs. 4−57257
$TmCo_2$ single spherical crystal, magnetic properties, rel. to crystal axes 4−64194
Tm_2Fe_{17}, mag. struct., neutron diffr. study 4−72977
U_3As_4, magnetisation meas. in strong fields 4−79533
UAsS from magnetisation in pulsed and steady fields, crystal field theory explanation 4−53251
UAsSe, from magnetisation in pulsed and steady fields, crystal field theory explanation 4−53251
U_3P_4, magnetisation meas. in strong fields 4−79533
$(Y, Eu, Tm)_3(Ga,Fe)_5O_{12}$, bubble dynamics, growth induced anisotropy 4−82585
Y:Dy(Er), h.c.p. single crystals, cryst. field mag. anisotropy 4−57260
$YAG:Nd^{3+}$ mag. moment anisotropy 4−64230
$Y_{3-x}Eu_xFe_{5-y}Ga_yO_{12}$ single crystal, for bubble domain devices 4−57314
$Y_3(Fe,Ir)_5O_{12}$, and magnetostriction, ferromag. reson. 4−45127
$YFeO_3$, dipolar interactions 4−82568

magnetic anisotropy continued
$YFeO_3$ alteration of antiferromagnetic order, Mossbauer study, $T \approx T_n$, 0 to 30 kOe *(Russian)* 4−82567
YIG, strong elec. field influence 4−76103
YIG films, Pb substitution effects 4−60706
YIG sphere, excitation and propag. of transverse and longit. magnetoelastic waves 4−76134
YIG:Ga, single cryst., comp. depend. 4−82576
YIG:U, prep., some mag. props. 4−72986
$Y_{3-x}Lu_xFe_5O_{12}$, growth induced, tetrahedral ion mechanism 4−64232
$Y_{3-x}Lu_xFe_5O_{12}$, growth-induced anisotropy, temp. and comp. depend. 4−57303
$Y_{3-c}Pr_cScFe_4O_{12}$ garnet, structural variation investigation, reln. with mag. anisotropy and cryst. chemistry 4−60454
$Y_{2.6}Sm_{0.4}Ga_{1.2}Fe_{3.8}O_{12}$, growth induced anisotropy, annealing effect, temp. depend. 4−76101
Zn-Mn single crystals, 77 to 1.2K, high fields 4−45130
Zn-Mn single crystals, anisotropy in resistivity measurements, 0.3 to 8K 4−44894
Zn-Mn(Cr), single crystals, low mag. field, low temp. 4−79473
$Zn_2BaFe_{16}O_{27}$, W-type hexaferrite, magnetocrystalline anisotropy energy constants determ. 4−73007

magnetic bays *see geomagnetic variations*

magnetic bottles
see also magnetic mirrors
adiabatic motion of finite streams in inhomogeneous mag. fields 4−44382
external ring system, mag. plasma confinement 4−75295

magnetic bubble devices
conference, Boston, USA (Nov. 1973) 4−57227
large area garnet film preparation 4−70411
memories, bubble domain, garnet comps. 4−73004
technology and applications *(French)* 4−49195
GdGa garnet substrates, ribbon shaped crystal growth 4−57688
$MgFe_{2-x}Al_xO_4$ spinel ferrite memory 4−57308

magnetic bubbles
see also magnetic bubble devices
amorphous film, magnetic annealing 4−45155
Bloch line and wall dynamics, Landau-Lifshitz-Gilbert eqn. 4−67396
Bloch line array, energy calc. 4−60972
bubble memory materials and device technology 4−49203
conference, Boston, USA (Nov. 1973) 4−57227
cylindrical and ring domains theory 4−53253
demagnetisation energy, Poisson's method 4−53258
device substrate, GdGa garnet ribbon shaped crystal growth 4−57688
domain system with different numbers of vertical Bloch lines 4−49193
domain wall structure of anomalous mag. cylindrical domains 4−57322
dynamic conversion, model 4−61000
ferromagnetic film, bubble array, theory *(Russian)* 4−67411
film, low velocity bubble domain wall mass calc. 4−60994
garnet, bubble domain, liq. phase epitaxial, neutron irrad. effects on mag. props. 4−57309
garnet, homogeneous liquid phase epitaxy fluxed melts production 4−45426
garnet, ion implanted, planar domains revealed by Ferrofluid 4−70177
garnet, LPE bubble films, local control of uniaxial anisotropy 4−76124
garnet bubble film anisotropy variation by rotation rate increase and quenching 4−53263
garnet bubble film uniaxial anisotropy and mag. moment rel. to rotation rate 4−49201
garnet bubble film uniaxial anisotropy rel. to substrate rotation rate 4−53262
garnet bubble films, optical sensing of bubble domains by reduction of Pb masking 4−53264
garnet double layer film, epitaxial, self-biasing effect on formation 4−70185
garnet film, controlled compensation walls and compromise compensation walls, Si annealing technique 4−60995
garnet film, double layer self-biasing, epitaxial growth and props. 4−70403
garnet film, dynamic response of domain walls to step change in bias field, −10 to 60°C 4−64248
garnet film, epitaxial, dynamic conversion effects 4−60999
garnet film, epitaxial, generation by microwave interaction 4−57326
garnet film, hard bubble suppression, by N_2 annealing 4−70189
garnet film, hard bubble suppression by inert atm. annealing 4−64247
garnet film, high perfection, for bubble domain appl., rapid liq. phase epitaxy 4−57683
garnet film, homogeneous nucleation, anisotropy effect 4−82591
garnet film, liq. phase epitaxial, absence of hard bubbles 4−60991
garnet film, liq. phase epitaxial, hard bubble diameter, bias field and temp. depend. 4−60993
garnet film, low-loss, domain wall dynamics 4−60997
garnet film, l.p.e., from BaO-BaF_2-B_2O_3 solvent 4−70412
garnet film, mesa defects elimination, in dipped LPE films 4−45427
garnet film, straight and wavelike domain wall motion, high speed photography obs. 4−64249
garnet film, suppression by ion bombard., optical absorption meas. 4−67409
garnet film, uniaxial, domain patterns *(Japanese)* 4−79557
garnet-Permalloy composite film, hard-bubble-free, bubble behaviour 4−60992
hard bubble dynamics, gyrocoupling vector and dissipation dyadic applic. 4−45135
hexagonal lattice, dynamic theory, excitation spectrum 4−76112
metallic film, amorphous, bubble dynamics 4−60998
neighbouring current interaction, self-induced 4−57313
Permalloy, ordered arrays in Ni-Fe films 4−45146

magnetic bubbles continued
Permalloy film, bubble domain deform. and motion vel. under mag. field *(Russian)* 4−49198
rare earth garnet film, light diffraction by cylindrical mag. domain arrays 4−45144
scanning laser beam for random switching of bubble domain memory 4−47389
sensing by pulsed focused laser beam 4−51658
technology and devices *(French)* 4−49195
uniaxial material, dynamics theory, field depend. 4−82582
wall interaction, with electric current 4−45137
wall motion, dynamic conversion model 4−76116
Co, bubble domain struct., changes prod. by ion implantation, direct obs. 4−76109
$Er_3(FeGa)_5O_{12}$ films and devices, neutron and γ irradiation tolerance, obs. 4−45154
$(Eu,Y)_3(Fe,Ga)_5O_{12}$ films, rot. effects on epitaxial growth and mag. characts. 4−45431
EuYbY garnet films, LEP, charact. 4−49202
Gd-Ca, amorphous film, static bubble domain props. 4−76113
Gd-Co alloy film, amorphous, prep. by sputtering 4−57338
GdCo, amorphous material anisotropy factor affected by local heating 4−64236
$Gd_{1-x}Co_x$ film, amorphous, r.f. sputtered, perpendicular anisotropy 4−57330
$Gd_3Fe_5O_{12}$ film, magnetization processes involving planar compensation walls 4−60996
$MgFe_{2-x}Al_xO_4$ spinel ferrites for magnetic bubble domain memory 4−57308
MnBi film, domain nucleation and propagation phenomena, demag. obs. using W needle 4−57327
$PbFe_{12}O_{19}$, strip and bubble domains, Lorentz microscopy obs. 4−60971
$Sm_{0.4}Y_{2.6}Ga_{1.2}Fe_{3.8}O_{12}$ epitaxial films, magnetic bubble mobility meas. 4−53269
$(Y, Eu, Tm)_3(Ga,Fe)_5O_{12}$, bubble dynamics, growth induced anisotropy 4−82585
$(Y,Eu,Gd)_3(Ga,Fe)_5O_{12}$, film, bubble velocity, instability, temp. depend. 4−64251
$(Y,Gd,Tm)_3(Fe,Ga)_5O_{12}$ film, mag. bubble translation, effect of const. in-plane mag. field 4−61002
$(Y,La)_3(Ga,Fe)_5O_{12}$ film, exchange const. and bubble domain wall energies 4−60973
$Y_{3-x}Ca_x(Ge,Si)_xFe_{5-x}O_{12}$ based epitaxial films, for bubble device appl., characts. 4−57328
$Y_{2.4}Eu_{0.6}Fe_{3.8}Ga_{1.2}O_{12}$ film, bubble dynamics, influence of in-plane field 4−61001
$Y_{3-x}Eu_xFe_{5-y}Ga_yO_{12}$, single crystal, wall mobility, rel. to bubble domain devices 4−57314
$Y_{2.4}Eu_{0.6}Ga_{1.2}Fe_{3.8}O_{12}$, bubble motion, vel. scatt. meas. 4−79536
$Y_3(FeGa)_5O_{12}$ films and devices, neutron and γ irradiation tolerance, obs. 4−45154
$(YGdTm)_3(FeGa)_5O_{12}$ films and devices, neutron and γ irradiation tolerance, obs. 4−45154
$(YGdTm)_3(GaFe)_5O_{12}$, film, domain patterns in arbitrarily oriented field 4−76117
YIG film, echange stiffness temp. depend. 4−57325

magnetic circuits
No entries

magnetic clutches *see clutches*

magnetic cooling
e.s.r. system operating at 9 GHz in temp. range 4.2 K to 37 mK 4−62494
magnetic cluster substances, weakly interacting, phase transition behaviour, appl. 4−67377
sunspot, Wilson's model 4−70921
two level system, h.f. energy pumping *(Russian)* 4−62429
^{23n}a in NaCl, adiabatic in rotating frame by non-resonant oscill. field 4−80855
BiSb, semicond., mag. freezing *(Russian)* 4−70194
^3He precooling stage in adiabatic demagnetisation cryostat 4−77054
^{23}Na in NaCl, adiabatic in rotating frame by non-resonant oscill. field 4−80855

magnetic core stores
ferrite memory rings, use with wire spark chambers 4−42903

magnetic cores
CLEO stellarator/Tokamak exptl. machine design 4−59871
ferrite ring core, rectangular hysteresis loop, static model *(Russian)* 4−57310
ferromagnetic reversal magnetisation dynamics, cores with square hysteresis loop *(Russian)* 4−76120
h.f. ferrite, for generation and detection of surface mag. field transients in ferromagnets 4−54995
steel, Fe-Si, new ORIENTCORE HI-B, core loss improvements, transformer appl. 4−72995
Fe-Si(3%), grain oriented, domain struct. rel. to core losses, review 4−79538
Li ferrite, ion ordering influence on pulse props. 4−67395
Ni-Zn ferrite, magneto-elastic effect, appl. to transducers *(Russian)* 4−82593

magnetic devices
see also clutches; ferrite devices; magnetic amplifiers; magnetic lenses; magnetic storage devices; magnetic thin film devices; magnetostrictive devices
inclinometer, with induction orientation sensor *(Russian)* 4−54328
magnetics conference, Toronto, Canada, (May 1974) 4−70122
magnetoelectric materials, possible appl., review 4−76028
mirror fusion reactor with direct conversion, surface conditions 4−78282
pendulum, automatic, with wide range sensitivity *(Japanese)* 4−68747
poloidal divertor for Wisconsin Tokamak reactor design 4−78275
poloidal field divertor, projected operation in Princeton ref. design model Tokamak reactor 4−78276
semiconductor magnets, cryogenic techniques calorimetry *(French)* 4−46611
O_2 detector, magnetomechanical 4−46955

magnetic dipoles *see magnetic moments*

magnetic domains
see also domain walls; magnetic bubbles
antiferromagnetic domain switching, magnetoelec. effect as simple obs. method 4−76108
bubble film, stripe domain wall struct. 4−45134
bubble garnet, ion implanted, planar domains revealed by Ferrofluid 4−70177
bubble garnet film, straight and wavelike domain wall motion, high speed photography obs. 4−64249
bubble materials, Bloch line and wall dynamics 4−67396
cation deficient magnetite, superparamagnetic and single domain threshold sizes, comments 4−76630
cylindrical and ring domains theory 4−53253
cylindrical structure in magneto-optical materials, absorpt. spectra obs. 4−57576
domain wall motion, energy stored in wall deform., solid and tape-wound cores 4−60981
ferrimagnetic garnet, compensation wall width and energy, field depend. 4−79535
ferrimagnetic powder, multi- and single domain, ratio of rotational to hysteresis loss 4−79553
ferrite, Bloch domain boundary interaction with e.m. wave 4−79547
ferrite intrinsic radiation coupling effect *(Russian)* 4−45151
ferromagnet, domain boundaries pinning by impurity atmospheres *(Russian)* 4−49192
ferromagnet, magnetoresistive overlayer, force due to current perturbation 4−76114
ferromagnet, n.m.r. signal enhancement, fast passage effects 4−45166
ferromagnet, rel. to elec. cond., spin wave interaction 4−75840
ferromagnet, uniaxial, domain wall oscills., theory *(Russian)* 4−67405
ferromagnet, with domain struct., parametric excitation of spin waves 4−76097
ferromagnet with single domain wall, spin wave spectrum calc. 4−57301
ferromagnetic film, inhomogeneous wall width 4−64234
ferromagnetic film, large-angle ripples, stripe domains, micromag. theory 4−70187
ferromagnetic films, with uniaxial mag. anisotropy in a.c. mag. fields of low intensity *(Rumanian)* 4−70188
ferromagnetic materials, SEM obs., image contrast 4−57317
ferromagnetic metal, prediction of domain-drag effect 4−60983
ferromagnetic reversal magnetisation dynamics, cores with square hysteresis loop *(Russian)* 4−76120
ferromagnetic single domain particles, computing method for random arrays after mag. reversal 4−57324
ferromagnetic spherical particle struct., nearly single domain 4−79554
ferromagnetoelectric switching and twinning, domain struct., crystallography 4−76107
ferromagnets, antiferromagnets, coupled oscills. of nuclear spins and domain walls 4−79612
film, domain wall models, review 4−76125
film, thermomagnetic writing with laser beams stable domain radii calculation 4−53400
film, wave propagation along domain walls 4−57332
film with stripe domain struct., mag. reversal curves *(Russian)* 4−49199
garnet, l.p.e., rapid defect detection by stripe domain scanning 4−70190
garnet film, epitaxial, microwave interaction, ring domain generation 4−57326
garnet film, transparent, domain wall reson., optical diffr. obs. 4−64250
garnet film, uniaxial, domain patterns *(Japanese)* 4−79557
head-on saw-tooth domain walls, Lorentz microscopic obs. 4−79539
magnetoplumbite, with cylindrical domain structure, ferromag. reson. *(Russian)* 4−70219
magnetostrictive ferrite, stabilization of props. *(Russian)* 4−61006
manganese (II) phthalocyanine, canted ferromagnetism investigation by torque and magnetisation meas. 4−60982
MBBA, nematic, wall velocity and ellipticity giving elastic constants 4−78901
metallographic technique using variable high mag. fields for domain struct. investig. *(German, English)* 4−49196
neighbouring current interaction, self-induced 4−57313
orthoferrite, reln. between struct. and defects, X-ray topography obs. 4−57321
permalloy, thin films, relax. of dynamic domain struct. rot. of magnetisation vectors *(Russian)* 4−67390
Permalloy film, coercivity spectrum and domain wall creep 4−45148
Permalloy film, nonlinear wall velocity and coercive force 4−57334
Permalloy film, wall motion threshold fields for off-axis applied fields 4−70191
Permalloy film with stripe domain struct., ferromag. reson. spectra *(Russian)* 4−49232
rare earth Co_5, mag. domain wall pinning by regions of weak exchange or anisotropy 4−67400
rare earth Co_5 permanent magnets, easy domain wall nucleation investigation 4−60984
rare earth iron garnets, $R_{0.3}Y(Gd)_{2.7}IG$, dynamical mag. characts., spin echo and mag. susceptibility meas. 4−64270
rocks, magnetic viscosity due to spin fluctuations in wide temp. range 4−68070
secondary ferroics, symm. 4−73084
self induced drive due to current in Permalloy overlayer 4−76115
SEM, Type II mag. contrast, Monte Carlo simulation 4−77252
s.e.m. image contrast method for domain observation 4−44453
silicon iron, mag. props. stabilising domain struct., closing surface *(Russian)* 4−67391
single domain particles, noninteracting assembly, magnetisation meas. *(Russian)* 4−60988
single-particle, magnetic moment motion in periodic field *(Russian)* 4−82590
spin wave instability in sample with domain structure *(Russian)* 4−79532
stability in uniaxial film strips, demag. effect on Bloch wall motion 4−45147

magnetic domains continued
steel, ferritic, grain size meas. by magnetis. discontinuities *(German, English)* 4−49718
stripe domain film, Lorentz microscopy with photons 4−57333
triglycine selenate crystals, piezoelec. and elastic expts. in region of phase transforms. *(German)* 4−57478
uniaxial crystals with cylindrical domain structure, ferromag. reson. *(Russian)* 4−70219
wall interaction, with electric current 4−45137
wall propagation, in ext. mag. field, current perturb. in adjacent Hall effect material 4−45136
CdS, strong magnetic field, formation of stationary domain 4−64120
Co, crystal shape effect on nuclear orientation thermometry at <100 mK 4−79656
Co, nonuniform current distrib. in neighbourhood of 180° domain wall, 4.2K 4−60979
Co-Co_3Nb, directionally solidified eutectic, thermal cycling 4−82584
$CoCO_3$, mag. birefringence, domain struct. obs. 4−79550
CoO-Fe_2O_3-B_2O_3 system glass-ceramics, mag. characteriz. 4−79545
Cr, neutron microscopy, spin density wave domains, single crystals 4−70170
Cu_2MnAl, effect of antiphase boundaries in Heusler alloys 4−45142
$DYFeO_3$, wall movement asymmetry, deformed surface layer 4−64242
EuYbY garnet films, LEP, charact. 4−49202
Fe, oriented transformer sheets, ferromagnetism for electronic engineers *(German)* 4−67404
Fe, residual elec. resist., current depend. mechanism 4−57072
Fe-Si, SEM obs., image contrast 4−57317
Fe-Si, total power loss, domain wall spacing meas. 4−72992
Fe-Si single cryst., individual Bloch wall movement at very low velocity 4−57311
Fe-Si(100) single crystal, domain structure induced by bending 4−67397
Fe-Si(3%), grain oriented, domain struct. rel. to mag., metallurgical props., review 4−79538
$FeBO_3$, Faraday effect obs. 4−64238
$FeBO_3$, mag. field effect on coherent scatt. of X-rays 4−73002
α-Fe_2O_3, mag. field effect on coherent scatt. of X-rays 4−73002
Gd, a.c. susceptibility and hysteresis, domain effects near Curie temp. 4−45141
$Gd_yY_{3-y}Fe_{5-x}Ga_xO_{12}$, garnet film, domain wall mass and mobility, in plane mag. fields 4−70186
$LiFe_5O_8$, domain struct., transmission electron microscope obs. *(French)* 4−67401
MgMn ferrite film, substructure obs. 4−79548
MnBi, film, Kerr effect obs., thermal cycle 4−67408
MnBi thin films, domain config. and coercivity 4−76127
MnF_2, ^{19}F n.m.r. obs. of domains and domain related inhomogeneous broadening, below T_n 4−76110
MnF_2, neutron depolarisation for $T \sim t_n$ and $T \ll T_n$ *(Russian)* 4−72973
Mn_2Sb, Cr modified, first order phase transition, magnetic domain obs. 4−64237
Ni, domain wall motion, electron microscope obs., test of theories 4−67402
Ni, film, magnetic domain wall response to ultrasound, transmission electron microscope meas. 4−82597
Ni, magnetoelastic damping, domain struct. and boundaries *(Russian)* 4−67412
Ni-Fe, plastically deform. polycryst. wires, coercive field rel. to domain wall mobility 4−72997
Ni-Fe film, new type of domain wall, Lorentz microscopy obs. 4−53259
Ni-Fe Invar single crystals, obs. by magneto optical Kerr effect 4−45145
Ni-Fe(10 wt.%) alloy films, domain boundary starting field, isotropic stresses influence *(Russian)* 4−61003
Ni-Fe(17%) alloy, domain wall motion, electron microscope obs., test of theories 4−67402
NiF_2, weak ferromag., domain struct. changes 4−79551
NiFeCo film, domain wall motion, coercive force and easy axis bias effects 4−57335
NiO, T-wall domains, obs., differential interf.-contrast microscopy 4−72999
NiO (111) platelet, with growth twins, antiferromag. domain structures 4−53254
NiZnCo ferrite film, energy of stabilisation of domain boundaries 4−70176
Pb film, supercond., obs. using particle decoration electron microscope technique *(German)* 4−49114
$PbFe_{12}O_{19}$, strip and bubble domains, Lorentz microscopy obs. 4−60971
$(Sm_{1-x}Pr_x)Co_5$, domain struct. of magnets *(Russian)* 4−67394
$SmTbFeO_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
$Tb_{0.5}Y_{0.5}Ni$, narrow domain wall propag. and metamag. props. 4−45149
$TmFeO_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
$(Y,Gd,La)_3(Fe,Al,Ga)_5O_{12}$ garnet magneto-optical memory based on compensation wall domains 4−49197
$YFeO_3$, orthoferrite plates, cylindrical domains, Faraday rotation obs. 4−57323
$YFeO_3$, wall movement asymmetry, deformed surface layer 4−64242
$YFeO_3$ particles, domain struct. and mag. props. below single-domain crit. size *(Russian)* 4−73003
YIG, laminar domain struct., switching, light diffr. 4−79549
YIG:Ga, film, domain wall motion, time var. 4−76126
magnetic double refraction *see magneto-optical effects*
magnetic double resonance
see also ELDOR; ENDOR; INDOR; nuclear polarisation
adamantane, solid, ^{13}C n.m.r. cross-polarisation times 4−76192
alkali halides, F-centres, electron-nucleus-nuclear triple resonances 4−53342
aromatic components, relaxation mechanisms involving lowest triplet state, review 4−63454

magnetic double resonance continued
- p-benzoquinone, in isotopic mixed cryst., e.p.r. ODMR studies of lowest $n\pi^*$ triplet state 4−53502
- bromodichloroethane-d-diethyl ether-d$_{10}$, ^{2}H and ^{35}Cl coupling constants 4−79640
- chemically induced dynamic electron polarisation, theory for alkyl radicals produced in radiolysis 4−57857
- 1,4-dibromonaphthalene, linear chain excitons, optical and magnetic resonance spectra 4−48939
- dimers, electronically excited, coherence obs. rel. to coherent excitons, ODMR 4−78495
- dynamic nuclear polarisation in viscous liquids away from vitrification point 4−45209
- electron spin polarisation in rot. triplet mol., chemically quenched intersystem crossing 4−61603
- gamma, in fluctuating fields, Mossbauer line profiles, theory 4−79657
- hexachlorobenzene, pure and hexamethylbenzene host, PMDR, low temp. triplet energy traps 4−53340
- indole, optically detected mag. reson. obs. of phosphorescent state 4−57862
- indole, spin-lattice relax. rates between triplet spin sublevels, ODMR direct obs. 4−63458
- methanol radical, CIDEP and isotropic g-factor 4−67992
- molecule, optically detected adiabatic demagnetization in excited triplet states in zero field 4−66475
- organic molecules, triplet state intersystem crossing rate determ. by microwave induced triplet-triplet absorpt. 4−54058
- organophosphorus compounds, J(XX′) sign and magnitude meas. method 4−52221
- pulsed double resonance method in FT n.m.r. equivalent to INDOR, selective population inversion determ. 4−49213
- spin-lattice relax. rates between triplet spin sublevels using ODMR 4−63458
- 1,2,4,5-tetrachlorobenzene, in durene host, optically detected electron spin echo 4−66475
- 1,3,5- trichlorobenzene, pure and in hexamethylbenzene host, PMDR, low temp. triplet energy traps 4−53340
- tryptophan, spin-lattice relax. rates between triplet spin sublevels, ODMR direct obs. 4−63458
- tryptophan in multiple protein sites, phosphoresc. resoln. using ODMR 4−57863
- two-spin system in solid, spectral line parameters *(Russian)* 4−73051
- Ar, excited level lifetimes, g-factors *(French)* 4−51961
- Ar, lifetimes of 2p levels by Hanle effect and double resonance meas. 4−43733
- CaO, phosphoresc. microwave double reson., coherent Jahn-Teller states 4−73049
- H$_2$, excited electronic states investig. by microwave mag. res. induced by electrons 4−52201
- o-H$_2$, fine and hyperfine struct., MOMRIE obs. 4−56283
- KCl, luminesc. and optically detected e.p.r. of close F-centre pairs 4−57619
- NO radical, in soln., ELDOR investig., comparison with e.s.r., intermol. relax. processes investig. 4−49262
- NaCl:Ca^{2+}, single crystal, quadrupole distortions meas. by pulsed nuclear magnetic double resonance 4−82636
- NaCl-NaBr(I) solid solutions, pulsed nuclear double reson. 4−45208
- Ne, lifetimes of 2P levels by Hanle effect and double resonance meas. 4−43733
- SiHCl$_3$, ^{35}Cl-^{1}H heteronuclear double resonance obs. *(French)* 4−60099
- Xe, excited level lifetimes, g-factors *(French)* 4−51961

magnetic field effects
- anthracene, in soln., delayed fluoresc., radical ion quenching rel. to conc., mag. field 4−48065
- atomic ordering in magnetic field, thermodynamical and statistical approaches *(Russian)* 4−67363
- cavitation and erosion, mag. induction vector direction influence 4−60252
- combustion, stabilizing effect of const. mag. field 4−45905
- conducting plate elastic vibration anal. *(Russian)* 4−51393
- deformation of layered media by body force and deforming magnetic field 4−80252
- diatomic gas molecules, rigid rotors, mag. field effect on viscosity, thermal cond. 4−48177
- electron microscope, resolving power with automatic compensation for AC mag. fields 4−58957
- excitonic matter, binding energy, electron-hole drops 4−64049
- ferromagnetic colloidal suspension, effect of rotating mag. field 4−76555
- Fraunhofer lines, Zeeman multiplet polarization, Stokes parameter profiles 4−65066
- fusion reactor, toroidal, utilizing ion beam reactions, magnetic compression 4−47807
- gas, splitting of multiple light scatt. lifetimes 4−69553
- h.f. field interaction with potential plasma oscillations in Q-device 4−52605
- inversion layer plasma waves in quantising mag. field 4−82445
- laser plasma, reduction of soft X-radiation 4−52592
- magnetic circular dichroism, B terms calc. using perturbation formula 4−52058
- maser, cyclotron-resonance *(Russian)* 4−77639
- MHD segmented open-type generator, mag. field effect on output performance 4−63711
- nematic liquid crystals, acoustic relaxation rel. to transverse magnetic field 4−56613
- neutrino reactions in strong magnetic field 4−50427
- organic systems, electrogenerated chemiluminesc. and delayed fluoresc., excimer and exciplex states 4−64710
- oscillating, non-resonant, adiabatic demagnetization of Na in NaCl and F in CaF$_2$ 4−80855
- PBLG polypeptide, interaction with acidic mols. in mag. field rel. to orientation, ordering 4−44463
- perspex, variation of initial charge with magnetic field in cubical magneto-electrets 4−45232
- plasma, particle concentration, due to field of cathode *(Russian)* 4−82034
- polaritons, surface, in high mag. fields 4−75948

magnetic field effects continued
- poly-γ-ethyl-L-glutamate, cholesteric liq. cryst., pitch-independ. crit. field 4−69710
- polyatomic gas molecules, rigid rotors, mag. field, effect on shear viscosity, applic. to N$_2$ 4−48178
- polyatomic gases, quantum mech. treatment of mag. field effect on viscosity, thermal cond. 4−48176
- polytropic stars, toroidal magnetic field effects on non-radial oscill. 4−50545
- radiation reaction problem solution for uniform magnetic field 4−71351
- radical recombination, h.f. effects 4−80169
- radio wave, effect of magnetic activity on fading 4−70770
- semiconductor, impurity and exciton levels 4−72721
- semiconductor, nondegenerate, acoustic wave second harmonic generation in mag. field 4−44970
- semiconductor, spatial dispersion near cyclotron resonance, e.m. wave deflection *(Russian)* 4−82369
- semiconductor, with Td symm., radiative recomb. of bound excitons in mag. field 4−75836
- sound excitation in ferromagnetic liquid, resonance curve rel. to container geometry *(Russian)* 4−80838
- spark chamber, e.m. displacement dependence on elec. purifying field and mag. induction, obs. 4−81002
- spark chamber dead time and efficiency in magnetic field up to 100 Hz 4−81001
- spectroscopic light source, horizontal d.c. arc in mag field, appl. to In, Pb determ. 4−46963
- superlattice, semiclassical mag. quantization calcs. 4−53025
- thermometry, at very low temp. in very high mag. fields 4−42751
- triglycine sulphate, cryst. growth from soln., effect on cryst. quality *(German)* 4−57678
- viscoelastic Reiss type rectangular plate, deflection due to impulsive load in transverse magnetic field 4−51380
- zone melting ring electron gun efficiency limitation by magnetron effect 4−53603
- Ag-Au (0.37 at.%)/Au-Fe, thermocouple, thermopower at 4.2K in transverse mag. fields 4−82393
- Ar II, high power laser, axial mag. field influence *(German)* 4−62827
- Au-Ag(0.37 at.%), thermocouple wire, thermopower in transverse mag. field, Au-Ag/Au-Fe couple 4−82393
- Au-Fe, thermocouple wire, thermopower in transverse mag. field, Au-Fe/Au-Ag and Au-Fe/Cr-Ni couples 4−82393
- Bi, perpendicular field, effect on supercond. thin films, transition from I to II 4−82519
- CdS, far infrared cyclotron reson. 4−75790
- Cr-Ni, thermocouple wire, thermopower in transverse mag. field, Cr-Ni/Au-Fe couple 4−82393
- Cr-Ni/Au-Fe, thermocouple, thermopower at 4.2K in transverse mag. field 4−82393
- Fe complex, phthalocyanineiron (II), Mossbauer spectra in mag. field, mol. symmetry investig. 4−64302
- FeF$_2$, magnon and phonon interactions, external mag. field effects, theory 4−57296
- α-Fe$_2$O$_3$:Sn, Mossbauer obs., ^{57}Fe, ^{119}Sn, hyperfine interactions, lattice dynamics *(Russian)* 4−67499
- GaAs, line shapes in donor spectra 4−76289
- Ge, in mag. field, energy levels of indirect exciton, calc. 4−57063
- H atomic clock, freq. displacement, effect of linear transitions 4−73971
- H ground state binding energy in intermediate and intense magnetic fields, analytic variational calc. 4−43707
- H-like atoms, energy spectrum in strong magnetic field 4−69415
- H$^-$, energy spectrum in strong magnetic field, binding energy calc. 4−47824
- H$_2$ plasma, low pressure, CO$_2$ laser driven detonation waves in strong mag. field 4−52558
- HIO$_3$, cryst. growth from soln., effect on cryst. quality *(German)* 4−57678
- He plasma, low pressure, CO$_2$ laser driven detonation waves in strong mag. field 4−52558
- ^{3}He, dynamic parallel mag. investig. 4−60670
- HgTe high mag. fields, mag. sub-bands, k_z depend. 4−75789
- Ho ultrasonic absorption, 10 to 70 MHz, temps. down to 80K 4−45164
- In, perpendicular field, effect on supercond. thin films, transition from I to II 4−82519
- In-Bi (0.06 at.%), perpendicular field, effect on supercond. thin films, transition from I to II 4−82519
- Nb, mag. breakdown in strong field *(Russian)* 4−67156
- α-Sn, high mag. fields, mag. sub-bands, k_z depend. 4−75789
- Sn, perpendicular field, effect on supercond. thin films, transition from I to II 4−82519

magnetic field measurement
- *see also field plotting; fluxmeters; magnetometers*
- atomic magnetic groundstate sublevel intersection theory rel. to magnetometry *(Russian)* 4−51119
- correlation search coil instrument for artificial satellite 4−71075
- effective field boundary of homogeneous field magnets, rapid meas. 4−71459
- errors, by method of nutation *(Russian)* 4−68740
- frame antenna near linear current carrying conductor, e.m.f. determ. *(Russian)* 4−51123
- geomagnetic, dip. bearing and intensity, by self-oscillating quantum magnetometer *(Russian)* 4−54325
- geomagnetic field meas., information available from gradient method 4−50376
- Hall probe, determ. inhomogeneous mag. field components 4−68742
- Hall probe, mag. peak switching system for spark source mass spectrometry 4−51217
- Hall sensors, in differential system controlled by n.m.r. gaussmeter *(Polish)* 4−54994
- hydrostatic pressure effects, meas. using vibr. sample magnetometer 4−68746
- Josephson junction device 4−67318
- local magnetic field scattering factors, T and SEM shadow electron optic meas. *(Russian)* 4−71251
- magnetic field generation and recording apparatus applic. 4−74097

- **magnetic field measurement** continued
  - magnetometer, triaxial, induction, artificial mag. field meas., 4 Hz to 4 kHz *(French)* 4−68267
  - mean gradient method using unearthed receiver line *(Russian)* 4−51122
  - outer planet exploration, fluxgate magnetometer design 4−71078
  - photographic recording during particle chamber events 4−42904
  - plasma diagnostics, current and mag. field meas. 4−66772
  - pulse field production, to 440 kOe, meas. system 4−51504
  - rectangular waveguide e.m. field visualization with liquid crystal indicators *(Russian)* 4−51107
  - rocks and coals, magnetometry, standard specific permeability tests using nomogram *(Russian)* 4−54324
  - SANGUINE test transmissions, Canadian geomagnetic meas. 4−76655
  - second derivative gradiometer, using SQUID, for magnetocardiography 4−68749
  - smallest, by Hall probes *(German)* 4−80960
  - solar photospheric magnetic field meas., temp. effects 4−65067
  - Solar Tower Telescope instrumental polarisation effects on mag. field meas. *(Russian)* 4−73867
  - solenoid, single-layer ellipsoidal, field analysis *(Russian)* 4−47258
  - spinner magnetometers, simplified meas. technique for time-saving 4−71219
  - terrestrial, accuracy of free nuclear precession method *(Russian)* 4−70814
  - two-spin oscillator system applic. in magnetometry 4−74102
  - ultra high pulsed fields, for solid state research 4−74098
  - InSb Hall plates, nonlinearity reduced by heating the plate 4−42840
- **magnetic field variations, earth** *see geomagnetic variations*
- **magnetic fields**
  - *see also crystal internal fields; electromagnetic fields; geomagnetism; interplanetary magnetic fields; interstellar magnetic fields; magnetic field effects; magnetic field measurement; solar magnetism*
  - arc welding, force on electrodes 4−47280
  - arc welding, speed of arc rotation, electrode materials 4−47282
  - arc welding applic., transfer of metal increased by 4−47281
  - charged particle moving near a perfectly conducting sphere 4−68986
  - clamp, with beneficial saturation effects 4−68743
  - coils, spherical with variable current density distribution, magnetic field calc. *(Polish)* 4−55417
  - combined field shaping, system with uniform mag. field ⊥ spatially stratified elec. field 4−77586
  - compressed geomagnetism field rel. to dipole tilt 4−57956
  - compression by strong shock wave *(Russian)* 4−74454
  - conductor surface heating by pulsed mag. field, minimization 4−55424
  - crack detection, fields of artificial open flaws, in uniform field, calc. and expt. 4−64686
  - between cylinders, uniformly axially magnetized 4−55426
  - cylindrical superconductor, doubly connected, trapped mag. field distrib. 4−79469
  - difference equations, numerical method 4−47266
  - distribution in cond. slabs near current carrying cond., eddy currents 4−47269
  - effective field boundary of homogeneous field magnets, rapid meas. 4−71459
  - electric machine, equivalent field analysis 4−55428
  - electromagnet, truncated conical pole, general eqn. for axial field 4−77584
  - ferromagnetic, intensity during Barkhausen jump, eddy currents *(Russian)* 4−67392
  - filamentary approach calculation, for wide class of current geometries 4−77589
  - fluctuating, behaviour of classical spin, magnetic moment decrease 4−47224
  - flux compression system, plasma conduction layer, radiation-limited model 4−55425
  - galactic, influence on density wave, 3-D case 4−80634
  - helical block, rectangular, calc. of field, description of program 4−59331
  - High Field Magnet Laboratory, Grenoble, review 4−74099
  - inhomogeneous media, Poissons and Laplace's eqns. 4−55423
  - Jovian magnetic field, Pioneer 10 obs. rel. to Io-modulated decametric radiation 4−68351
  - levitation for high speed ground transport, techniques calcs. 4−43227
  - lunar polarised magnetic field fluctuations at Apollo 15 site 4−68386
  - magnetospheric field model, neutral points coords., and last closed field line boundary 4−73567
  - magnetostatics of axially symmetric structures 4−62778
  - Mercury, electron and proton accel., Mariner 10 obs. 4−68368
  - Mercury, Mariner 10 obs. 4−70945
  - MHD generator optimal plane, distrib. of potential and magnetic field 4−78825
  - MHD generators, induction-type, elec. efficiency, small Reynolds no. 4−78826
  - MHD generators, particle accelerators, windings, analysis *(Russian)* 4−55006
  - MHD induction devices, param. eval. *(Greek)* 4−66777
  - microtron acceleration mode stabilisation 4−80967
  - n.m.r. spectrometers, field stabilization circuits, 4-21 kG 4−42847
  - origin, invariance of ε_0 to Lorentz transform 4−55342
  - perception, by electroreceptors, in Black Sea skates 4−50761
  - plasma, laser produced from boundary between two solids, magnetic field of 10^7G 4−48441
  - point charge, slowly moving, field produced on the other side of a conducting surface 4−62773
  - point source emitting spherically polarised waves, diffraction by two-part sphere 4−51510
  - polarised ellipsoid, Biot-Savart approx. *(Russian)* 4−59329
  - potential problems in general 2D regions, numerical solution package:POTENT 4−77591
  - production of pulsed fields up to 440 kOe, 1 msec duration, unit design 4−51504
  - pulsed, generation using thyristors 4−74452
  - pulsed high mag. field prod., a.c. half cycle method 4−74097
- **magnetic fields** continued
  - quasistatic, production by switching low voltage d.c. generators 4−68990
  - rectangular slab of homogeneous linear conducting material, in repetitive-pulsed external mag. field, calc. 4−51505
  - screening effectiveness, amplitude and phase characteristics *(Russian)* 4−43226
  - solenoid, coaxial array, on-axis field calc., computer program 4−51500
  - stellar poloidal magnetic fields, adiabatic stability 4−76820
  - synchronous machines, end-winding zone, external mag. field, calc. *(Russian)* 4−55421
  - synchrotron, perturbation by metallic vacuum chamber 4−77142
  - transformers, conformal transformation calc. *(Dutch)* 4−47276
  - ultra high pulsed fields, for solid state research 4−74098
  - $La_2Mg_3(NO_3)_{12}$ 24 H_2O, proton polarised, determ. of crystal magnetic field 4−72933
- **magnetic film stores**
  - *see also magnetic bubble devices; plated wire stores*
  - bubble domain memories, conf., Boston, USA (Nov. 1973) 4−57227
  - bubble domain memories, garnet comps. 4−73004
  - bubble domain system with different numbers of vertical Bloch lines 4−49193
  - bubble memory materials and device technology 4−49203
  - bubble sensing by pulsed focused laser beam 4−51658
  - permalloy, laser apparatus for data recording 4−59461
  - scanning laser beam for random switching of bubble domain memory 4−47389
  - thermomagnetic writing with laser beams stable domain radii calculation 4−53400
  - $MgFe_{2-x}Al_xO_4$ spinel ferrites for magnetic bubble domain memory 4−57308
  - MnBi, coercive force temp. depend., rel. to laser beam addressing 4−57337
  - MnBi, Curie point writing, thermal cycle effects 4−67408
  - MnBi, film use in holographic memory stores 4−68709
  - MnBi, thermomagnetic writing using electron beam 4−65469
- **magnetic films** *see magnetic thin films*
- **magnetic flux**
  - *see also fluxmeters*
  - autistic magnets, flux quantisation 4−70089
  - meas. of small signals, with resonance-ballistic instrument, accuracy improvement 4−51118
  - MHD induction devices, param. eval. *(Greek)* 4−66777
  - quantisation, ramifications, absence of magnetic monopoles 4−74577
  - quantised, relativistic string of dual resonance model as quantised line 4−51721
  - superconducting alloys, mag. field distribution, with small magnetisation 4−79433
  - superconductor, noise voltage, assoc. with flux motion, potential lead arrangement effects 4−72911
  - superconductor type II, thermal destruction of magnetisation, resulting e.m.f. depend. on field profile 4−45035
  - surperconducting constriction, type I, mag. flux struct. at high current densities 4−76010
  - type II superconducting material, anisotropic, flux line lattice 4−64145
  - ultra high pulsed fields, for solid state research 4−74098
  - Al, flux quantisation above supercond. transition temp. *(Russian)* 4−72887
  - Nb, Nb-Zr type II superconductors, flux kinetics and heat flow during flux jumps 4−45043
  - Nb:Y(Gd), fluxoid pinning by d.c. magnetisation meas. 4−82528
  - NbTi50 filament superconductors, precipitates and flux-pinning, expts. *(German)* 4−67310
  - Pb, supercond. film, mag. flux struct. at high current densities 4−76010
  - Pb-In alloys, supercond., microphotographs of flux distrib. *(Russian)* 4−70097
- **magnetic hardness** *see ferromagnetic properties of substances*
- **magnetic heads**
  - local magnetic field scattering factors, T and SEM shadow electron optic meas. *(Russian)* 4−71251
- **magnetic hysteresis**
  - Alcomax III with dynamic excitation, calcs. 4−70179
  - cation deficient magnetite, superparamagnetic and single domain threshold sizes, comments 4−76630
  - dynamic loops, mathematical model *(Russian)* 4−82581
  - ferrimagnetic powder, ratio of rotational to hysteresis loss 4−79553
  - ferrite ring core, rectangular loop, static model *(Russian)* 4−57310
  - ferromagnetic film, rel. to ion plating deposition method 4−45420
  - ferromagnetic reversal magnetisation dynamics, cores with square hysteresis loop *(Russian)* 4−76120
  - ferromagnetic single domain particles, computing method for random arrays after mag. reversal 4−57324
  - film, oxidised, particle interactions, thermal fluctuation aftereffect model of exchange anisotropy 4−79558
  - glass ceramics containing ferrite phase, suitability as memory material 4−49194
  - silicon iron, mag. props. stabilising domain struct., closing surface *(Russian)* 4−67391
  - single domain particles, noninteracting assembly, magnetisation meas. *(Russian)* 4−60988
  - soft materials, limiting loop, calc. *(Russian)* 4−49191
  - superconductor, type II/1, intrinsic hysteresis, flux line mutual interaction 4−72893
  - syperconductor, de Jong-Blaisse model, Meissner effect 4−70092
  - uniaxial crystals with twinned orientations, mag. reversals *(Russian)* 4−60975
  - uniaxial transparent ferromagnetics, hysteresis loop recording by Faraday effect 4−54996
  - Fe, oriented transformer sheets, ferromagnetism for electronic engineers *(German)* 4−67404
  - Fe, permanent magnet prod. and effect of technological factors on mag. props. 4−70537
  - Fe-Si, static hysteresis loss rel. to total power loss, domain pattern meas. 4−72992

magnetic hysteresis continued
  $FeCl_2$, Faraday rot., metamagnetic phase transition, hysteresis effect 4−64360
  Li ferrite, characterisation for microwave applications 4−45133
  Li ferrite, ion ordering influence on pulse props. 4−67395
  Li ferrite with rect. hysteresis loop, Co addition, dynamic unidirectional anisotropy 4−57304
  $LiFe_5O_8$, processing and properties, effects of sintering, temp., and stoichiometry 4−70549
  MnBi thin films, mag. domain config. and coercivity 4−76127
  Nb:Y(Gd), fluxoid pinning by d.c. magnetisation meas., rel to magnetic hysteresis 4−82528
  Ni-Fe-Nb system, Hardperm high permeability alloys 4−67399
  NiCoCuM ferrite, piezomagnetic, static magnetic props. 4−64252
  NiZn ferrite, Co substituted, temp. depend. of mag. props. 4−73001
  RCo_5, phase stability,influence on permanent magnetic properties 4−70474
  $Sm_2(Co, Fe)_{17}$, permanent magnet characts. 4−60980
  $SmCo_5$, permanent mag. props., annealing temp. depend. 4−57318
  $SmCo_5$, temp. depend. peculiarities of mag. props., 77-300K 4−67403
  $Y_3Fe_{5-x}Ga_xO_{12}$, hysteresis loop area, losses during alternating magnetisation *(Russian)* 4−72991

magnetic impurity interactions
  alloy with transitional impurities in noble metal or transition metal 4−64200
  antiferromagnet, easy-axis type, quadrupole impurity centre props. 4−79507
  antiferromagnet, itinerant electron, impurity effect on transition temp. 4−60957
  ferromagnet, magnon sideband shapes, impurity effects, one-dimens. calcs. 4−72979
  ferromagnetic alloy, concentrated, hyperfine fields systematics at sites of nonmag. ions 4−67361
  ferromagnetic binary alloy, generalized CPA approach to the disordered Heisenberg ferromagnet 4−67330
  ferromagnetic metal, impurity corrections to magnon damping 4−57300
  ferromagnetic semiconductor, heavily doped, screening, uniform state instability and charge carrier scattering 4−79340
  Gd:transition metal, d-electron mag. coupling, hyperfine fields 4−72962
  Heisenberg ferro- and ferrimagnets, antiferromag. impurity levels and effects *(Russian)* 4−67340
  Heusler alloys, Mossbauer spectra, Sb and Sn hyperfine fields 4−64288
  insulator, excitation transfer between localised mag. impurities 4−64041
  Ising model, crit. behaviour, random defects 4−49141
  junction barrier, tunnel, paramag. impurities effect 4−60876
  local levels in anisotropic ferromagnet with impurities 4−70150
  metal, nuclear resonance line shapes due to mag. impurities 4−76172
  metal, paramag. effect on T_1, RKKY interaction 4−45202
  m.i.m. junction, tunnelling through a barrier containing interacting paramagnetic impurities 4−67287
  Mumetal alloy, Ni-Fe-Cu-Cr, mag. props., Mn content and baking temp. effects 4−72961
  two dimensional random alloy, interaction potential, thermodynamic props. 4−70142
  $Al-Al_2O_3-Sn$ tunnel system with metallic impurities, mag. scatt. obs. *(Russian)* 4−70119
  Al-I-Ag junction barrier, tunnel, Ti paramag. impurities effect 4−60876
  Au-Fe alloy, dil., press. effects on impurity-impurity interactions, resist. obs., 1.2-30K, 0-60 kbar 4−53214
  $CdIn_2S_4:Cr^{3+}$, effect on thermal cond. 4−56922
  $Cr_2O_3:{}^{121}Sb^{5+}$, Mossbauer effect, electron spin decoupling *(French)* 4−73058
  Cu-Al:Co liquid alloy, impurity susceptibility 4−45094
  Cu-Co, dilute alloy, n.m.r. meas., diamag. deviation of Knight shift due to mag. impurities 4−82625
  Cu-Fe, dilute alloy, n.m.r. meas., diamag. deviation of Knight shift due to mag. impurities 4−82625
  Cu-Mn, dilute alloy, n.m.r. meas., diamag. deviation of Knight shift due to mag. impurities 4−82625
  CuMn-Pt, dilute alloy, e.s.r. linewidth, anisotropy due to heavy impurities 4−45173
  $Eu_xCa_{1-x}(NH_3)_6$, Mossbauer effect, conduction electron interactions at Eu^{2+} site 4−53351
  $Eu_{1-x}Gd_xO$, conc. depend. of Curie temp. determ., mag. impurity states 4−79508
  Fe, dilute ^{207}Pb impurity, anomalous temp. behaviour of local mag. field, 87-983K 4−49166
  Fe diluted with 3d transition elements, ferromag., antiferromag. exchange interactions 4−76067
  $Fe:{}^{193}Ir$, Mossbauer spectra, quadrupole coupling 4−49274
  Fe-Co(Ni)(Rh)(Pd), dilute alloys, moment distribs. and hyperfine fields at solute atoms 4−53224
  Fe-zNi alloy, oxygen content influence on mag. props. 4−72960
  GaAs:Fe, susceptibility, temp. depend. 4−49156
  $KMgF_3:V^{2+}$, excitation transfer between localised mag. impurities 4−64041
  $La_3Al(Ce)$, Kondo superconductor, mag. impurity effects on supercond. props. 4−76009
  Mg ferrites, effect of non-magnetic ions on Curie temp. 4−53229
  α-Mn alloys, antiferromag., impurity sites and mag. moments, n.m.r. obs. 4−64269
  β-Mn alloys, antiferromag., mag. moments and ordering, n.m.r. obs. 4−67464
  Ni:Hf, Curie temp., conc. depend. mechanism 4−57274
  Ni-Fe, ferrite, disaccommodation, obs. of decrease of relax. with addition of Ti 4−53225
  Ni-transition metal alloys, effect on sp. ht., conc. depend. 4−45114
  NiZn ferrites:Co^{3+}, mag. relax. process investigation 4−67360
  PbTe, mag. susceptibility, effect of Bi, Sb, Ag and Fe impurities, 80-400K *(Russian)* 4−82550
  Pd-Co:Sn, Mossbauer effect, field meas., low temp. 4−79509
  Pd-Fe, exchange field distrib. effects 4−45143
  Pd-Fe alloy, dil., sp.ht. and magnetization, effect of strong spin correl. 4−64201

magnetic impurity interactions continued
  $(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, low field susceptibility, temp. depend. in region of ordering temp. 4−64190
  $Pd_{90}Pt_{10}$, paramagnon effects associated with Ni impurities 4−64183
  $SmB_6:Eu^{2+}$, Gd^{3+}, e.s.r., negative g-shift, exchange interactions 4−53302
  SnTe:Mn, e.p.r. linewidth, dependence on Mn conc. 4−73017
  $Y_{3-x}Ca_xFe_{5-x}Sn_xO_{12}$, Mossbauer spectra obs. of magnetically nonequivalent cation positions 4−53226
  YIG, CO^{2+} ion magnetoelastic coupling, f.m.r. obs. 4−73006
  YIG, n.m.r. of ^{55}Mn, site distrib. of Mn ions *(French)* 4−64268
  YIG, u.h.f. spin echo spectrometer for impurity studies 4−68755
  $YVO_4:Er^{3+}$, e.p.r. study *(German)* 4−79584
  ZnMn, dilute alloy, excess sp.ht. due to mag. interactions 4−64215

magnetic leakage
  Fe-Si, total power loss, domain wall spacing meas. 4−72992
  $Fe(CO)_5$-epoxy resin, s.h.f. absorbers *(Russian)* 4−53364
  YGdAlFe garnet, Fe content depend. 4−67407

magnetic lenses
  atomic beam polarising mirrors 4−51137
  description in terms of classical mechanics−geometrical optics synthesis 4−74200
  e.m., of complex config., design 4−47407
  field shaping calcs. for RPI magnetic analyser 4−55104
  IC fabrication by scanning electron beam method, post-lens deflection system 4−51660
  isotope e.m. separators, imaging, fringing field effects 4−43381
  quadrupole, energy dispersion 4−59462
  quadrupole, pulsed, without salient poles 4−74541
  space focusing lenses for mol. beams, aperture limits 4−69105
  superconducting, for electron beam focusing *(Russian)* 4−69104
  toroidal deflection yokes with eddy current compensation 4−62877

magnetic lines of force *see magnetic flux*

magnetic losses *see magnetic leakage*

magnetic materials
  see also ferrites; ferromagnetic metals; garnets; permalloy; permanent magnets
  amorphous, exact inequalities, thermodynamic props. 4−79477
  conference, Boston, USA (Nov., 1973) 4−57227
  development and applic. *(German)* 4−45067
  eddy current losses, finite element analysis 4−47270
  exchange interaction operator 4−76070
  inhomogeneous, Poissons and Laplace's eqns. 4−55423
  magnetics conference, Toronto, Canada, (May 1974) 4−70122
  magnetoelectric, possible appl., review 4−76028
  magnetoelectric classification, review 4−82540
  magnetoelectric new materials, recent advances at Weizmann Institute of Science 4−82539
  nonmetallic catalyst for p- to o-H_2 conversion, theory and expt. 4−57882
  Permalloy type alloys, powder metallurgical prod. method and mag. characteriz. 4−80060
  soft, conference, Torino Italy (1973) 4−72929
  soft magnetic alloys, recent developments in Japan 4−72930

magnetic mirrors
  2XIIB project review, with novel pulsed magnet 4−56532
  afterglow plasma, in mag. mirror field, electron distrib. function anisotropy 4−72388
  charged particle motion in presence of cyclotron oscillations 4−44246
  containment magnet and associated equipment, electrical aspects 4−59879
  containment magnet flat-topping power supply 4−59878
  fusion reactor direct conversion systems, space charge limitations 4−43686
  h.f.-magnetostatic mirror, ECR zone, quasi-elastic refl. of plasma beam 4−44371
  high-β plasma confinement, $2\times$II mirror device 4−52604
  instability of collision plasma in mirror trap *(Russian)* 4−82028
  magnetic wall, plasma loss 4−75293
  microwave diagnostics of plasma produced by electron beam in mag. trap 4−75307
  minimum-B device, 2XII, 200 kW neutral beam injection 4−44370
  minimum-B system, hot electron plasma accumulation 4−44368
  mirror-confined nonneutral E layers, equilib. and stability, Vlasov-Maxwell eqns. 4−44320
  mirror-contained plasma, microinstabilities 4−52601
  mirror-machine blanket, thermal energy conversion system 4−63300
  multipole-mirror, interchange destabilisation by incomplete line tying 4−66718
  multipole-mirror trap, nonstationary expts. 4−44385
  OGRA-3 device, one-electrode feedback system, confinement considerations 4−44367
  plasma confinement, adiabatic traps, effect of monochromatic cyclotron oscillations 4−52600
  plasma diagnostics, current and mag. field meas. 4−66772
  PR-6 mirror trap, collisional plasma instability stabilization 4−44366
  pulse coil design, 2XII-B 4−56536
  quasi steady-state high density mirror plasma, prod. as target for neutral beam injection 4−44282
  relativistic electron beam, fully ionised, plasma interaction, mirror field depend. 4−48436
  shallow-well mirror device design, for electron cyclotron heated plasma 4−63699
  superconducting magnetic mirror facility 4−59876
  theta-pinch machine, Scyllac, linear, 250-kG mirror coil development 4−56535
  volume flute modes stabilization by electrode feedback system 4−44247
  Yin Yang mirror reactor blanket performance rel. to geometry and heterogeneous effects 4−63301
  Li plasma, mag. mirror compression, electron cyclotron heating 4−82024

magnetic moments
  see also atomic magnetic moment; hyperon magnetic moment; local moments in dilute systems; meson magnetic moment; molecular moments; nuclear magnetic moment; proton magnetic moment
  anomalous, in gauge theories, dispersion relation approach 4−47493

magnetic moments continued
  anomalous, of electron and muon, sixth order contrib. from second order vacuum polarisation insertion 4-55575
  classical spin behaviour in fluctuating magnetic fields 4-47224
  electron, sixth order radiative corrections calc. 4-69134
  electron nonneutral plasma, variation 4-81976
  electron sixth order, calc. in hyperspherical approach to QED 4-47445
  ferro-ferrite lamellar film, rotation *(Russian)* 4-61004
  ferromagnet, long-range dipolar effects, acoustic mode depend. 4-53273
  ferromagnetic, parallel spin wave pumping, Raman scattering by mag. moment oscill. *(Russian)* 4-82705
  ferromagnetic single-domain particles, motion in periodic field *(Russian)* 4-82590
  ferromagnets, harmonic spectrum, dipole-dipole interaction analysis 4-79472
  garnet bubble film uniaxial anisotropy and mag. moment rel. to rotation rate 4-49201
  Invar with Mn admixture, Mossbauer effect and mag. struct *(Russian)* 4-76204
  Ising ferrimagnetic model 4-45078
  layered isotropic magnets at low temperatures 4-53188
  manganese (II) phthalocyanine, canted ferromagnetism investigation 4-60982
  multipole, new expressions 4-47140
  rare earth metal, photoemission spectra thermodynamic treatment, electrons from localized magnetic moments 4-64474
  rubredoxins, oxidised, active site complex, zero zero field splittings, mag. moments and e.s.r. spectra 4-58482
  sixth order magnetic moment calc. by dispersive technique 4-69136
  sixth order magnetic moment calc. method 4-65994
  transient dipole radiation, absorbing uniaxial crystal, analysis 4-68992
  transition metal alloys, lattice const. and mag. moment, correlation 4-70145
  transition metal ions, octahedral and tetrahedral d^5 config., paramag. props. 4-57253
  two-component induced-moment crystal in mean-field model, singlet-singlet system 4-45073
  vector meson field, interaction with e.m. field via anomalous magnetic moment coupling, consistency 4-47437
  W-boson, in unified gauge theory without heavy leptons 4-71648
  e, anomalies, sixth order contribution from Feynman diagrams 4-43410
  e, g-factor, sixth order, mass-operator approach, vertex diagrams 4-71665
  e g-factor, sixth order, mass-operator approach 4-71664
  μ, anomalies, sixth order contribution from Feynman diagrams 4-43410
  μ, anomalous moment, eighth order corrections 4-71667
  μ, weak corrections calc. using causal mass operator approach in unified gauge theories 4-71647
  μ magnetic moment and photon propagator, strong interaction corrections *(Russian)* 4-69159
  n anomalous moment determ. from sideways dispersion reln. with Regge behaviour 4-74599
  As_2S_3, glassy state, purity depend., mag. susceptibility meas. 4-57254
  $Au_{0.6}$-$Pd_{0.4}$:Fe(Co), detection of palladium clusters *(Russian)* 4-73313
  $BaFeO_3$, mag. props. and Mossbauer effect 4-49174
  $CaWO_4$:Nd^{3+}, mag. susceptibility and Schottky sp. ht., cryst. field calc., 10-400K 4-76032
  $CdCr_2S_4(Se_4)$, mol. mag. moment as function of applied field 4-60970
  CeS, mag. ordering, neutron diffr. obs. 4-57287
  Co-12-20 at.% P amorphous alloys, variation per Co atom with P content 4-45152
  Co-Fe-Ru in f.c.c. and h.c.p. phases, magnetisation, Mossbauer and cryst. struct. meas. 4-82588
  Co-Ni ferromagnetic alloys, multiband coherent-potential approx. with orbital degeneracy 4-49148
  $CoFe_{2(1-c)}Cr_{2c}O_4$, spinel struct., comp. depend. *(Russian)* 4-67356
  CoFeGe(Sb) alloys, $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4-73057
  Co_cGa, (c=0.85-1.46), Co clusters and giant moments 4-45098
  $Co_{1-x}V_x$, depend. on comp., obs. of phase transformations of lattice 4-48540
  $CrAs_{1-x}Sb_x$, helimagnetism investigation, neutron diffraction meas. 4-64221
  $(Cr_{1-x}Ni_x)_2As$ solid solns., comp. depend. *(French)* 4-48563
  Cu-Ni, ferromag. and superparamag. alloys, moment assignments from saturation magnetisation data 4-76058
  Cu-Ni alloys above Curie point, field dependence 4-53212
  $CuCl_4{}^{2-}$ ion, flattening of tetrahedra estimated by mean mag. moment meas. *(French)* 4-56652
  CuF_2, mag. and cryst. struct. 4-82569
  Dy_3Si_5, paramagnetic, temp. depend., 6 to 630K 4-60943
  Er, anisotropic exchange interaction, conical magnetic phase 4-64197
  $ErAl_3$, cubic, saturation moment, rel. to antiferromag. transition and mag. struct. 4-49181
  $EuVO_3$, mag. susceptibility meas., paramag. to antiferromag. transition 4-57264
  Fe-Co(Ni)(Rh)(Pd), dilute alloys, moment distribs. and hyperfine fields at solute atoms 4-53224
  Fe-Ni, local mag. moments and effective magnetomechanical ratio 4-53275
  Fe_3BO_6, pure and doped, spin configs. and reorientation anal. 4-76094
  Fe_3C, change of mag. moment at Curie transition 4-49172
  Fe(II) complex, dithiocyanatobis(4,7-dimethyl-1,10-phenanthroline)iron(II), cooperative high-spin to a low-spin transition 4-70238
  $(Fe_{1-x}Me_x)_3C$, Me=Cr, Ni, Mossbauer absorption spectra and magnetisation meas. 4-79544
  FeMnGe alloys, $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4-73057
  Fe_3Pt, ordered alloy, mag. form factor, local moments 4-72978

magnetic moments continued
  $Fe_{1-x}Ti_{1+x}$ near stoichiometric composition, superparamagnetism obs. 4-76119
  $GdCrO_3$, below 100K, and sp. ht. below 10K 4-76079
  $Gd_3Ga_5O_{12}$, magnetothermodynamics, obs. along [111] axis 4-79512
  Gd_3Si_5, paramagnetic, temp. depend., 6 to 630K 4-60943
  Ge-Co(Fe)(Ni) alloys, liq., conc.-temp. depend., 900-1700°C *(Russian)* 4-45091
  $HgCr_2S_4(Se_4)$, mol. mag. moment as function of applied field 4-60970
  $LaSi_{1.6}Ni_{0.4}$, $LaSi_{1.6}Fe_{0.4}$, paramagnetic, temp. depend., 6-630K 4-60943
  Li_6CoO_4, prep. and characteriz. *(French)* 4-48569
  $LiNiO_2$, ferromag. moment, 4.2K *(French)* 4-82552
  LiTiZn ferrite, mol. field coeffs. of Ti^{4+}, Zn^{2+} 4-82557
  α-Mn, evidence for localised mag. moment from multiplet splitting 4-76055
  $MnFe_{2-x}Cr_xO_4$ spinel-ferrites, mag. compensation pts. detection *(Russian)* 4-82566
  Mn_3Pt, disorder of magnetic moments, high temp. phase 4-72967
  $NdCrTiO_5$, magnetoelectric cpd. with 2 sets of mag. sublattices, mag. props. 4-67378
  $Nd_3Ga_3O_{12}$:Nd^{3+} mag. moment anisotropy 4-64230
  NdS(Se)(Te), mag. ordering, neutron diffr. obs. 4-57287
  $NdSi_{1.6}Ni_{0.4}$, $NdSi_{1.6}Fe_{0.4}$, paramagnetic, temp. depend., 6 to 630K 4-60943
  $NdVO_3$, mag. susceptibility meas., paramag. to antiferromag. transition 4-57264
  $NdY_2Fe_5O_{12}$, garnet, saturation moment at 0K 4-70147
  Ni-Rh, critical magnetic behaviour of giant moments 4-67370
  $NiCr_xFe_{2-x}O_4$, effect of chem. uniformity on mag. props. 4-49168
  $Ni_{1-x}Fe_x$, mag. form factors, asphericity 4-76065
  Ni_3Mn, changes during ordering 4-64203
  Ni_3Mn, mag. order, annealing techniques 4-82559
  Ni_2MnGa, Heusler alloy, Curie point, magnetisation and saturation magnetic moment 4-79510
  NpP, paramag. and ordered phase mag. props., strong cryst. fields, n.m.r. meas. 4-49163
  $PbMoO_4$:Nd^{3+}, mag. susceptibility and Schottky sp. ht. cryst. field calc., 10-400K 4-76032
  $(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, alloys, Mossbauer effect obs. of ferromag. phase transitions 4-64216
  $PrY_2Fe_5O_{12}$, garnet, saturation moment at 0K 4-70147
  Sm^{3+} moment reduction in ordered Sm intermetallics 4-45101
  $SmFe_{1-x}Al_xO_3$, mag. anomaly, compensation pt., induced moments 4-79502
  Sn, magnetostriction, quantum oscills. under mag. interaction conditions at 0.37K *(Russian)* 4-73009
  $TbIn_3$ polycryst. sample antiferromag., neutron diffr. study 4-76090
  TbSe, mag. ordering, neutron diffr. obs. 4-57287
  Tb_3Si_5, paramagnetic, temp. depend., 6 to 630K 4-60943
  $TmCrO_3$, meas. of weak ferromag. moments, antiferromag. exchange and cryst. field splittings 4-76105
  $TmFeO_3$, Faraday effect, various directions of weak ferromagnetic moment *(Russian)* 4-82690
  $TmVO_4$, with cooperative Jahn Teller effect mag. props. 4-79500
  UAsS, neutron diffraction, magnetic moments and Curie points calc. 4-79526
  $UC_{1-x}N_x$, solid solutions, magnetic properties 4-70165
  $UCrO_4$, magnetoelectric cpd. with 2 sets of mag. sunlattices, mag. props. 4-67378
  UCu_5, of U, alignment, neutron diffr. 4-57293
  UPSe, neutron diffraction, magnetic moments and Curie points calc. 4-79526
  YAG:Nd^{3+}, mag. moment anisotropy 4-64230
  $YbCrO_3$, of Yb^{3+}, Mossbauer spectrum anal. 4-64292

magnetic monopoles
  absence, basis of topological symmetry of Maxwell's equations 4-74577
  Dirac min. e.m. mass in Schwinger hadron model *(Russian)* 4-81449
  educational popular article on search experiment 4-54805
  evidence for existence, e.m. field reduction to Lorentz representation 4-59666
  experimental search with 300 GeV protons on steel beam dump 4-63178
  quantisation condition for classical problem of charge and pole 4-55308
  search in cosmic ray nuclear interactions, review *(Russian)* 4-65023
  as shadow states in generalized quantum theory 4-43136
  solar minimum, magnetic fine structure and monopolar behaviour 4-65081
  tachyons, relationship with magnetic monopoles 4-59262
  unified gauge theory 4-74557
  vortex-line models for dual strings and magnetic monopoles 4-65977
  NN phase shift analysis, existence of van der Waals forces and hence magnetic monopoles 4-77896

magnetic permeability
  diamagnetics, permeability props. in a.c. field *(Russian)* 4-57252
  e.m. waves, anisotropic media, tensor impedance *(Russian)* 4-65874
  ferrite, anisotropy in mag. field, invariant theory 4-64229
  ferrite, partially magnetised, low power loss parameters and high power thresholds meas. at 3 to 16.8 GHz 4-45132
  ferrite, partially magnetised, microwave characterisation 4-45131
  ferrite, partially magnetised, microwave characterisation 4-64244
  ferrite, prep. by coprecipitation method, precip. temp. effects 4-64623
  ferrites substituted with Sn or Ti 4-64240
  Mumetal alloy, Ni-Fe-Cu-Cr, mag. props., Mn content and baking temp. effects 4-72961
  silicon iron, mag. props. stabilising domain struct., closing surface *(Russian)* 4-67391
  steel, Fe-Si, new high permeability, core loss and magnetostriction improvements, transformer appl. 4-72995
  steel, stainless, Type 316L, in-pile irrad., ferromag. phase form. mechanism *(French)* 4-59849

magnetic permeability continued
Fe-Si(3%), grain oriented, domain struct. rel. to mag., metallurgical props., review 4−79538
$Fe(CO)_5$-epoxy resin, s.h.f. absorbers *(Russian)* 4−53364
Fe_3O_{4+x}, magnetite, thermal spectrum of disaccommodation after low temp. neutron irrad. *(French)* 4−79537
$Li_{0.5}Fe_{2.5}O_4$:Ru, photomagnetic effects obs. 4−60985
MnZn ferrite, In_2O_3 additions effect 4−49912
Ni-Fe-Nb system, Hardperm high permeability alloys 4−67399
Ni-Zn ferrite 400 NN, differential magneto-elastic effects *(Russian)* 4−82593
NiZn ferrites:Co^{3+}, mag. relax. process investigation 4−67360
YIG:Si^{4+}, photoinduced changes in mag. props. obs. 4−76122

magnetic permeability measurement
ferrite, partially magnetised, at 5.5 to 12 GHz 4−45131
ferrite, partially magnetised, low power loss parameters and high power thresholds meas. at 3 to 16.8 GHz 4−45132
ferrite, partially magnetised, microwave characterisation 4−64244
ferrite complex permeability and permittivity meas. at high temp., 0.1 to 10 GHz time-domain system 4−65498
field modulation technique, synchronous detection, time depend. fields 4−58871
solid/gas interaction investig. method *(German)* 4−77128

magnetic pinch *see pinch effect*

magnetic properties of dilute alloys *see magnetic properties of dilute systems*

magnetic properties of dilute systems
see also local moments in dilute systems; magnetic impurity interactions
alloy, magnetoresist., calc. using field-depend. infinite-U Anderson model 4−53083
alloys, absence of finite cond. electron polarisation 4−79485
alloys, effect of t-matrix pole on mag. susceptibility 4−60757
alloys, magnetic, low tem. behaviour of spin susceptibility 4−57263
alloys, magnetisation, sp. ht. 4−70153
dynamic susceptibility, Anderson Hamiltonian model 4−45176
ferromagnet, response function, method of moments 4−45106
Heisenberg ferromagnet, spin waves, coherent pot. approx. 4−45123
noble metal:transition metal alloy, magnetic properties, review *(French)* 4−53213
Al:Er, dil., exchange and cryst. field parameters from transmission e.s.r. 4−79603
Co-Sn, dil. alloy, hyperfine field interaction 4−57250
Cr-Co nonferromag. dil. alloys, Invar and Elinvar characts. *(Japanese)* 4−61012
Cu, oxidized impurities, mag. obs. using SQUID system 4−61383
Cu-3d transition metal dilute alloy, electron spin density determ. near impurity atoms 4−64275
Cu-Al(Fe), susceptibility meas., paired impurity effect 4−45102
Fe-Sn, dil. alloy, hyperfine field interaction 4−57250
Mo-Mn(Fe)(Co) alloy, s-d exchange interaction, resist. obs. 4−45093
Ni-Sn, dil. alloy, hyperfine field interaction 4−57250
Pd-Dy(Gd) alloy, low temp. sp.ht. 4−64202
Pd-Fe, mag. ordering *(Russian)* 4−70168
Rh-Fe, low temp. resistivity, 40 ppm to 2.2 at.% Fe 4−72744
Sc-Gd alloy, low temp. sp.ht. 4−64202
Y:Dy(Er), h.c.p. single crystals, cryst. field mag. anisotropy 4−57260
Zn alloys, dHvA effect, mag. breakdown rel. to Dingle temp. 4−67152

magnetic properties of fine particles
ferrimagnetic powder, ratio of rotational to hysteresis loss 4−79553
ferrofluids, applications 4−70587
ferroliquid, prep. and saturation magnetis. 4−82990
ferromagnetic, single domain particles, hysteresis props. 4−57324
ferromagnetic colloid, weak itinerant model, proximity effect 4−64181
ferromagnetic colloidal suspension, effect of rotating mag. field 4−76555
ferromagnetic domain struct., nearly single domain size 4−79554
ferromagnetic particle suspension, mag. viscosity tensor *(Russian)* 4−79555
ferromagnetic single-domain particle, dispersion theory of mag. susceptibility *(Russian)* 4−82590
single domain particles, noninteracting assembly, magnetisation meas. *(Russian)* 4−60988
sol, surface forces of particle interaction determ. using rot. mag. field 4−64645
β-Co, superparamag., precip. in Cu-Co(1 wt.%) alloy, relax. time, Mossbauer obs. 4−76195
Dy_2O_3, powder, high-field magnetisation meas., 1.45 to 4.2K 4−76123
Fe, spheres, 4.2-300K, magnetisation, coercive force, anisotropy 4−60989
Fe-Ni alloy, antiferromagnetism, Mossbauer obs. 4−70184
Fe_3O_4, magnetite, small particle size effects on kinetic and mag. props. *(Russian)* 4−79556
Ni particles in amorphous SiO_2, Al_2O_3, granular films, superparamagnetism and relax. effects 4−64246
Sr ferrite powder, depend. of coercive force on packing density 4−45153
$YFeO_3$, domain struct. and mag. props. below single-domain crit. size *(Russian)* 4−73003

magnetic properties of substances
see also antiferromagnetic properties of substances; demagnetisation; diamagnetic properties of substances; ferrimagnetic properties of substances; ferromagnetic properties of substances; magnetic aftereffect; magnetic hysteresis; magnetic permeability; magnetic properties of dilute systems; magnetic properties of fine particles; magnetic structure; magnetic susceptibility; magnetic transitions of substances; magnetisation; paramagnetic properties of substances
amorphous and liquid semiconductors, conf., Garmisch-Partenkirchen, Germany (Sep. 1973) 4−72665
condensons, magnetic, in high mag. fields, in homopolar crystals and He gas 4−48942
crystals, randomly disordered, derivation from thermodynamic Green's functions 4−79109
Jahn-Teller ions, superexchange theory 4−79506

magnetic properties of substances continued
liquid crystal, domain struct. and props. 4−82113
rare earth compounds, LnX_3,(Ln=Ce,Pr,Nd,Sm,Eu,Gd,Yb; X=In,Tl,Sn,Pb), review 4−70143
rare earth-transition metal amorphous alloys, struct. role 4−63762
Fe complex, octamethyltetrabenzporphyriniron(II), magnetic moment, spin electronic groundstate, Mossbauer effect 4−49267
^{3}He, dynamic parallel mag. investig. 4−60670
^{3}He, superfluid B-phase, magnetic anisotropy effect on line shapes 4−72611
NpPt, 4-170K 4−64196
PuPt, 4-170K 4−64196
U compounds, UX_3, UXY, U_2N_2X, U_2N_2Y and U_3Y_5 with X=group V element, Y=group VI element 4−70143
VO_2, new allotropic form, hydrothermal synthesis and characterization *(French)* 4−75494
VOOH, charact. and synthesis in hydrothermal conditions *(French)* 4−75494

magnetic read/write heads *see magnetic heads*

magnetic recording
see also tape recorders
atmospheric radio noise simulation, l.f. to h.f. 4−70757
digital TV recording, current developments, review 4−55532
stimulation-recording technique, for evaluating binaural sound processing in porpoises 4−65559
Mn-Bi, thermomagnetic recording, repeated cycling, appls. *(French)* 4−54952

magnetic relaxation
see also ferromagnetic relaxation; magnetic resonance; spin-lattice relaxation; spin-spin relaxation
anisotropy, relax. contribution to kinetics of formation 4−70175
Bloch equations, derivation using theory of multiplicative stochastic processes 4−49239
cross-relaxation theory, choice of non-equilibrium statistical operator parameters 4−67418
dust grain alignment by magnetic relaxation, comparison of Monte Carlo and Fokker-Planck methods 4−46317
Heisenberg magnets, ferromag. and antiferromag. coupling, dynamics props. 4−57234
heterogeneous multizone system, nuclear spin relaxation *(German)* 4−70228
methanol, deuterated, adsorpt. on silica gel pulse deuteron mag. resonance, relax. times investig. 4−45198
molecular groups in solids, rot. polarisation, mag. relax. 4−75466
permalloy, thin films, dynamic domain struct. rot. of magnetisation vectors *(Russian)* 4−67390
solid paramag. relax. of impurity centres 4−76154
Tutton salt:Mn^{2+}, single cryst., e.p.r. 4−70206
viscous liquids, secular interactions, e.p.r. lineshapes 4−67428
$CaWO_4:Tb^{3+}$, magnetically induced polarisation of fluorescence lines, cross relaxation *(French)* 4−64433
Dy_2O_3, Mossbauer study, relaxation, anisotropy, site depend. 4−70236
$DyPO_4$, Ising antiferromagnet, Mossbauer spectra, relax., anisotropy and site depend. 4−70236
$FeCl_3$, two-dimensional, intercalated in graphite, magnetic properties 4−64306
^{4}He metastable atoms, optically oriented, parametric relaxation resonance in magnetic field *(Russian)* 4−78344
^{115}In, liquid, temp. depend. of nuclear spin relax. rate 4−49257
NiZn ferrites:Co^{3+}, permeability meas. in kHz range above room temp. 4−67360
Si:P, resistance changes induced by e.s.r. and spin relax. 4−64093

magnetic resonance
see also acoustic magnetic resonance; antiferromagnetic resonance; cyclotron resonance; ENDOR; ferrimagnetic resonance; ferromagnetic resonance; magnetic double resonance; magnetic relaxation; nuclear magnetic resonance; paramagnetic resonance
amorphous and liquid semiconductors, conf., Garmisch-Partenkirchen, Germany (Sep. 1973) 4−72665
anthracene, TADMR, intersystem crossing rate 4−72215
atom, optically oriented, parametric relax. reson. in transverse mag. field *(Russian)* 4−69423
3,4-benzpyrene, TADMR, intersystem crossing rate 4−72215
Bloch-Siegert shift, theory 4−51963
p-dichlorobenzene, in p-dibromobenzene host cryst., MODR spectrum of $^3B_{1u}$ state, mag. transitions 4−61208
new electron resonances predicted for low temp. solid in crossed elec. and magnetic fields 4−49210
filtering, optimum for sensitivity enhancement 4−68754
line shape calc., stochastic Liouville eqn., addition of damping term 4−67417
radiative shift in rotatory resonance *(French)* 4−56016
semimetal, e.m. excitation of ultrasound and resonant transparency *(Russian)* 4−67167
spin cluster resonance, temp. depend. and impurity effects, exchange interaction calc. 4−61037
two-spin oscillator with optical orientation of electrons and nuclei 4−74102
tyrosine, triplet state dynamics, mag. reson.-saturated phosphoresc. and intersystem crossing 4−66461
Ba, D states, hyperfine struct., atomic beam mag. resonance 4−56015
$CsCoCl_3.2H_2O$, spin cluster resonance, temp. depend. and impurity effects, exchange interaction calc. 4−61037
Dy I, atomic beam mag. resonance, hyperfine structure, nuclear ground state mag. dipole moments 4−81706
DyFe garnet, far i.r. spectrum, line assignment 4−76248
Gd-Y (6-64 at.% Gd), magnetisation and microwave reson., mag. struct. 4−45099
HO_2, detection by laser mag. resonance 4−56282
^{4}He metastable atoms, optically oriented, parametric relaxation resonance in magnetic field *(Russian)* 4−78344
^{199}Hg (6 $^3P_0$) metastable atoms, optically pumped in vapour, mag. reson. obs. *(French)* 4−66306
KAr, mol. beam mag. resonance, K hyperfine shift 4−69524
$^{99,101}Ru$, hyperfine struct. meas. in ^5F ground states with atomic beam mag. reson. method 4−72019
Sn isotopes, nuclear spin, atomic beam mag. resonance 4−51751

- **magnetic resonance** continued
  - Xe, optically oriented, $^3P_2$ state collision depolarization 4−69431
- **magnetic resonance spectrometers**
  - cooling device for e.p.r. meas. at 35 GHZ down to 4.8K 4−65501
  - ENDOR, computer-controlled 4−58873
  - e.p.r., cavity spectrometers absolute limit of sensitivity *(French)* 4−62495
  - e.p.r., low temp. meas. using ^{3}He cold finger cryostat 4−65403
  - e.p.r., piston attachment for spectral studies at different temps. 4−77129
  - e.p.r. cylindrical resonator, Q-determ. for *(German)* 4−42843
  - e.p.r. pulsed spectrometer employing a bimodal cavity 4−58877
  - e.p.r. spectrometer for gaseous free radicals in 3 mm wavelength region 4−68752
  - e.p.r. spectrometer signal and paramag. specimen size optimisation 4−57350
  - e.s.r., 1 GHz, for aqueous samples 4−62493
  - e.s.r., digital data acquisition system 4−51126
  - e.s.r., sensitivity limits using autodyne and Q-maser techniques 4−42844
  - e.s.r. spectrometer, Hitachi, improved liquid-helium Dewar 4−54998
  - e.s.r. spectrometer cavities, arrangement for retuning 4−42845
  - e.s.r. system operating at 9 GHz in temp. range 4.2 K to 37 mK 4−62494
  - flow system for study of chemically induced dynamic nuclear polarisation 4−42846
  - high pressure cell for high resolution n.m.r. of liquid samples 4−58876
  - high resolution n.m.r., expt. techniques, Fourier transform n.m.r., relaxation times 4−68751
  - magnetic field stabilization circuits, 4-21 kG 4−42847
  - multinuclear c.w. or Fourier transform n.m.r. 4−65503
  - n.m.r., high power transmitter 4−42848
  - n.m.r., high resolution, pulsed field gradient cct. 4−51125
  - n.m.r. pulse type, for solids *(Polish)* 4−58874
  - n.q.r., superregenerative cct. 4−68750
  - photon tagging system *(Russian)* 4−46769
  - probe using delay line, fast recovery 4−58875
  - selective NMR relaxation studies, high resolution spectrometer *(French)* 4−74100
  - transmission oscillator ultrasonic spectrometer functioning marginally, construction details 4−54997
  - Varian e.s.r. spectrometer, increase of modulation amplitude by water cooling 4−68756
- **magnetic screening** *see magnetic shielding*
- **magnetic shielding**
  - bar magnet, effectiveness in bremsstrahlung detection system 4−42893
  - field distrib. in cond. slabs near current carrying cond., eddy currents 4−47269
  - by hard superconductor 4−79470
  - CO, n.m.r. spectroscopy, temp. depend., chem. shifts, isotope shifts 4−69519
- **magnetic storage devices**
  - bubble domain technology *(French)* 4−49195
  - wire spark chamber with memory based on ferrite rings 4−77194
  - wire spark chambers, filmless takeoff of information 4−74132
- **magnetic storms**
  - *see also micropulsations*
  - 1968, December 24, magnetic disturbance due to auroral electrons 4−54264
  - 1968 October 26-31, ionospheric effects, electron density 4−68227
  - 1969, February 2, substorm, energy spectra of relativistic electron precip. 4−83113
  - 1970 February 24, electric and magnetic field obs. by Injun 5 4−83133
  - 1972, August 1-10, LF/MF/HF radiowave propagation disturbances 4−76742
  - 1972, August 1-10 events, h.f. and v.h.f. sounding during storm 4−80381
  - 1972, August 3-9 magnetospheric storm, auroral zone neutral winds 4−64956
  - 1972, August 4-11, whistlers and v.l.f. emissions during geomagnetic storms 4−80380
  - 1972, August 4-5, magnetogram analysis 4−80270
  - 1972, August 4-9, geomagnetic rapid var. during severe magnetic storms 4−80271
  - 1972, November 1, ionisation rate in E-region, rocket obs. 4−83121
  - 1972 August 4, SC HF Doppler obs. 4−76741
  - airglow strong enhancement in low latitudes during magnetic storms 4−58069
  - anomalous DS-variation, equatorial latitudes during magnetic storms 4−64834
  - auroral absorption storms, HF propagation, field strengths 4−54253
  - auroral absorption substorm development, statistical analysis 4−46057
  - Auroral Zone disturbance, ionospheric obs. rel. to solar-terrestrial disturbance, August 1972 *(Japanese)* 4−70786
  - cause of geomagnetic storms 4−45986
  - corpuscular radiation in central latitudes in period of geomagnetic disturbances 4−46049
  - cosmic ray variations, geomag. cutoff for Forbush decreases, shock waves *(Russian)* 4−83155
  - dayside auroral activity rel. to substorm expansion 4−76735
  - DS-field during magnetic storms, spherical harmonic analysis 4−73495
  - Dst and solar wind merging electric field, theoretical relation 4−80265
  - E-region, midlatitude nighttime, geomagnetic disturbance effect 4−68242
  - evening energetic electron decreases during substorms 4−83134
  - F-region, total electron content during 1971, December 17 storm 4−64959
  - HF radiowave propagation, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−70789
  - ionosphere, solar-terrestrial disturbance, August 1972 *(Japanese)* 4−68238
- **magnetic storms** continued
  - ionospheric substorm associated disturbances, morphological study 4−70775
  - ionospheric total electron content response to magnetic storms, longitudinal effect 4−50342
  - LF/MF/HF radiowave propagation, effect of solar-terrestrial disturbance, August 1972 *(Japanese)* 4−70796
  - magnetospheric current flow during substorms 4−61857
  - magnetospheric field changes at sudden impulses and substorm onsets 4−54278
  - magnetospheric physics, history and recent progress 4−64973
  - magnetospheric solar protons during substorm activity, cutoff and pitch angles 4−61845
  - magnetospheric storm structure, interplanetary magnetic field and reconnection rate 4−68403
  - magnetospheric substorm, plasma processes and auroral breakup 4−50360
  - magnetospheric substorm characterization using variability of mid-latitude magnetic parameters 4−70801
  - magnetospheric substorm development rel. to excitation of Pi1 and Pc1 micropulsations 4−50253
  - magnetospheric substorm over Sanae, pulsation phenomena 4−80273
  - magnetospheric substorms, local time-universal time development 4−70800
  - neutral composition changes during ionospheric storm, Esro 4 gas analyzer results 4−64934
  - neutral sheet, current dissipation and plasma acceleration simulation 4−61853
  - nonadiabatic proton losses from radiation belt during magnetic storms 4−46083
  - north polar region, auroral substorm obs. from DAPP satellite 4−50314
  - partial ring current rel. to storm-time geomagnetic disturbance field 4−46089
  - planetary wave sources in auroral region 4−76731
  - plasma sheet at lunar distance during magnetospheric substorms 4−61854
  - plasmaspheric e.l.f. hiss intensity var. during magnetic storms 4−64969
  - Polar Cap disturbance, effect of solar proton event, August 1972 *(Japanese)* 4−70896
  - Polar Cap disturbance, ionospheric obs. rel. to solar-terrestrial disturbance, August 1972 *(Japanese)* 4−70786
  - radiation belt particle drift during substorm 4−54277
  - recurrent, rel. to solar-wind mag. field and plasma parameters 4−61712
  - ring current, radiation production and energy deposition 4−58108
  - S_q^p field enhancement as component of polar magnetic disturbance 4−76667
  - SC phase relation between freq. shift and geomagnetic variations in HF Doppler obs. 4−58082
  - solar flare magnetic storm generation, SSCs, probable mean transit time 4−80272
  - solar-terrestrial disturbance, August 1972, VLF emissions and whistlers *(Japanese)* 4−70787
  - spectral composition, H component structure 4−68108
  - SSC-triggered substorms, preceeding interplanetary and ground magnetic conditions 4−76668
  - substorm 3-dim. current system in ionosphere 4−68235
  - substorm injected plasma boundary, correlation with Kp 4−83132
  - substorm mechanism, self consistent stability 4−70799
  - substorm model, plasma sheet formed on closed field lines 4−70803
  - sudden impulsive and sudden commencement events in magnetosphere rel. to interplanetary magnetic field 4−73569
  - sudden-storm commencements, interplanetary shocks and solar activity, correlations 4−61711
  - topside ionosphere structure, solar terrestrial disturbances, August 1972 *(Japanese)* 4−68247
  - travelling ionospheric disturbance, solar-terrestrial disturbance, August 1972 *(Japanese)* 4−70795
  - upper atmosphere dynamical model based on MHD, Joule heating and winds due to magnetic storm 4−46060
  - upper atmospheric wind velocity meas. during magnetic storm 4−64945
  - F_2-region storms, electron density and temp. changes 4−50346
- **magnetic structure**
  - atomic ordering in magnetic field, thermodynamical and statistical approaches *(Russian)* 4−67363
  - β-brass, long-range order, neutron diffr. obs. 4−64225
  - form factor determ. by inelastic neutron scatt. 4−76093
  - Invar with Mn admixture, Mossbauer effect and mag. struct *(Russian)* 4−76204
  - magnetoelectric material, spin ordering, survey 4−76088
  - metals and alloys, mag. neutron scatt. 4−57286
  - neutron diffraction, appl. of method for polarisation direction determ. for scattered beams 4−72409
  - γ-Ni-Fe, low temp. phase diagram construction, ferromag. reson. 4−61354
  - rare earth orthoferrites, dipolar interactions 4−82568
  - rare earth-Ni equiatomic alloys, exchange interactions *(French)* 4−53239
  - superconducting thin film, obs. using high resolution Bitter pattern technique 4−57220
  - surface magnetic order above bulk ordering temp., mag.-field theory 4−57277
  - surface magnetic order above bulk ordering temperature mag.-field theory 4−57276
  - symmetry groups, stereographic projection representation 4−45117
  - $BaNi_2Sc_2Fe_{14}O_{27}$, noncollinear spin ordering, 80 and 293K *(Russian)* 4−67381
  - $Ba_{0.4}Sr_{1.6}Zn_2Y$ ferrite, antiferromag. order 4−76095
  - CeS, mag. ordering, neutron diffr. obs. 4−57287
  - Co-P alloy, ferromag., mag. struct. determ. using neutron diffr. 4−64222
  - $CoBr_2.6[(1-x)H_2O, xD_2O]$, deuteron quadrupole reson., low temp. antiferromag. struct. *(French)* 4−76184
  - $CoCs_3Cl_5(Br_5)$, Luttinger-Tisza method, dipole-dipole, exchange interactions 4−45122

magnetic structure continued
CoO, antiferromagnetic neutron diffr. with nuclear polarisation from HFS interaction, 0.35-4.2K 4−72975
CoO, rel. to mag. anisotropy, spin axes tilt angles 4−49188
$CrAs_{1-x}Sb_x$, helimagnetism investigation, neutron diffraction meas. 4−64221
CrTe, ferromagnetic, non-collinear struct. change in 4.2 to 450K range *(Russian)* 4−53246
$CsCoCl_3$, neutron diffraction obs. at 4.2K 4−57289
Cs_2CrCl_4, ionic ferromagnet, neutron powder diffraction obs. 4−67379
$CsNiF_3$, mag. phase diagram determ. by neutron diffraction 4−45116
CuF_2, mag. and cryst. struct. 4−82569
CuMn, polarisation anal. of neutron mag. scatt. 4−67380
Dy_2O_2S, Dy_2O_2Se, neutron diffraction obs. at 1.5K 4−57294
Er, elastic constants and magnetoelasticity in single crysts., 4.2-300K rel. to ordering transitions 4−45160
Er, neutron diffraction obs. in mag. fields 0-20 kOe 4−53245
$ErAl_3$, cubic, neutron diffr. obs. 4−49181
$ErMn_2O_5$, phase comparison method, appl. to complex magnetic structure 4−76089
Er_2Ni_7, point-charge crystal field model explanation 4−76092
EuFCl, new compound, synthesis and bulk mag. props. 4−57256
Eu_3P_2, magnetic unsaturated surface layers below Curie temp. from spin polarisation of photoelectrons *(German)* 4−79503
EuS, magnetic unsaturated surface layers below Curie temp. from spin polarisation of photoelectrons *(German)* 4−79503
Fe complex, iron(III)bisdithiocarbamates, mag. interactions 4−53222
Fe-As, mag. state and struct. transitions, Mossbauer obs. 4−57446
γ-Fe-Mn, mag. transform. *(Russian)* 4−67362
Fe-Sb mag. state and struct. transitions, Mossbauer obs. 4−57446
FeB, charge and spin density, neutron diffr. obs. 4−60962
$FeCl_3$, antiferromag., spin structure and phases, Mossbauer obs., 1.47-300K 4−45217
FeI_2, phase diagram, in high mag. field 4−64220
$Fe_{3-x}Mn_xSi$ alloys, structural and mag. props. 4−76091
$Fe_{0.63}Ni_{0.37}$, antiferromagnetic structure at liquid He temp. 4−49182
α-Fe_2O_3, haematite, form. from amorphous iron hydroxide, Mossbauer obs. 4−61069
Fe_3P, ferromag., magnetis., Mossbauer and neutron diffr. obs. 4−45120
Fe_3Pt, ordered alloy, mag. form factor, local moments 4−72978
Fe_7Se_8, ferrimagnetic behaviour, Mossbauer obs., 78-460K 4−45216
$FeTa_2O_6$, neutron diffr. anal. *(German)* 4−45118
$GdCo_2$, Co hyperfine field, rel. to magnetic structure, temp. depend. 4−70164
$Gd_{0.9}Y_{0.1}$, coherent nucl. scatt. amplitude determ. by epithermal neutron diffr. 4−66860
Ho, coherent neutron scatt., nuclear polarisation depend. 4−70161
$HoFeO_3$, dipolar interactions 4−82568
$HoMn_2O_5$, phase comparison method, appl. to complex magnetic structure 4−76089
K_2CoF_4, two dimensional Ising antiferromag., critical behaviour, neutron scatt. obs. 4−53231
$KFeCl_3$, neutron diffraction examination, 4.2 to 300K 4−64223
$La_2Fe_2S_5$, antiferromag., neutron diffraction obs. *(French)* 4−49185
Mn-Ir alloy, γ-phase, neutron diffr. study 4−45119
Mn-Pd, cryst. and mag. struct., neutron diffr. obs. 4−70162
Mn-Rh system, mag. transitions obs., superparamagnetic state 4−79521
MnF_2, neutron depolarisation for $T \sim t_n$ and $T \ll T_n$ *(Russian)* 4−72973
$MnFe_{2-x}Cr_xO_4$ spinel-ferrites, mag. compensation pts. detection *(Russian)* 4−82566
Mn_2N, group theory analysis *(French)* 4−53243
Mn_3O_4-Mn_2SnO_4, high spin config. due to Mn^{3+} ion, distortion of spinel struct. *(French)* 4−45074
α-$NaFeO_2$, ordering scheme, exchange interactions 4−60963
$NdCrTiO_5$, magnetoelectric cpd. with 2 sets of mag. sublattices, mag. props. 4−67378
$NdMn_2O_5$, phase comparison method, appl. to complex magnetic structure, interaction matrix calc. 4−76089
NdS(Se)(Te), mag. ordering, neutron diffr. obs. 4−57287
Ni, form factor analysis, new interpretation of experimental data 4−57288
Ni-Co alloys, form factor analysis, new interpretation of experimental data 4−57288
Ni-Sc ferrite, conc. depend. of lattice const., rel. to mag. props. *(Russian)* 4−61007
$Ni_{0.9}Cu_{0.1}S_2$, neutron diffraction, exam. of mag. struct. and antiferromagnetism 4−79525
NpAs, NpP, NpSb, obs. of antiferromag. props., type I ordering 4−64224
NpN(P,As,Sb), mag. induced lattice distortions, order effect 4−64209
Pd, magnetic form factor, 4.2K 4−70163
Pd-Fe alloys, dil., mag. ordering *(Russian)* 4−70168
Pd-Mn(10%) alloy, polarization analysis of neutron scatt. 4−53241
PrAg, antiferromag., struct. and cryst. field levels, neutron scatt. obs. 4−49183
Rb_2CoF_4, two dimensional Ising antiferromag., critical behaviour, neutron scatt. obs. 4−53231
$RbFeBr_3$, linear chain, mag. ordering and hyperfine parameters 4−64293
Sm, cryst. field influence on mag. form factor 4−70125
$SrMnO_3$, cubic perovskite type, magnetic structure 4−72976
Tb-Er(83.2%), semi-cone angle of Tb, nucl. polarization method 4−82577
$TbMn_2O_5$, phase comparison method, appl. to complex magnetic structure 4−76089
$Tb(OH)_3$, Tb^{3+} mag. form factor in paramag., ferromag. states, polarised neutron obs. 4−57290
TbSe, mag. ordering, neutron diffr. obs. 4−57287
$Th(Co_xFe_{1-x})_5$, intermetallic compounds, and cryst. struct. 4−70167
$TmCo_2$ single spherical crystal, magnetic properties, rel. to crystal axes 4−64194
Tm_2Fe_{17}, neutron diffr. study 4−72977

magnetic structure continued
U_3As_4, anisotropy anal., noncollinear model 4−79533
$UCrO_4$, magnetoelectric cpd. with 2 sets of mag. sunlattices, mag. props. 4−67378
UCu_5, neutron diffr., ferro- and antiferromag. coupling 4−57293
UP-USe, magnetic transitions, neutron diffr. 4−76081
U_3P_4, anisotropy anal., noncollinear model 4−79533
$YFeO_3$, dipolar interactions 4−82568
$Y_xLa_{1-x}(Co_yFe_{1-y})_5$, neutron diffr., substitution effects 4−70166
$YMnO_3$, antiferromag. order obs. 4−49184
YMn_2O_5, phase comparison method, appl. to complex magnetic structure 4−76089

magnetic susceptibility
actinides, trivalent, in octahedral environments, mag. props. of Cs_2NaMCl_6 4−49153
alkaline earth-rare earth mixed ferrites *(French)* 4−60951
alloy, dilute, effect of t-matrix pole 4−60757
alloys, heterogeneous, weakly ferromagnetic, high field susceptibility 4−67358
alloys, vibrating sample magnetometer 4−68744
anisotropic paramagnetic systems, saturated region average mag. susceptibility calc. 4−67349
antiferromagnet, uniaxial, spin dynamics near tricritical point 4−76080
antiferromagnet parametrically excited spin system, behaviour beyond excitation threshold *(Russian)* 4−82573
antiferromagnetic Heisenberg linear chain, singular terms 4−45097
asbestos, low temperature magnetic properties 4−82554
atoms, neutral He to No, Hartree-Fock values 4−51938
$BDP(TCNQ)_2$, 1-dimens. electron gas model 4−57024
bilayer ferromagnetic films, differential susceptibility *(Russian)* 4−53265
binary alloy, charge transfer and spin susceptibility, Wolff model 4−57248
Brillouin zone effects on supercond. T_c and rel. normal metal props. 4−69980
conjugated molecules, uncoupled Hartree-Fock perturbation theory 4−81750
degenerate semiconductor, low temp. hot electron mag. susceptibility 4−60733
degenerate system, longitudinal susceptibility and correlations 4−77582
dilute alloy, Anderson Hamiltonian model 4−45176
dilute alloys, magnetic, low temp. behaviour of spin susceptibility 4−57263
dilute alloys, transition impurities, transition of noble base, magnetic susceptibility, specific heat, resistivity 4−64200
disordered alloys, single band model, magnetic susceptibilities, paramagnetic 4−64186
doped semiconductors, amorphous antiferromagnetism, cluster approach, method for calculation of paramagnetic spin susceptibility 4−64195
ebonite, mag. susceptibility, thermo-electret formation effect 4−57255
electron gas, 1-dimens., applic. to $BDP(TCNQ_2)$ 4−57024
electron liquid, susceptibility sum rule 4−74414
Fermi liquid, spatial correlations and sum rules 4−74416
ferromagnet, infinite interaction range model, spin-free formulation 4−45069
ferromagnet, Zener model, spin wave reson. 4−45188
ferromagnetic ferroelectric crystal, high freq. props., phenomenological theory 4−76221
ferromagnetic single-domain particles, dispersion theory *(Russian)* 4−82590
ferromagnetic thin film, obs. of fluctuations meas. Curie temp. 4−60990
gapless superconductor below T_c, order parameter fluctuation dynamics 4−72914
graphite, diamagnetism calc., Fermi surface warping effect 4−60944
haemoproteins, high-resolution p.m.r. determ. 4−50740
Heisenberg ferromagnet above critical temp. susceptibility and spin wave props. 4−53199
Heisenberg ferromagnets, spin wave interaction effects on longitudinal dynamical susceptibility 4−82545
Heisenberg model, low temperature, calculation of magnetization 4−64178
Heisenberg-Ising ring, $\Delta \geqslant 1$, finite temp. excitations and thermodynamics 4−67338
Heisenberg-ring, spin 1/2 anisotropic, numerical calcs. 4−67337
heterocycles, nitrogen-containing, semi-empirical diamag. susceptibilities 4−66387
Hubbard model, linear half-filled-band, static thermodynamic props. 4−53204
Hubbard model, low density, third order expansion 4−45088
Hubbard model, orbital susceptibility, s.c. lattice 4−53206
Hubbard model chain, extended, thermodynamics, atomic limit for half-filled band 4−57023
n-InSb, low temp. hot electron susceptibility 4−60733
interacting electrons in solids, diamag. susceptibility determ. 4−60938
Invar alloy, high field susceptibility meas., 4.2 to 150K 4−72954
Ising and classical vector spin models, derivation of high temperature series expansions 4−76037
Ising equation of state, order ε^3, parametric models, susceptibility ratio 4−82544
Ising ferrimagnetic model 4−45078
Ising model, infinite susceptibility without spontaneous magnetisation 4−60933
Ising model, spin-S, high-temp. series 4−57242
Ising model, two-dimensional, susceptibility amplitudes calc. 4−72946
Ising $S=1$ model with biquadratic interactions 4−76036
itinerant electron antiferromagnet, effect of spin fluctuations 4−57244
itinerant electron ferromagnetism, functional integral approach, mol. field theory 4−45086
itinerant model, longitudinal and transverse spin 4−76047
Kondo spin 1/2 system, longit. static and dynamic susceptibility 4−72953

magnetic susceptibility continued
Landau-Peierls formula for orbital magnetism of many-body systems, spin fluctuation effects 4−64182
liquid crystal, cholesteric polypeptide, twist elastic const. 4−56608
liquid crystal, nematic, mol. orientation mechanism 4−48508
local surface susceptibility, calc. for ferromagnetic spherical model, enhanced surface exchange 4−82541
magnetite, disaccommodation of magnetic susceptibility of natural single crystals 4−68072
magnetite assays in taconite wire, magnetic susceptibility meas. 4−61887
magnetoelectric antiferromagnet, reciprocity relations 4−45103
magnetometer, superconducting, for susceptibility meas. to 10^{-10} cgs 4−42841
meas. by Faraday method *(Czech)* 4−80961
measurement, mag. balance *(Bulgarian)* 4−51116
metal, normal, fluctuation diamag. susceptibility *(Russian)* 4−82512
metal, spin susceptibility, estimated from spin density response function of electron liquid 4−82551
metal films, paramagnetic phase, surface spin susceptibility, degenerate electron gas treatment 4−45092
metallic plate in magnetic field, quantum size oscillations 4−53220
modulus anomaly with initial susceptibility as response function of statistically pinned elastic line 4−79089
molecular diamagnetic susceptibility, from cryst. data *(French)* 4−70138
molecule, localized mag. susceptibility anisotropies 4−43793
neutral molecule, diamagnetism, theory 4−81744
neutron star matter 4−71011
neutron stars, calc. from hadron resonance spectrum in thermodynamic theory of strong interactions 4−62163
NMP-TCNQ zero-bandwidth Hubbard Hamiltonian, effect of interatomic interactions 4−57246
from n.m.r. data, calculation for the bonds C-C, C-H, C=C, C=O 4−75015
orbital susceptibility of low density electron gas 4−67346
oxide glasses, Ce doped, comp. depend. of props. below 1 K 4−53208
paramagnet, dynamic susceptibility, kinetic equations 4−67350
p-PbSe, p-$Pb_{0.94}Sn_{0.06}Se$, 78-440K, temp. depend. anomalies *(Russian)* 4−67354
perspex thermo-electrets, variation with time of susceptibility 4−45234
polyatomic molecules, small, heavy-atom shielding calcs. 4−56279
polyethylene, mag. susceptibility, thermo-electret formation effect 4−57255
powder, polycryst., magnetoelec., susceptibility following annealing 4−76059
protective coatings, diffusion aluminide, nondestructive characteriz. methods 4−50072
rare earth compounds, RVO_3, antiferromag. 4−79501
rare earth germanomolybdates and germanotungstates, flux growth, mag. and crystallographic characteriz. 4−61287
rare earth iron garnets, $R_{0.3}Y(Gd)_{2.7}IG$, dynamical mag. characts., spin echo and h.f. mag. susceptibility meas. 4−64270
review of instrumentation, appls. to solid state physics and chem. 4−80959
rocks, disaccommodation of magnetic susceptibility 4−68062
rocks and minerals, high freq. meas. tech. 4−80390
secondary ferroics, symm. 4−73084
semiconductor, degenerate, hot-electron mag. susceptibility at low temp., effect of non-parabolicity 4−57247
semiconductor materials, using average internal potential 4−79495
soils from S. Ontario, susceptibility of surface tills 4−64816
spin-lattice system, dynamic susceptibility, correl. function factorization 4−67433
superconductor, fluctuation diamag. susceptibility *(Russian)* 4−82512
three-spin system, e.s.r. obs. 4−49214
transition metal, Hubbard model, sp. ht. and mag. susceptibility anomalies *(Russian)* 4−67347
transition metal alloys, liquid, spin susceptibility 4−72951
trimethyl ammonium manganese bromide, canted antiferromag. 4−64213
TTF-TCNQ, e.p.r., mag. susceptibility obs. 4−57358
uniaxial S=1 antiferromagnet, Green function technique, exchange terms, calc. perpendicular susceptibility 4−82556
verdazyl biradicals, π-bridged, mag. susceptibilities meas. rel. to temp. triplet ground state investig. 4−82548
$[Mo_6Cl_8]^{4+}$, mag. susceptibility and mag. circular dichroism spectra, ground state config. 4−63397
Ag_3AsS_3, anisotropy obs. 4−52707
Ag_3SbS_3, anisotropy obs. 4−52707
Al-Zn(15 wt.%) alloy, nucleation and spinodal decomp. processes separation by mag. susceptibility meas. *(French)* 4−49671
Al_2O_3, cationotropic, adsorpt. of methyl alcohol, toluene, H_2O and acetic acid, mag. study 4−69957
As-Te, amorphous, structural and thermal properties, compositional dependence 4−66829
$\varphi_4AsCuCl_3$, $Cu_2Cl_6^{2-}$ dimer with ground triplet state obs. 4−79499
As_2S_3, glassy-state, magnetic moment, purity depend. 4−57254
Ba, temp. depend., 0-525°c *(German)* 4−70140
$BaNb_{0.8}S_3$, prep., elec. and mag. props. 4−60455
$BaTa_{0.8}S_3$, $BaTa_{0.8}Se_3$, prep., elec. and mag. props. 4−60455
Bi:Sn(Pb), meas. rel. to band structure, comparison of impurity effects 4−79281
Bi-Sb alloys, ultraquantum mag. field range *(Russian)* 4−64187
Bi-Sb alloys in strong magnetic fields at 4.2K *(Russian)* 4−57265
$Bi_{1-x}La_xFeO_3$, solid soln. anomaly at transition boundaries 4−57457
BiSeI, 90-300K, chain like struct. anal. 4−72700
$(C_2H_5NH_3)_2CuCl_4$, spin wave theory, field depend. crit. behaviour 4−60965
CaF_2, ^{19}F nuclear antiferromagnetic state, susceptibility meas. 4−72958
$CaWO_4:Nd^{3+}$, mag. susceptibility and Schottky sp. ht., cryst. field calc., 10-400K 4−76032
$CdCr_2S_4(Se_4)$, Curie temp. and Weiss const. obs. 4−60970
$Cd_{1-x}Cu_xCr_2S_4$, paramag. and ferromag., Cu conc. depend. 4−60945

magnetic susceptibility continued
$CdIn_2S_4:Er^{3+}$, cryst. field symm., optical spectra, calc. of props. 4−57582
$CdIr(OH)_6$, prep. and characterisation 4−60456
$CdVO_3$, preparation, characterisation, crystallographic, electrical and magnetic properties 4−66880
$CdYb_2Se_4$ spinel, cryst. field theory interpretation of paramag. susceptibility 4−76050
Ce liquid alloys, mag. susceptibility meas., mag. phase transition *(German)* 4−79511
$CeAl_3$, obs. below 1K, evidence for transition to mag. state without mag. scatt. 4−60960
$Ce_2Mg_3(NO_3)_{12}$, parallel susceptibility at zero temp., antiferromag. ground state 4−70146
$Ce_2Mg_3(NO_3)_{12}$, partial dehydration rel. to mag. thermometry use, paramag. susceptibility meas. 4−60942
$Ce_2Mg_3(NO_3)_{12}$, zero temp. parallel susceptibility 4−64193
$CeSn_3$, anomalous behaviour, max. at 150K, Fermi liq. model 4−67355
Co, temp. depend., melting effect 4−49157
Co-12-20 at.% P amorphous alloys, effect of annealing 4−45152
CoAl, 78-1100K, temp. depend., paramag. *(Russian)* 4−79618
CoB, temp. depend. 4−60940
$CoBr_2.6H_2O$, spin wave theory, field depend. crit. behaviour 4−60965
CoF_2, electronic Raman transitions, rel. to mag. susceptibility 4−53433
Co_cGa, (c=0.85-1.46), Co clusters and giant moments 4−45098
Co_5Ge_3, homogeneity region and mag. susceptibility 4−49687
Co_2GeO_4, electronic Raman transitions, rel. to mag. susceptibility 4−53433
Co(II) complex, magnetic behaviour with different ligands 4−79493
$CoMo_2S_4$, mag. props., elec. props., rel. to struct. *(French)* 4−67352
$Co(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
$CoO-MoO_3-Al_2O_3$ catalyst, improved thermogravimetric magnetic susceptibility apparatus 4−65499
CoP_xS_{2-x}, mag. props., prep., cryst. struct. 4−72965
CoS_2-NiS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
$CoSb_2O_6$, 4-1000 K, antiferromag. behaviour *(French)* 4−45096
Co_2Si-Ni_2Si, comp. depend., 80-350K, interband transition mechanism *(Russian)* 4−60725
Cr-Co nonferromag. dil. alloys, Invar and Elinvar characts. *(Japanese)* 4−61012
$Cr_{5-x}V_xGe_3$, solid soln., mag. susceptibility elec. resistance, thermo-e.m.f. and Hall coeff. 4−53215
$CrAl_7$, temp. depend. obs., antiferromag. to paramag. transition 4−64278
Cr_xAs_y, temp. depend. obs., mag. props. 4−57359
Cr(III) complex, magnetic behaviour with different ligands 4−79493
$CrMo_2S_4$, mag. props., elec. props., rel. to struct. *(French)* 4−67352
Cs, $NaLnCl_6$, Ln=trivalent lanthanide ion, mag. susceptibilities meas., crystal field levels investig. 4−49152
$Cs_2Cu(H_2O)_6(SO_4)_2$, copper Tutton's salt, anisotropic mag. susceptibilities meas. using Faraday method 4−64192
$CsFeBr_3$, structure and magnetic properties 4−72956
$CsMnBr_3$, $CsMg_{0.92}Mn_{0.08}Br_3$, cryst., electronic spectra, powder, mag. suscept. investig. rel. to temp. 4−53461
$CsMnF_3$, antiferromag., dynamic meas. *(Russian)* 4−82620
Cs_2NaMCl_6, M=trivalent actinide in octahedral environment, mag. props. 4−49153
CsO_2, obs. of phase transitions, correlation with caloric meas. *(German)* 4−49178
Cs_2O_3PF, thermodynamic props. calc. from optical constants, densities and mag. susceptibilities determ. 4−45261
Cu complex, $[(CH_3)_3NH]CuCl_3.2H_2O$, low temp. mag. susceptibility and e.s.r. obs. 4−53218
Cu complex, dichlorobis (pyridine) Cu(II) static susceptibility meas. combined with heat capacity and e.s.r. obs. 4−53219
Cu complex, electronic and mag. props. investig., angular overlap model 4−78424
Cu-Al:Co liquid alloy, impurity susceptibility 4−45094
Cu-Al-Co (2 wt.% Co and 8 or 15 wt.% Al) decomp., precipitated phase *(Russian)* 4−67776
Cu-Al(Fe), dilute alloy, paired impurity effect 4−45102
Cu-Ni, paramag., temp. independ. susceptibility 4−72952
Cu-Ni alloys above Curie point 4−53212
$CuCl_4^{2-}$ ion, flattening of tetrahedra estimated by mean mag. moment meas. *(French)* 4−56652
$CuCr_2O_4$, paramag. susceptibility, temp. depend. meas., Curie const. determ. 4−79494
$CuFeS_2$:Al(In), characterisation 4−61319
Cu(I) complex, $CuCl_2 \times 2(NC_5H_5)$, zero point effects in susceptibility obs. 4−76064
Cu(II) complex, $[Cu_3(C_6H_5-N_2O)_3(OH)]SO_4.10.5H_2O$, Dzialoshinski interaction *(Russian)* 4−76072
Cu(II) complex, μ_4-oxo-hexa-μ-chlorotetrakis[(pyridine)copper(II)], 1.7-294K 4−67357
$Cu(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
CuS_2, mag. susceptibility and n.m.r. meas., 4.2 to 300K 4−45196
Cu_2Sb, temp. indepent. diamag. susceptibility 4−53322
DyB_{12}, investigation between 100 and 300K 4−45089
DyS, antiferromag. transition, anisotropy 4−64206
DyS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4−76082
Dy_3Si_5, paramagnetic, temp. depend., 6-630K 4−60943
ErB_{12}, investigation between 100 and 300K 4−45089
ErS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4−76082
Eu-Pd system, phase diag., divalent and trivalent Eu, mag. susceptibility meas. 4−76417
$Eu_{1-x}Gd_xO$, Curie temp., conc. depend. determ., mag. impurity states 4−79508
EuS single crystal, melt-grown, characterization 4−61289
$EuSe_x(Te_x)$, Curie-Weiss behaviour, comp. depend. 4−60949
$EuVO_3$, magnetic ordering obs. 4−57264

magnetic susceptibility continued
Fe, deformed single crystals, mag. obs. on dislocation density at 295K 4–57731
Fe, temp. depend., melting effect 4–49157
Fe complex, iron(III)bisdithiocarbamates, mag. interactions 4–53222
Fe-Al, alloys, 78-1100K, temp. depend., antiferromag. *(Russian)* 4–79618
Fe-Co-Cu-V alloys, semi-hard mag. material characts. and prop. changes on heating *(Japanese)* 4–45140
Fe^{2+} ion in distorted octahedral symm. sites, mag. and nuclear elec. quadrupolar axes 4–67324
Fe_xAs_y, temp. depend. obs., mag. props. 4–57359
$FeAs_{2-x}Se_x$, marcasite struct., paramag., characterisation 4–49154
FeB, temp. depend. 4–60940
Fe_3BO_6, pure and doped, spin configs. and reorientation anal. 4–76094
$FeBr_2$, parallel and perpendicular, anomalous behaviour below T_n *(French)* 4–53217
$FeCl_2$, parallel and perpendicular, anomalous behaviour below T_n *(French)* 4–53217
$FeCl_2$-graphite compounds, mag. props. investigation 4–61071
$FeCl_3$, two-dimensional, intercalated in graphite, magnetic properties 4–64306
$Fe(ClO_4)_2.6H_2O$, anomalous behaviour at low temp. 4–60952
FeF_2, electronic Raman transitions, rel. to mag. susceptibility 4–53433
$FeGeO_3$, evidence for spin-reorientation type phase transition 4–57282
Fe_2GeO_4, electronic Raman transitions, rel. to mag. susceptibility 4–53433
FeI_2, parallel and perpendicular, anomalous behaviour below T_n *(French)* 4–53217
Fe(III) complex, magnetic behaviour with different ligands 4–79493
Fe(III) complexes, thiosemicarbazone type, paramag., λ type phase transition *(Russian)* 4–76052
Fe(III) complexes with thiosemicarbazones, equil. between low-spin and high-spin states 4–57360
Fe_xMn_{1-x}, temp. depend. calc., itinerant-electron antiferromagnetism, theory 4–76048
$FeMo_2S_4$, mag. props., elec. props., rel. to struct. *(French)* 4–67352
$Fe(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4–60950
$Fe(NH_4)_2(SO_4)_26H_2O$, mag. properties of Fe^{2+} ions at low temp. 4–45090
FeS_2-CoS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4–76057
Fe_xSb_y, temp. depend. obs., mag. props. 4–57359
$Fe_{3-x}Sn_xO_4$, mol. field coeffs. determ. from paramag. meas. *(French)* 4–64184
Fe_2Te_3, magnetisation and supercond. Mossbauer and Meissner effects 4–82639
Ga-Sn alloys, solid and liq., mag. susceptibility meas. *(Russian)* 4–79496
GaAs:Fe, semi-insulating and n-type samples, temp. depend. 4–49156
Gd, a.c. susceptibility temp. depend., mag. domain effects near Curie temp. 4–45141
$GdCoO_3$, spin state equil., localised vs. collective d-electron behaviour 4–61079
$GdNi_2$, critical mag. susceptibility in presence of long-range forces 4–49176
Gd_3Si_5 paramagnetic, temp. depend., 6-630K 4–60943
$GdVO_4$, mag. phase diagram, Neel temp., crit., exchange interaction fields *(German)* 4–82558
Ge-Co(Fe)(Ni) alloys, liq., conc.-temp. depend., 900-1700°C *(Russian)* 4–45091
He, superfluid, n.m.r. shifts, mag. susceptibility depend. 4–72614
^3He, adsorbed monolayer on graphite 4–60665
^3He, liq., superfluidity, review 4–63961
^3He, liq., susceptibility near 1K 4–56937
^3He, liquid, susceptibility discontinuity at A-normal transition 4–75664
^3He, liquid , Landau theory 4–63960
^3He, superfluid, microscopic theory, n.m.r. line shift 4–56938
^3He, superfluid, static nuclear magnetism 4–52960
^3He superfluid, low field behaviour, resonance poles 4–56939
$HgCr_2S_4(Se_4)$, Curie temp. and Weiss const. obs. 4–60970
HgSe, annealing effect on nature of donor defects 4–56735
HoB_{12}, investigation between 100 and 300K 4–45089
$HoPO_4$, magnetoelec. susceptibility meas. simple two sublattice Ising antiferromag. model 4–72955
$InCl_3$:Er^{3+}, cryst. field symm., optical spectra, calc. of props. 4–57582
$InMCrS_4$, M=Mn, Fe, Co, Ni, synthesis and mag. props. investigation 4–76083
$Ir(CO)_3Cl$, one-dimens. conductor, stoichiometry, Mossbauer spectrum, mag. susceptibility 4–57433
$K_xCs_{1-x}C_8$ ternary cpds., paramag. susceptibility anomaly w.r.t. comp. *(French)* 4–60939
$KCuF_3$, neutron scatt. exam. of crit. phenomena, universality and scaling 4–76077
K_2CuF_4, two-dimensional ferromagnet, exptl. obs. *(Japanese)* 4–45125
$K_2Cu(H_2O)_6(SO_4)_2$, copper Tutton's salt, anisotropic mag. susceptibilities, meas. using Faraday method 4–64192
$KFeCl_3$, effective mag. moment determ. 4–64223
K_2MF_4, M=Co, Cu, Mn, neutron scatt. exam. of crit. phenomena, universality and scaling 4–76077
KO_2, obs. of phase transitions, correlation with caloric meas. *(German)* 4–49178
K_2O_3PF, thermodynamic props. calc. from optical constants, densities and mag. susceptibilities determ. 4–45261
La:Ce, crystal field effects calc. 4–72959
$LaSi_{1.6}Ni_{0.4}$, $LaSi_{1.6}Fe_{0.4}$, paramagnetic, temp. depend., 6-630K 4–60943
$LiNiO_2$ and $LiNiO_2$:Ni^{III}, ferromag. and ferrimag. behaviour *(French)* 4–82552

magnetic susceptibility continued
Li_2O_3PF, thermodynamic props. calc. from optical constants, densities and mag. susceptibilities 4–45261
$^{6,7}Li^{79,81}Br$, molecular Zeeman spectra 4–52182
LuB_{12}, investigation between 100 and 300K 4–45089
MgF_2, mag. susceptibility of gamma-irrad. single crysts. 4–66934
$MgMn_2O_4$-$MgAl_2O_4$, X-ray diffraction electrical cond., mag. susceptibility and Seebeck coeff, meas. 4–82409
Mn complex with amine, 2-291K, paramag. behaviour *(French)* 4–49151
Mn-Ir alloy, γ-phase, crystallographic and mag. transitions obs. 4–45109
Mn^{2+} complex, bis(methylammonium)tetrachloromanganate, mag. suscept. determ. rel. to temp., mag. transition investig. 4–60955
MnB_4O_7, cryst. struct., magnetism and thermal extinction depend. 4–44521
$MnCo_3$, antiferromag., dynamic meas. *(Russian)* 4–82620
Mn_2F_5, synthesis and characterization *(French)* 4–48570
$Mn(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4–60950
α-MnO_2, Neel temp. determ. 4–45430
Mn_3O_4-Mn_2SnO_4, field and temp. depends., ferrimag. *(French)* 4–70148
Mn_3Pt, antiferromagnetic-antiferromagnetic transition, thermodynamic investigation 4–72967
Mn_3TeO_6, antiferromagnetism, e.s.r. and susceptibility meas. 4–57271
MnX_2L_2, X=Cl, Br, L=pyrazole, pyridine, linear-chain antiferromagnetism 4–64176
$Mo_{77}Ir_{23-x}Fe_x$, magnetic and superconducting properties 4–72889
MoO_2, crystal structure, magnetic susceptibility, electrical conductivity of pure and NiO doped single crystals 4–63817
$(NH_4)_2Cu(H_2O)_6(SO_4)_2$, copper Tutton's salt, anisotropic mag. susceptibilities, meas. using Faraday method 4–64192
NaO_2, obs. of phase transitions, correlation with caloric meas. *(German)* 4–49178
Na_2O_3PF, thermodynamic props. calc. from optical constants, densities and mag. susceptibilities determ. 4–45261
$Na_2O.Li_2O.B_2O_3.Fe_2O_3$ glass system, struct. and mag. props. investigation 4–67497
Nb_3(Al-Ge), A15 supercond. with high T_c, lattice instability and mag. susceptibility *(Russian)* 4–82837
$Nb_{3.3}Ge_{0.7}$, low temp., supercond. transition *(Russian)* 4–60900
$NdCoO_3$, spin state equil., localised vs. collective d-electron behaviour 4–61079
$NdCrTiO_5$, magnetoelectric cpd. with 2 sets of mag. sublattices, mag. props. 4–67378
NdS, antiferromag. transition, anisotropy 4–64206
NdS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4–76082
$NdSi_{1.6}Ni_{0.4}$, $NdSi_{1.6}Fe_{0.4}$, paramagnetic, temp. depend., 6-630K 4–60943
$NdVO_3$, magnetic ordering obs. 4–57264
(Ni,Cu)Al, β-phase, rigid band model approach to electron transport props. 4–67197
Ni, temp. depend., melting effect 4–49157
Ni particles in amorphous SiO_2, Al_2O_3, granular films, superparamagnetism and relax. effects 4–64246
Ni-base f.c.c. alloys, high field susceptibility meas. up to 300 kOe, rigid band model 4–76060
Ni-Cu-Al alloys, paramag. props. investigation 4–79497
Ni-Pt, itinerant ferromagnetism and susceptibility, temp. depend. 4–72957
Ni-Pt, spin coupling, variation with chem. order 4–70144
Ni-Pt alloys, ferromag. props. at high field and press. near crit. conc. for ferromagnetism 4–53256
$(Ni\ en_3)\ (NO_3)_2$, zero-field susceptibility rel. to temp. determ., mag. transition investig. 4–49167
NiAl, 78-1100K, temp. depend., paramag. *(Russian)* 4–79618
$NiAl_2O_4$-$MgAl_2O_4$, solid soln., Ni ion distrib., octahedral, tetrahedral sites 4–75496
NiB, temp.depend. 4–60940
$NiC_4O_4.2H_2O$, structure, X-ray and i.r. spectral study, mag. susceptibility 4–75491
$NiCl_2.6H_2O$, exchange constants determ., paramag. susceptibility anal. 4–79504
Ni_5Ge_3, homogeneity region and mag. susceptibility 4–49687
Ni(II) complex, magnetic behaviour with different ligands 4–79493
$Ni(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4–60950
NiS, itinerant-electron antiferromagnet, mag. susceptibility and neutron scatt. obs. 4–53202
NiS_2-CuS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4–76057
$NiSb_2O_6$, 4-1000 K, antiferromag. behaviour *(French)* 4–45096
Np alloys, localized spin fluctuation model 4–45104
$NpAl_3$, meas. 4-300K, ferromag. ordering 4–64211
NpP, paramag. and ordered phase mag. props., strong cryst. fields, n.m.r. meas. 4–49163
$NpPd_3$, mag. props. obs. from 1.5 to 300K 4–67359
Npx_3, X=Cl, Br, I, susceptibility, 2.7-240K 4–49162
PSe_x, glasses, microstruct., elec., mag. and chem. props. of different compositions 4–44474
$Pb_{0.94}Sn_{0.06}Se$, p- and n-type, investigation of band struct. 4–49155
p-$Pb_{1-x}Sn_xTe$, temp. depend. obs., 78 to 450K 4–57108
$Pb_{1-x}Sn_xTe(Se)$, band inversion effect 4–76051
PbTe, effect of Bi, Sb, Ag and Fe impurities, 80-400K *(Russian)* 4–82550
Pd-Mn(10%) alloy, temp. depend. 4–53241
$(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, low field susceptibility, temp. depend. in region of ordering temp. 4–64190
PdMnTe Cl_b type intermetallic, crystallographic and mag. characts. 4–48543
$Pd_{90}Pt_{10}$, paramagnon effects associated with Ni impurities 4–64183
Pr_3Tl, $(Pr,La)_3Tl$, paramag. and zero-temp. props., spin wave dispersion, susceptibility theory 4–67353
Pt-Rh alloys, n.m.r. and mag. susceptibility, conc. depend. 4–64276
Pu alloys, localized spin fluctuation model 4–45104
$PuPd_3$, mag. props. obs. from 1.5 to 300K 4–67359

magnetic susceptibility continued
- PuX_3, X=Cl, Br, I, susceptibility, 2.7-240K 4-49162
- $RbMnF_3$, antiferromag. susceptibility meas., evidence for temp. depend. of exchange constant 4-76063
- RbO_2, obs. of phase transitions, correlation with caloric meas. *(German)* 4-49178
- $ScCl_3:Er^{3+}$, cryst. field symm., optical spectra, calc. of props. 4-57582
- Si:P, enhanced spin susceptibility 4-82549
- SiO_2, gel. adsorpt. of methyl alcohol, toluene and benzene, mag. study 4-69957
- $SmFe_{1-x}Al_xO_3$, mag. anomaly, compensation pt., induced moments 4-79502
- Sr, temp. depend., 0-400°C *(German)* 4-70140
- SrF_2-EuF_3 system, 77-300K, Curie-Weiss behaviour 4-82553
- TbB_{12}, investigation between 100 and 300K 4-45089
- $Tb_xHo_{1-x}FeO_3$, paramag. susceptibility meas. by mag. balance *(Bulgarian)* 4-51116
- $Tb(OH)_3$, mag. and thermal props., Ising-like behaviour 4-45100
- Tb_3Si_5, paramagnetic, temp. depend., 6-630K 4-60943
- $Tb_{0.5}Y_{0.5}Ni$, narrow domain wall propag. and metamag. props. 4-45149
- Ti, α and ω modifications, meas. rel. to supercond. transition temp. 4-79445
- Ti_3O_5, magnetic susceptibility, electrical conductivity and structural parameters, e.p.r. meas. 4-79346
- TmB_{12}, investigation between 100 and 300K 4-45089
- $TmCrO_3$, meas. of weak ferromag. moments, antiferromag. exchange and cryst. field splittings 4-76105
- $TmVO_4$, with cooperative Jahn Teller effect mag. props. 4-79500
- U alloys, localized spin fluctuation model 4-45104
- UAs, electron delocalisation model explanation of mag. props. 4-53205
- UAsS, paramagnetic region, magnetic anisotropy 4-53251
- UAsSe, paramagnetic region, magnetic anisotropy 4-53251
- UCl_4, low temp. mag. susceptibility 4-53216
- $UCrO_4$, magnetoelectric cpd. with 2 sets of mag. sunlattices, mag. props. 4-67378
- UCu_5, antiferromag. transition, annealing effect 4-64191
- UNi_5, Curie-Weiss law behaviour, annealing effect 4-64191
- UP(As), function of temp. 4-76062
- UX_3, X=Cl, Br, I, 2.7-240K 4-49162
- VCo_3, transformation temp. determ., hexagonal order 4-57258
- $(V_{1-x}Cr_x)Be_{12}$, n.m.r. obs. of ^9Be and ^{51}V, Knight shift meas. 4-60946
- VF_2, helical magnet, mag. props. investigation by Green's function method 4-76061
- VF_4, antiferromag., mag. ordering obs. by mag. susceptibility and n.m.r. obs. 4-57283
- V(II) complex, magnetic behaviour with different ligands 4-79493
- VMo_2S_4, mag. props., elec. props., rel. to struct. *(French)* 4-67352
- V_3Si, structural transition effect, low temp. lattice instability *(Russian)* 4-60915
- WO_2, crystal structure, magnetic susceptibility, electrical conductivity of pure and NiO doped single crystals 4-63817
- Y-Ce, dilute alloy Kondo system, mag. susceptibility and exchange resist. 4-49160
- YB_{12}, investigation between 100 and 300K 4-45089
- $YCl_3:Er^{3+}$, cryst. field symm., optical spectra, calc. of props. 4-57582
- $Y_3Fe_5O_{12}$, scaling functions, critical mag. props. *(Russian)* 4-64219
- Yb intermetallics with diamagnetic alloyed elements, Yb valency determ. *(French)* 4-61074
- YbB_{12}, investigation between 100 and 300K 4-45089
- $YbCrO_3$, of Yb^{3+}, Mossbauer spectrum anal. 4-64292
- $ZnIr(OH)_6$, prep. and characterisation 4-60456
- Zr, α and ω modifications, meas. rel. to supercond. transition temp. 4-79445
- ZrB_{12}, investigation between 100 and 300K 4-45089
- $Zr_{0.4}Cu_{0.6-x}Fe_x$, amorphous, spin fluctuations and spin-spin interactions, susceptibility and resist. obs. 4-64185
- ZrMnCo, strong paramagnetism, reciprocal susceptibility 4-72950

magnetic switching
- antiferromagnetic domain switching, magnetoelec. effect as simple obs. method 4-76108
- ferromagnetoelectric switching and twinning, domain struct., crystallography 4-76107
- scanning laser beam for random switching of bubble domain memory 4-47389
- secondary ferroics, symm. 4-73084
- YIG, laminar domain struct., switching, light diffr. 4-79549

magnetic tape equipment
- digital recorder for solar spectrum *(Russian)* 4-80466

magnetic tape recorders *see tape recorders*

magnetic thin film devices
- *see also magnetic bubble devices*
- magnetometer, inductance variation, recent advances 4-68748

magnetic thin film stores *see magnetic film stores*

magnetic thin films
- amorphous, bubble domain, annealing 4-45155
- bubble domain materials, low velocity wall mass calc. 4-60994
- bubble film, stripe domain wall struct. 4-45134
- bubble garnet, dynamic response of domain walls to step change in bias field, −10 to 60°C 4-64248
- bubble garnet, straight and wavelike domain wall motion, high speed photography obs. 4-64249
- bubble memory materials and device technology 4-49203
- domain stability in uniaxial strips 4-45147
- domain wall models, review 4-76125
- domain wall motion, energy stored in wall deform., solid and tape-wound cores 4-60981
- Dzialoshinski-Moriya interactions, responsibility for orientation of surface spins 4-53221
- ferrite, X-ray spectral anal. 4-46939
- ferro, with uniaxial mag. anisotropy in a.c. mag. fields of low intensity *(Rumanian)* 4-70188
- ferro-ferrite, prep. and mag. props. *(Russian)* 4-61004
- ferromagnet, bubble array, theory *(Russian)* 4-67411

magnetic thin films continued
- ferromagnetic, domain wall width and shape 4-64234
- ferromagnetic, large-angle ripples, stripe domains, micromag. theory 4-70187
- ferromagnetic, magnetostatic spectrum, surface pinning effect 4-76129
- ferromagnetic, on dielec. substrate, chem. comp. and thickness determ. by electrochem. methods 4-58984
- ferromagnetic, perpendicular spin wave reson., temp. depend. 4-64264
- ferromagnetic, surface spectrum, angular dependence of surface spin-wave mode 4-67455
- ferromagnetic, susceptibility and correlation funcs. mag. fluctuation obs. near Curie temp. 4-60990
- ferromagnetic bilayer, differential susceptibility *(Russian)* 4-53265
- ferromagnetic film with magnetisation parallel to surface spin wave spectrum 4-57302
- ferromagnetic semiconductor-dielec.-ferromag. semicond., I-V characts. with mag. changes 4-75951
- ferromagnetic thin film, effect of relaxation on spin wave resonance 4-64265
- ferromagnetic thin film, surface and bulk mag. exciton resonance 4-75825
- garnet, bubble domain, liq. phase epitaxial, neutron irrad. effects on mag. props. 4-57309
- garnet, controlled compensation walls and compromise compensation walls, Si annealing technique 4-60995
- garnet, double layer self-biasing, epitaxial growth and props. 4-70403
- garnet, epitaxial, CVD using single metal alloy source 4-70407
- garnet, epitaxial, dynamic conversion effects 4-60999
- garnet, epitaxial, microwave interaction, ring domain generation 4-57326
- garnet, hard bubble suppression, by N_2 annealing 4-70189
- garnet, hard bubble suppression by inert atm. annealing 4-64247
- garnet, high perfection, for bubble domain appl., rapid liq. phase epitaxy 4-57683
- garnet, homogeneous liquid phase epitaxy fluxed melts production 4-45426
- garnet, ion bombard., optical absorption, hard bubble suppression 4-67409
- garnet, large area, prep. for bubble domain devices 4-70411
- garnet, liq. phase epitaxial, absence of hard bubbles 4-60991
- garnet, liq. phase epitaxial, hard bubble diameter, bias field and temp. depend. 4-60993
- garnet, liq. phase epitaxy, parameters affecting growth and mag. props. 4-57681
- garnet, liquid phase epitaxial growth from BaO-B_2O_3 fluxes 4-79872
- garnet, low-loss, domain wall dynamics 4-60997
- garnet, l.p.e., rapid detection of defects 4-70190
- garnet, LPE bubble films, local control of uniaxial anisotropy 4-76124
- garnet, LPE growth, rare earth species in PbO-B_2O_3 flux, diffusion coeff. 4-72647
- garnet, transparent, domain wall reson., optical diffr. obs. 4-64250
- garnet, uniaxial, domain patterns *(Japanese)* 4-79557
- garnet bubble film, homogeneous nucleation, anisotropy effect 4-82591
- garnet bubble film, l.p.e., from BaO-BaF_2-B_2O_3 solvent 4-70412
- garnet bubble film anisotropy variation by rotation rate increase and quenching 4-53263
- garnet bubble film uniaxial anisotropy and mag. moment rel. to rotation rate 4-49201
- garnet bubble film uniaxial anisotropy rel. to substrate rotation rate 4-53262
- garnet bubble films, optical sensing of bubble domains by reduction of Pb masking 4-53264
- garnet double layer film, epitaxial, self-biasing rel. to bubble formation 4-70185
- garnet film, prep., LPE, fast growth rates 4-72646
- garnet film waveguide, quadratic magneto-optical effect on light propag. 4-76239
- garnet films, substituted, epitaxial growth by hydrothermal synthesis 4-49556
- garnet-Permalloy composite film, hard-bubble-free, bubble behaviour 4-60992
- ion plating preparation conditions, hysteresis meas. 4-45420
- mesa defects elimination, in dipped LPE magnetic bubble domain films 4-45427
- metal film, surface spin susceptibility in paramag. phase 4-45092
- metallic, amorphous, bubble dynamics 4-60998
- non-uniform, movement of domain walls *(Russian)* 4-67393
- oxidised, particle interactions, thermal fluctuation aftereffect model of exchange anisotropy 4-79558
- Permalloy, bubble domain deform. and motion vel. under mag. field *(Russian)* 4-49198
- Permalloy, bubble domains obs. 4-45146
- Permalloy, cathodically sputtered, mag. props. depend. on deposition parameters *(Russian)* 4-53261
- Permalloy, coercivity spectrum and domain wall creep 4-45148
- Permalloy, interaction energy of dislocations with magnetisation, anisotropy explanation 4-53267
- permalloy, internal macrostresses, multilayer, SiO, GeO, LiF interlayers *(Russian)* 4-67127
- Permalloy, nonlinear domain wall velocity and coercive force 4-57334
- permalloy, plated wire, characteristics, and accelerated ageing 4-57336
- Permalloy, spin-wave spectra below saturation magnetisation, various orientations 4-82618
- permalloy, thin films, relax. of dynamic domain struct. rot. of magnetisation vectors *(Russian)* 4-67390
- Permalloy, vacuum condensates, oriented porosity, form of structural elements, and microstress anisotropy *(Russian)* 4-61371
- Permalloy, wall motion threshold fields for off-axis applied fields 4-70191
- Permalloy, with stripe domain struct., ferromag. reson. spectra *(Russian)* 4-49232

magnetic thin films continued
Permalloy film, fluctuation noise intensity depend. on magnetisation freq. *(Russian)* 4−79560
pinning diagram application to study of surface modes in spin wave resonance 4−53312
rare earth garnet, diffr. of light by cylindrical mag. domains 4−45144
reversal magnetisation anomalies at ferro-antiferro. interaction *(Russian)* 4−53266
spin waves, magnetic surface reconstruction, appl. to ferromags. 4−49233
stripe domain, Lorentz microscopy with photons 4−57333
stripe domain structure type, mag. reversal curves *(Russian)* 4−49199
subharmonic oscillations of magnetis. in films with exchange anisotropy *(Russian)* 4−49200
wave propagation, along domain walls 4−57332
Co, evaporated, origin of anisotropy 4−57305
Dy, GHz phonon generation through excitation of normal magnetoelastic modes and parametric processes 4−76131
$Er_3(FeGa)_5O_{12}$ bubble-domain films and devices, neutron and γ irradiation tolerance, obs. 4−45154
$Er_3Fe_5O_{12}$, epitaxial garnet film, organometallic chem. vapour deposition 4−73243
$(Eu,Y)_3(Fe,Ga)_5O_{12}$ mag. bubble films, rot. effects on isothermal growth by liq. phase epitaxy 4−45431
$(Eu,Y)_3Fe_5O_{12}$, epitaxial garnet film, organometallic chem. vapour deposition 4−73243
$Eu_3Fe_5O_{12}$, epitaxial garnet film, organometallic chem. vapour deposition 4−73243
EuO, nonstoichiometry effects on props. 4−82592
$Eu_xY_{3-x}Fe_5O_{12}$, anisotropy, effect of substrate orientation and growth temp. 4−57329
EuYbY garnet films, LEP, charact. 4−49202
FeNi, film, spin wave resonance obs. at 9.3 GHz 4−57302
$Ga_3Gd_5O_{12}$, refractive index at 1.15 μm 4−49321
Gd-Ca, amorphous film, static bubble domain props. 4−76113
Gd-Co, alloy, amorphous, for bubble domain and magneto-optical applic. 4−57338
$Gd_{1-x}Co_x$, amorphous, r.f. sputtered, perpendicular anisotropy 4−57330
$Gd_3Fe_5O_{12}$, magnetization processes involving planar compensation walls 4−60996
$Gd_{2.1}Lu_{0.9}Fe_{4.4}Al_{0.6}O_{12}$, garnet film, for bubble domain memories 4−73004
$Gd_yY_{3-y}Fe_{5-x}Ga_xO_{12}$, domain wall mass and mobility, in plane mag. fields 4−70186
Ho-Co(Fe) alloys, amorphous films, differences in T_c of amorphous, cryst. states, mechanism 4−76128
$(LaY)_3Ga_{0.33}Fe_{4.67}O_{12}$, refractive index at 1.15 μm 4−49321
MgMn ferrite domain substructure obs. 4−79548
Mn-Bi, thermomagnetic recording, repeated cycling, appls. *(French)* 4−54952
Mn-Bi-Te, magneto-optical material, mag. props. temp. depend. 4−57331
MnBi, coercive force temp. depend., rel. to laser beam addressing 4−57337
MnBi, growth, ferromag. recovery during thermal cycle, writing appl. 4−67408
MnBi, optical anisotropy eval. rel. to magneto-optical effects 4−45262
MnBi, prep. by vacuum evap. and annealing diffusion process analysis 4−76384
MnBi, temp. depend. of mag. anisotropy and saturation mag., appl. to thermomag. writing 4−53271
MnBi film, domain nucleation and propagation phenomena, demag. obs. using W needle 4−57327
MnBi film, magnetooptic properties, component ratio depend. 4−70285
MnBi mag. domain config. and coercivity 4−76127
MnBi:Sb, thermomagnetic writing, Curie temp. meas. 4−79559
$MnSb_{1-x}Sn_x$, thin films, spin wave resonance 4−73031
Ni, magnetic domain wall response to ultrasound, transmission electron microscope meas. 4−82597
Ni (001) film, crit. thickness rel. to magnetisation direction, magnetoresist. meas. 4−57339
Ni particles in amorphous SiO_2, Al_2O_3, granular films, superparamagnetism and relax. effects 4−64246
Ni-Fe, films formed electrolytically in mag. fields, mag. props. *(German)* 4−67410
Ni-Fe, new type of domain walls, Lorentz microscopy obs. 4−53259
Ni-Fe(10 wt.%) alloy, domain boundary starting field, isotropic stresses influence *(Russian)* 4−61003
NiFeCo, domain wall motion, coercive force and easy axis bias effects 4−57335
NiZnCo ferrite film, rotatable mag. anisotropy const. determ. 4−70176
$Ni_{0.35}Zn_{0.65}Fe_2O_4$, arc plasma sprayed on alumina substrates, prod. and microstruct. characteriz. 4−61494
Pt-Co alloy, physical and chemical properties of electroplated layers *(Russian)* 4−53270
$Sm_{0.4}Y_{2.6}Ga_{1.2}Fe_{3.8}O_{12}$, variously oriented epitaxial films, growth-induced mag. anisotropy 4−53268
$Sm_{0.4}Y_{2.6}Ga_{1.2}Fe_{3.8}O_{12}$ epitaxial films, magnetic bubble mobility meas. 4−53269
$(Y,Eu,Gd)_3(Ga,Fe)_5O_{12}$, bubble velocity, instability, temp. depend. 4−64251
$(Y,Gd,Tm)_3(Fe,Ga)_5O_{12}$, mag. bubble translation, effect of const. in-plane mag. field 4−61002
$(Y,La)_3(Ga,Fe)_5O_{12}$, exchange const. and bubble domain wall energies 4−60973
$Y_{3-x}Ca_x(Ge,Si)_xFe_{5-x}O_{12}$ based epitaxial films, for bubble device appl., characts. 4−57328
$Y_{2.4}Eu_{0.6}Fe_{3.8}Ga_{1.2}O_{12}$, liq. phase epitaxy 4−57681
$Y_{2.4}Eu_{0.6}Fe_{3.8}Ga_{1.2}O_{12}$, bubble dynamics, influence of in-plane field 4−61001
$Y_{3-x}Eu_xFe_{3.9}Ga_{1.1}O_{12}$, liq. phase epitaxial, on $Gd_3Ga_5O_{12}$ substrate, misfit strain 4−57004
$Y_{2.4}Eu_{0.6}Ga_{1.2}Fe_{3.8}O_{12}$, bubble motion, vel. scatt. meas. 4−79536

magnetic thin films continued
$Y_{2.14}Eu_{0.56}Tm_{0.30}Ga_{1.1}Fe_{3.9}O_{12}$, multiple film growth by liq. phase epitaxy 4−57682
$Y_3(FeGa)_5O_{12}$ bubble-domain films and devices, neutron and γ irradiation tolerance, obs. 4−45154
$Y_3Fe_5O_{12}$, refractive index at 1.15 μm 4−49321
$(YGdTm)_3(FeGa)_5O_{12}$ bubble-domain films and devices, neutron and γ irradiation tolerance, obs. 4−45154
$(YGdTm)_3(GaFe)_5O_{12}$, film, domain patterns in arbitrarily oriented field 4−76117
YIG, epitaxial film, organometallic chem. vapour deposition 4−73243
YIG, exchange stiffness temp. depend. 4−57325
YIG, liq. phase epitaxy, Pb ions incorporation, radioactive chem. analysis 4−60705
YIG, Pb substitution effects 4−60706
YIG and YIG:Ga, epitaxial film, chem. vapour deposition and thermodynamic analysis 4−53597
YIG:Ga, domain wall motion, time var. 4−76126
$Y_{2.62}Sm_{0.38}Fe_{3.85}Ga_{1.15}O_{12}$, $Y_{1.92}Sm_{0.1}Ca_{0.98}Fe_{4.02}Ge_{0.98}O_{12}$, for bubble domain memories 4−73004
$Y_{2.6}Sm_{0.4}Ga_{1.2}Fe_{3.8}O_{12}$, growth induced anisotropy, annealing effect, temp. depend. 4−76101

magnetic transition temperature *see magnetic transitions of substances*

magnetic transitions of substances
see also Curie temperature; Neel temperature
actinide compounds, electron delocalisation model 4−57249
alkali hyperoxides, sp.ht., magnetization and susceptibility obs. *(German)* 4−49178
anisotropic cubic systems, crit. behaviour 4−57229
anisotropic Heisenberg and dipolar systems, transition temp. shift exponent 4−72970
antiferrimagnet, low temp. field induced transitions in uniaxial subst. calcs. 4−60954
antiferromagnet, itinerant electron, impurity effect on transition temp. 4−60957
antiferromagnet, uniaxial, phase instability when subjected to external field 4−79513
antiferromagnetic f.c.c. type II substances, order parameter fluctuations near transitions *(French)* 4−76073
atomic ordering in magnetic field, thermodynamical and statistical approaches *(Russian)* 4−67363
bicritical and tetracritical points, renormalisation group calcs. 4−79518
catalyst, rel. to reaction kinetics 4−57884
Cayley tree structure, spin system, Ising interactions, partition function eqn. 4−82543
critical exponents determ. using Monte Carlo calc. with SCF boundary condition 4−67321
critical exponents for systems with slowly decreasing potential *(Russian)* 4−72972
d-dimensional isotropic model, mech. anomalies and critical behaviour 4−49175
defect lattice, transition temp. rel. to defect density, mol. field theory 4−76030
elastic isotropic lattice interactions, renormalization group 4−60956
ferro-paramagnetic second order, cubic four-axial ferromagnet in external field 4−53227
ferrogarnets, thermophysical props., transition pt. behaviour 4−45107
ferromagnet, comparison of long-range exchange interaction and short-range direct interaction models 4−70129
ferromagnet, cubic, mag. dipole forces and crit. dynamics above Curie pt. *(Russian)* 4−70158
ferromagnet, d-dimensional, quadrupolar interactions at ferromag.-crit. points 4−53237
ferromagnet, infinite interaction range model, spin-free formulation 4−45069
ferromagnet, Ising and X-Y models, solved in thermodynamic limit 4−64177
ferromagnet, tricritical behaviour of Blume-Capel model 4−72932
ferromagnetic ferroelectric crystal, high freq. props., phenomenological theory 4−76221
Heisenberg ferromagnet, local order parameter near crit. point, Monte Carlo investigation 4−76043
Ising antiferromagnet, metamagnetic transition, mol. field approx. 4−45081
Ising feromagnet, dilute, tricritical behaviour 4−53191
Ising ferromagnetic, models containing many-spin interactions 4−67332
Ising model, critical spin-spin correl. function in mag. field 4−57233
Ising model, random defects effect 4−49141
Ising model, three-spin interactions in triangular lattice, eigenvalue equation 4−60930
Ising model, three-spin interactions in triangular lattice, free energy and correl. length 4−60931
Ising model, two-dimensional one-spin-flip, first-order or discontinuous phase transition simulation 4−67341
Ising model on Cayley tree lattice, continuous phase transition 4−79482
Ising system, decorated, phase diagram 4−45082
Kagome lattice, spontaneous magnetis. and correl. functions *(Russian)* 4−67320
lattice disorder effect, general model 4−64208
lattice-coupled magnets, crit. behaviour 4−57230
magnetic cluster substances, weakly interacting, phase transition behaviour, magnetic cooling appl. 4−67377
magnetic metal, Hall coeff. near phase transition 4−67205
rel. to magnetocatalytic effects 4−57883
$MnCl_2.4H_2O$, H-T phase diagram, spin wave renormalization 4−64205
Mossbauer spectroscopy, appl. 4−64319
nuclear materials, thermophysical developments, review 4−51881
perovskite stressed crystal, displacive transitions, polycritical points, floplike transitions 4−70155
Potts model, exact transition temp. for triangular and honeycomb lattices 4−45079
rare earth metal films, optical props. and mag. ordering 4−79823

magnetic transitions of substances continued
rare earth-Fe, R_2Fe_{17}, ferromag., ferrimag. and helimag. transitions, negatve thermal expansion 4−72963
singlet ground state system, dynamics 4−53230
singlet-triplet ferromagnet, dynamics 4−70123
singlet-triplet ferromagnet, soft mode dynamics 4−70124
solid solutions, extension of cluster approximation *(Russian)* 4−82546
specific heat meas., high resolution vacuum calorimeter, continuous heating 4−62436
spin dynamics, near magnetic bicritical points 4−82563
spinel compounds, hidden antiferroelec. and other phys. props. 4−70270
square Ising spin lattice, critical surface renormalisation transforms 4−81248
structural aspects, coupling of cooperative phenomena 4−63919
surface magnetic order above bulk ordering temp., mag.-field theory 4−57277
surface magnetic order above bulk ordering temperature mag.-field theory 4−57276
surface scaling theory applied to Ising and Heisenberg models 4−53193
thermal diffusivity and specific heat, simultaneous meas. 4−48770
tricritical systems with long-range interactions, elastic spin models 4−76029
trimethyl ammonium manganese bromide, canted antiferromag. 4−64213
X-Y coupled linear chain, instability leading to second order phase transition *(French)* 4−53190
Au-Fe alloy, neutron irrad. effects on mag. order, Mossbauer obs. 4−64287
$Ba(Fe_xGa_{1-x})_2O_4$, critical concentration for para- to antiferromagnetic arrangement *(French)* 4−53240
Ce liquid alloys, mag. susceptibility meas. *(German)* 4−79511
$CeAl_3$, transition to mag. state without mag. scatt. 4−60960
CeS, mag. ordering, neutron diffr. obs. 4−57287
$CoBr_2.6H_2O$, specific heat transition rounding, residual stress effects 4−72964
$CoCl_2.6H_2O$, H-T phase diagram, spin wave renormalization 4−64205
Co_cGa (C=0.85-1.46), paramag. ferromag. transition, mag. props. rel. to atomic struct. 4−45098
CoO, antiferromag., effect on optical absorption edge 4−79749
CoO, antiferromagnetic, positron annihilation meas. 4−67365
CoP_xS_{2-x}, prep., cryst. struct., mag. props. 4−72965
Cr, antiferromag.-paramag., spin density wave harmonics 4−64207
Cr, antiferromagnetic-paramagnetic transition, first order, role of harmonics 4−72968
Cr-Fe, magnetic ordering, pressure effects 4−70151
$CrAl_7$, antiferromag. to paramag., n.m.r. susceptibility and sp. ht. meas. 4−64278
Cr_2O_3, antiferromagnetic, positron annihilation meas. 4−67365
Cr_2O_3 antiferro-paramagnetic transition, h.f. ultrasonic study *(French)* 4−53228
$CsCoCl_3$, paramag. to antiferromag, mag. struct. obs. by neutron diffraction 4−57289
$CsCoCl_3.2D_2O$, magnetic phase diagram, tricritical point 4−79517
$CsNiF_3$, mag. phase diagram determ. by neutron diffraction 4−45116
$Cu_{1-x}Ag_xMn_3N$, solid solution, first order transition 4−67376
$CuFe_{2-2x}Ga_{2x}O_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
$CuFe_{2-2x}Zn_xGe_xO_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
$CuFe_{2-2x}Zn_xTi_xO_4$, cooperative Jahn-Teller distortions, comp. and temp. depend. 4−79135
$CuWO_4$ small-dimens. antiferromag., mag. dilution effect on crit. temp. *(Russian)* 4−72971
Dy, magnetoresistance and field-induced phase transitions in the helical antiferromagnetic state 4−45112
Dy, u.s. absorpt. near ferromagnetic-spiral transition 4−53274
DyAl garnet, antiferromag., mixed phase region, microscope obs. 4−64204
$DyFe_{0.998}Fe_{0.002}O_3$, spin reorientation transitions, mag. props. and n.m.r. *(Russian)* 4−70157
DyS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4−76082
DyS, susceptibility meas., antiferromag., distortion effect 4−64206
$DyVO_4$, antiferromag. paramag. phase transition spectroscopic investigation 4−76078
$Dy_pY_{1-p}VO_4$, $0\leqslant p\leqslant 1$, cooperative Jahn-Teller effect 4−79298
Er, elastic constants and magnetoelasticity in single crysts., 4.2-300K rel. to ordering transitions 4−45160
$ErAl_3$, cubic, antiferromagnetic transition, mag. struct., neutron diffr. obs. 4−49181
ErS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4−76082
ErS, susceptibility meas., antiferromag., distortion effect 4−64206
EuH_2, Mossbauer studies, mag. and solid state props. 4−73055
Eu_xLa_{1-x}, magnetic superconductor, phase diagram determ. 4−70091
$EuLiH_3$, high ferromag. transition temp. rel. to $EuTiO_3$, $EuZrO_3$, Eu^{2+} 5d splittings, cryst. field calc. 4−76068
EuO, thin reeds, thermoelastic relax. near Curie point, acoustic props. meas. 4−57279
EuO:Gd exchange optics, absorpt. and Faraday rotation meas., 13 eV to 250 μ 4−57568
$EuTiO_3$, Eu^{2+} 5d splittings, ferromag. transition temp., cryst. field calcs. 4−76068
$EuVO_3$, mag. susceptibility meas., paramag. to antiferromag. transition 4−57264
$EuZrO_3$, Eu^{2+} 5d splittings, ferromag. transition temp., cryst. field calcs. 4−76068
Fe, specific heat and elec. resist. meas. near Curie point 4−64217
γ-Fe-Mn, mag. transform. *(Russian)* 4−67362
Fe-Ni-C(Mn) alloys, Invar type, crit. conc. region, ^{57}Fe Mossbauer effect 4−64300
Fe-Ni(30-50%) alloys, conc. depend. of Curie temp., collective electron ferromagnetism interpretation 4−67366

magnetic transitions of substances continued
$FeCl_2$, Faraday rot., metamagnetic phase transition, hysteresis effect 4−64360
$FeCl_3$, antiferromag., spin structure and phases, Mossbauer obs., 1.47-300K 4−45217
$FeCl_2.2H_2O$, Mossbauer spectrum anal. 4−64291
FeF_2, heat capacity near antiferromag. transition 4−64218
$FeGeO_3$, evidence for spin-reorientation type phase transition 4−57282
FeI_2, mag. struct., phase transitions in high field 4−64220
Fe(II) complex, dithiocyanatobis(4,7-dimethyl-1,10-phenanthroline)iron(II), cooperative high-spin to a low-spin transition 4−70238
γ-$Fe_{50}(Ni_xMn_{1-x})_{50}$, mag. phase diagram determ. by Mossbauer obs. 4−53238
α-Fe_2O_3, hematite, phase states in mag. field 4−76087
Fe_2O_3, hematite, second kind, thermodynamic theory 4−60961
Fe_3O_4, magnetite, small particle size effects on kinetic and mag. props. *(Russian)* 4−79556
Fe_xO ($0.99\leqslant x\leqslant 1$), antiferromag. semicond., critical resist. 4−79519
$Fe(Pd_xPt_{1-x})$ alloy, mag. props., ferrimag.-ferromag. transition, Curie and Neel temps. 4−57273
FeRh, FeRhPd(Ir) ordered alloys, magnetisation, 4.2K, 0-370 kOe 4−79326
$GaMn_3C$, Mossbauer effect of ^{57}Fe, antiferro-ferromag. transition *(French)* 4−61080
Gd-Y alloy, mag. props., electrical resistivity, thermal expsn. 4−57272
$GdCrO_3$, moments below 100K and sp. ht. below 10K 4−76079
$GdCu_2$ antiferromagnetic-ferromagnetic transition, mag. props. and indirect exchange 4−79520
$GdNi_2$, critical mag. susceptibility in presence of long-range forces 4−49176
$(GeTe)_{1-x}(MnTe)_x$, pseudobinary alloy, magnetisation meas., RKKY theory 4−57316
^3He, superfluid, comparison with fluctuation theory 4−52961
^3He solid, obs. of nuclear magnetic ordering 4−44733
Ho, elastic constants and magnetoelasticity obs. from 4.2 to 300K 4−67414
Ho, Hall effect anomalous in single crysts. in helicoidal mag. ordering region *(Russian)* 4−79337
Ho, u.s. identification of new spin-ordering phase transition 4−76085
$HoAsO_4$, paramagnetic-antiferromagnetic transition, specific heat and spectroscopic low temp. meas., 4−82564
HoZn, sp. ht., mag. props. 4−70156
$KCuF_3$, neutron scatt. exam. of crit. phenomena, universality and scaling 4−76077
$KFeCl_3$, neutron diffraction obs. of paramag. to antiferromag. transition at 16K 4−64223
$KFeCl_3$, relax. effects and evidence for one-dimensional ordering using Mossbauer spectroscopy 4−76203
K_2MF_4, M=Co, Cu, Mn, neutron scatt. exam. of crit. phenomena, universality and scaling 4−76077
$KMnF_3$, spin reorientation in low temp. phase, antiferomag. reson. anal. 4−76084
K_2MnF_4, planar antiferromagnet, critical fluctuations, ^{19}F n.m.r. obs. 4−57278
$La_{1-x}Sr_xCoO_3$, spin state equilib., magnetic and electron transport props. Mossbauer spectroscopy 4−70234
$(La_{1-x}Th_x)_{1-c}Ce_c$, mag. to non mag. transition, theoretical model 4−57281
Mn-Ir alloy, γ-phase, crystallographic and mag. transitions obs. 4−45109
Mn-Ir alloy, γ-phase, neutron diffr. study 4−45119
Mn-Ni-Fe antiferromag. Elinvar-type alloy characts. 4−79567
Mn-Rh system, formation of superparamag. state obs. 4−79521
Mn^{2+} complex, bis(methylammonium)tetrachloromanganate, mag. suscept. determ. rel. to temp., mag. transition investig. 4−60955
MnB_4O_7, cryst. struct., magnetism and thermal extinction depend. 4−44521
MnBi:Sb, thin film, thermomagnetic writing, Curie temp. meas. 4−79559
$(Mn_{1-x}Co_x)_2As$ solid solution, mag. transition comp. depend. rel. to struct. obs. *(French)* 4−49173
MnO, antiferromag., effect on optical absorption edge 4−79749
MnP, mag. phase diagram determ. by u.s. pulse echo technique 4−49177
Mn_3Pt, antiferromagnetic-antiferromagnetic transition, thermodynamic investigation 4−72967
α-MnS, antiferromag., effect on optical absorption edge 4−79749
Mn_2Sb, Cr modified, first order phase transition, magnetic domain obs. 4−64237
MnTe, antiferromagnetic positron annihilation meas. 4−67365
Mn_3TeO_6, antiferromagnetism, e.s.r. and susceptibility meas. 4−57271
$MnTiO_3$, neutron scatt. exam. of anisotropic spin correlations 4−76086
NdS, antiferromagnetic and structural transition obs., mag. susceptibility meas. 4−76082
NdS, susceptibility meas., antiferromag., distortion effect 4−64206
NdS(Se)(Te), mag. ordering, neutron diffr. obs. 4−57287
$NdVO_3$, mag. susceptibility meas., paramag. to antiferromag. transition 4−57264
Ni-Rh, critical magnetic behaviour of giant moments 4−67370
(Ni en$_3$) $(NO_3)_2$, zero-field susceptibility rel. to temp. determ., mag. transition investig. 4−49167
$NiCO_3$, antiferromag., 4.2-80K *(Russian)* 4−67374
$Ni_xCd_{1-x}(NH_3)_2.Ni(CN)_4.2C_6H_6$, exam. by sp. ht. meas. 4−76076
$NiCl_2$/graphite lamellar cpd., disordered *(Russian)* 4−70160
$NiCr_xFe_{2-x}O_4$, effect of chem. uniformity on mag. props. 4−49168
$Ni_{0.9}Cu_{0.1}S_2$, neutron diffraction, exam. of mag. struct. and antiferromagnetism 4−79525
$NiFe_2Se_4$, thermal expansion, two anomalies *(Russian)* 4−67054
Ni_3Mn, ordering, annealing effect 4−82559
NiO-ZnO(CuO) solid solns., struct. and antiferromag. props., influence on reactivity 4−72969
NiS, hexagonal, metal-insulator para.-antiferromag. transition 4−64032

magnetic transitions of substances continued
- NpAs(N,P.Sb), lattice distortion effect under mag. field 4-64209
- NpP, paramag. to complex order phase at 120K 4-49163
- $NpPd_3$, magnetisation, Mossbauer and susceptibility meas., 1.5 to 300K 4-67359
- Pb-Ni alloys, disordered, critical concentration, phenomenological theory 4-82561
- Pd-Fe alloys, dil., mag. ordering *(Russian)* 4-70168
- $(Pd_{1-x}Ag_x)_{0.99}Fe_{0.01}$, low field susceptibility, temp. depend. in region of ordering temp. 4-64190
- PrAg, antiferromag. transition at 14K 4-49183
- $PuPd_3$, magnetisation, Mossbauer and susceptibility meas., 1.5 to 300K 4-67359
- Si, e.p.r. dislocation spectra, 1.3-150K, one-dimens. spin chain model *(Russian)* 4-73014
- Tb, u.s. absorpt. near ferromagnetic-spiral transition 4-53274
- $TbFe_2$, amorphous, anomalous small-angle magnetic scatt. 4-70154
- $Tb_pGd_{1-p}VO_4$, $0 \leqslant p \leqslant 1$, cooperative Jahn-Teller effect 4-79298
- TbSe, mag. ordering, neutron diffr. obs. 4-57287
- $Tb_{0.5}Y_{0.5}Ni$, narrow domain wall propag. and metamag. props. 4-45149
- TbZn, sp. ht., mag. props. 4-70156
- $TmVO_4$, with cooperative Jahn Teller effect mag. props. 4-79500
- UAs, electron delocalisation model explanation of mag. props. 4-53205
- $UAs_{1-x}S_x$, $UAs_{1-x}P_x$, electron delocalisation model explanation of mag. props. 4-53205
- UCu_5, mag. susceptibility, antiferromag. transition 4-64191
- UP-USe, neutron diffr. 4-76081
- $UP_{1-x}S_x$, electron delocalisation model explanation of mag. props. 4-53205
- VF_4, antiferromag., mag. ordering obs. by mag. susceptibility and n.m.r. obs. 4-57283
- V_2O_3, antiferromagnetic, positron annihilation meas. 4-67365
- V_4O_7, metallic and insulating, microscopic mag. props., ^{51}V n.m.r. determ. 4-45193
- V_7O_{13}, metallic, microscopic mag. props., ^{51}V n.m.r. determ. 4-45193
- YFe_2, amorphous, anomalous small-angle magnetic scatt. 4-70154
- $YFeO_3$ alteration of antiferromagnetic order, Mossbauer study, $T \approx T_n$, 0 to 30 kOe *(Russian)* 4-82567
- YVO_3, sp. ht. and thermodynamic parameter anomalies 4-79524
- ZnNi ferrite, neutron field induced 4-57280

magnetic traps
- *see also magnetic bottles*
- adiabaticity parameters for electrons moving close to midplane, crit. value *(Russian)* 4-78811
- beam-plasma system, heating due to modulated beam at lower hybrid reson. freq. *(Russian)* 4-63671
- e.m., based on energy recuperation principle 4-44369
- flute instability in short trap, plasma loss oscill. amplitude limit 4-78770
- heliotron type, stable plasma distrib. 4-60306
- longitudinal, in polarised-electron source, electron-hydrogen spin exchange with teflon containment 4-55028
- magnetic cusp field, adiabatic RF plugging 4-60308
- minimum-B geometries, target plasma physics 4-44283
- multipole magnetic field config., time-increasing 4-78810
- multislit e.m. trap, electron injection and retention *(Russian)* 4-72385
- open, dense electron cloud generation in mag. field *(Russian)* 4-63684
- oscillations, correlation meas., spiral beam interaction in trap with mag. plug *(Russian)* 4-56485
- spherical multipole, plasma injection, elec. polarisation phenomena 4-44381
- stellarator energy confinement during h.f. heating 4-44272
- stellarator trap with elliptical mag. surfaces transfer coeffs. *(Russian)* 4-72386
- stellarator-type, toroidal system electrodynamic force compensation 4-60310
- toroidal, self-stabilization effect of h.p. plasma *(Russian)* 4-63682
- toroidal systems with spatial magnetic and plane geometric axes 4-60315

magnetic variables control
- Hall probe, mag. peak switching system for spark source mass spectrometry 4-51217

magnetic variables measurement
- *see also fluxmeters; magnetic field measurement; magnetic permeability measurement; magnetometers*
- antiferromagnetic domain switching, magnetoelec. effect as simple obs. method 4-76108
- field modulation technique, synchronous detection, time depend. fields 4-58871
- flux, with resonance-ballistic instrument, accuracy improvement 4-51118
- Hall probe calibration for induction range $\leqslant$3T *(German)* 4-46763
- induction transducer, with a compensating device 4-46764
- loss meas. on materials 4-65500
- magnetic balance, for mag. susceptibility meas. *(Bulgarian)* 4-51116
- magnetite assays in taconite wire, magnetic susceptibility meas. 4-61887
- metal properties, magnetic and e.m. methods *(German)* 4-50066
- proton gyromagnetic ratio meas. improvement 4-65364
- susceptibility, by Faraday method *(Czech)* 4-80961
- susceptibility meas. using superconducting magnetometer, sensitive to 10^{-10} cgs 4-42841
- susceptibility of $CoO\text{-}MoO_3\text{-}Al_2O_3$ catalyst, improved thermogravimetric magnetic susceptibility apparatus 4-65499
- uniaxial transparent ferromagnetics, hysteresis loop recording by Faraday effect 4-54996

magnetic wells *see magnetic traps*

magnetically ordered materials *see magnetic materials*

magnetisation
- *see also demagnetisation; magnetisation process; magnetisation state*
- crystal, kinetoelec., kinetomag. and ferrokinetic effects 4-76106

magnetisation continued
- eight-vertex model, generalized codes for high mag. field and low temp. expansions 4-72936
- ferrite, partially magnetised, low power loss parameters and high power thresholds meas. at 3 to 16.8 GHz 4-45132
- ferrite, partially magnetised, microwave characterisation 4-45131
- ferromagnet, self-oscillations, high intensity microwave electromagnetic fields 4-64243
- ferromagnet in mag. field, variational approximation 4-76041
- ferromagnetic ferroelectric crystal, high freq. props., phenomenological theory 4-76221
- ferromagnetic films, with uniaxial mag. anisotropy in a.c. mag. fields of low intensity *(Rumanian)* 4-70188
- ferromagnetic metal, exchange splitting temp. depend., Stoner excitation, de Haas-van Alphen effect 4-48895
- ferromagnetic semiconductor-dielec.-ferromag. semicond., I-V characts. with mag. changes 4-75951
- ferromagneto-electric crystal, relativistic symmetries and lower bounds for polarisation to magnetisation ratio 4-82555
- garnet, bubble domain, liq. phase epitaxial, neutron irrad. effects on mag. props. 4-57309
- Heisenberg ferromagnet, low-temp. calc. 4-70126
- Heisenberg model, low temperature, calculation of magnetization 4-64178
- Heisenberg-Ising ring, $\Delta \geqslant 1$, finite temp. excitations and thermodynamics 4-67338
- homogeneous ellipsoids with variable mag. susceptibility 4-50252
- induction eqn. in spectral form 4-72339
- inductive magnetisation of almost soft mag. bodies 4-50251
- intensity, definition rel. to adoption of SI units 4-42696
- inverse magnetic problem soln. by magnetis. function determ. 4-68101
- Ising ferrimagnetic model, spontaneous magnetisation 4-45078
- Ising model, Green's temp. func. expansion of ladder approx. 4-49143
- Ising model, nonlinear field theory methods appl., spontaneous magnetization 4-51471
- Ising problem, Cayley trees and thermodynamic limit 4-57241
- itinerant electron ferromagnet, magnetovolume effects press. depend. of Curie temp., theory 4-76046
- kovdor magnetites, partial self-reversal of magnetisation 4-64793
- lunar sample magnetic remanence mechanisms in Fe and Fe-Ni alloys 4-54438
- magnetically soft bodies, numerical soln. of magnetis. problem 4-70657
- magnets, amorphous and high temp. cryst., magnetisation, sp. ht. 4-70153
- manganese (II) phthalocyanine, canted ferromagnetism investigation 4-60982
- measurement, using magnetic field generation and recording apparatus 4-74097
- metal, u.s. absorpt. meas., magnetisation directional softness versus acoustic ferromag. reson. model 4-61013
- orthoferrites, weak ferromagnets, nonlinearity of magnetisation 4-57315
- paramagnetic powder magnetisation, mag. anisotropic compounds 4-72989
- Permalloy, thin film, spin-wave spectra below saturation magnetisation, various orientations 4-82618
- Permalloy film, fluctuation noise intensity depend. on magnetisation freq. *(Russian)* 4-79560
- plasma, laser produced, spontaneous magnetis. of electron thermal cond. *(Russian)* 4-72354
- polycrystalline ferromagnet, singular points on magnetisation curve 4-82583
- rare earth Co_5 permanent magnets, easy domain wall nucleation investigation 4-60984
- rare earth $Fe_2(Fe_3)$, effective exchange fields, temp. depend. of spontaneous magnetisation 4-79505
- rare earth intermetallics, $R_2(Co_{1-x}T_x)_{17}$, R=Sm, Er, T=Fe, Ni, mag. characts. and lattice const. meas. 4-53260
- ruby, optically induced precessing magnetization using mode locked laser pulses 4-67431
- seamounts, nonuniform magnetization, estimation methods 4-61890
- singlet-triplet system, two-component induced-moment cryst., mean-field model 4-67323
- steel, magnetisation discontinuities, statistical props. rel. to grain size distrib. 4-57734
- superconductor, type II, low-χ, flow stress of flux line lattice and magnetisation curve 4-76012
- titanomagnetites, magnetisation reversals of partially unmixed samples 4-70641
- uniaxial S=1 antiferromagnet, Green function technique, exchange terms, calc. sublattice magnetization 4-82556
- Au-Fe(15 at%) alloy, spin glass behaviour obs. 4-53242
- Bi, magnetic behaviour at high fields 4-45138
- Co-Fe-Ru in f.c.c. and h.c.p. phases, magnetisation, Mossbauer and cryst. struct. meas. 4-82588
- $CoBr_2.6H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4-61043
- $CoCl_2.6H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4-61043
- $CoFe_{2-x}Cr_xO_4$ (x=0.5; 1; 2), in temperature range 77K to room, fields up to 12 kOe *(Russian)* 4-82589
- $(Co_xFe_{1-x})_2P$, orthorhombic, magnetocryst. anisotropy 4-82578
- Cu-Ni, ferromag. and superparamag. alloys, moment assignments from saturation magnetisation data 4-76058
- $CuCl_2.2H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4-61043
- Dy thin sheet, secondary recrystallisation, magnetisation obs. at 4.2K and 77K 4-79540
- DyAl garnet, time reversed antiferromag. states, magneto-optical rot., magnetisation depend. 4-64361
- Dy_3Si_5, mag. field and temp. depend. 4-60943
- $ErAl_3$, cubic, saturation moment, rel. to antiferromag. transition and mag. struct. 4-49181
- Fe-Ni, Invar, validity of Stoner-Wohlfarth model 4-57319
- FeGe, ferromag. reson. obs., 77K-300K 4-67454
- $(Fe_{1-x}Me_x)_3C$, Me=Cr, Ni, Mossbauer absorption spectra and magnetisation meas. 4-79544

magnetisation continued
Fe_3O_4, magnetite, small particle size effects on kinetic and mag. props. *(Russian)* 4−79556
Fe_3P, ferromag., mag. struct. obs. 4−45120
FeRh,FeRhPd(Ir) ordered alloys, 4.2K, 0-370 kOe 4−79326
$Fe_{3-x}Sn_xO_4$, mol. field coeffs. determ. from paramag. meas. *(French)* 4−64184
Fe_2Te_3, 2 to 300K, Curie temperature, effective magneton number 4−45225
$Fe_{1-x}Ti_{1+x}$ near stoichiometric composition, superparamagnetism obs. 4−76119
Gd_3Si_5, mag. field and temp. depend. 4−60943
$(GeTe)_{1-x}(MnTe)_x$, pseudobinary alloy, ferromag. props., RKKY theory for $x<0.15$ 4−57316
^3He-A, superfluid, nonlinear phenomena 4−72610
$LaSi_{1.6}Ni_{0.4}$, $LaSi_{1.6}Fe_{0.4}$, mag. field and temp. depend. 4−60943
Li ferrite, characterisation for microwave applications 4−45133
$Li_{0.5}Fe_{2.5}O_4$:Ru, photomagnetic effects obs. 4−60985
$LiNiO_2$, linear field depend. *(French)* 4−82552
$MgFe_{2-x}Al_xO_4$ spinel ferrites for magnetic bubble domain memory 4−57308
Mn-Bi-Te film, magneto-optical material, temp. depend. 4−57331
MnBi film, temp. depend. obs., appl. to thermomag. writing 4−53271
$MnCl_2.4H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4−61043
MnO-P_2O_5 glass, amorphous antiferromag., magnetisation as function of temp. and mag. field 4−57320
Nb wire, influence of gaseous impurities on superconducting properties *(German)* 4−79452
Nb:Y(Gd), fluxoid pinning by d.c. magnetisation meas. rel. to high-angle grain boundaries 4−82528
$NdAl_2$, single cryst., high field, cryst. field theory anal. 4−73000
$Nd_3Gd_5O_{12}$, magnetisation curves, anisotropy 4−64230
$NdSi_{1.6}Ni_{0.4}$, $NdSi_{1.6}Fe_{0.4}$, mag. field and temp. depend. 4−60943
Ni-Cr alloys, determ. by ferromag. reson. 4−61038
Ni-Pt, electronic specific heat coeff., coherent potential approximation calc., magnetisation calc. 4−82562
Ni-Pt alloys, ferromag. props. at high field and press. near crit. conc. for ferromagnetism 4−53256
Ni-Rh, critical magnetic behaviour of giant moments 4−67370
Ni-Sb(Ir) alloys, charge screening and mag. props. obs. 4−64025
Ni-SiO_2 catalyst, adsorption of acetylene, saturation magnetis., LEED and thermodesorption meas. *(French)* 4−44776
NiCoCuM ferrite, piezomagnetic, static magnetic props. 4−64252
Ni_2MnGa, Heusler alloy, Curie point, magnetisation and saturation magnetic moment 4−79510
Np monopnictides, obs. of ferromag., antiferromag. props. 4−64224
NpP, paramag. and ordered phase mag. props., strong cryst. fields, n.m.r. meas. 4−49163
$NpPd_3$, mag. props. obs. from 1.5 to 300K 4−67359
$PuPd_3$, mag. props. obs. from 1.5 to 300K 4−67359
$Sc:Er^{3+}$, single crystal, magnetisation and e.s.r., crystalline electric field parameters, energy level calc. 4−82587
$SmFe_{1-x}Al_xO_3$, mag. anomaly, compensation pt., induced moments 4−79502
$(Sm_{1-x}R_x)_2Co_{17}$, R=Pr, Gd, Y, mag. characts. and lattice const. meas. 4−53260
$TbAl_2$, magnetocrystalline anisotropy in single crystals 4−45129
Tb_3Si_5, mag field and temp. depend. 4−60943
$(Ti,V)_2O_3$, low temp. mag. props., model behaviour 4−60958
$TmCrO_3$, meas. of weak ferromag. moments, antiferromag. exchange and cryst. field splittings 4−76105
UAs, electron delocalisation model explanation of mag. props. 4−53205
Y:Dy(Er), h.c.p. single crystals, cryst. field mag. anisotropy 4−57260
$YAG:Nd^{3+}$, magnetisation curves, anisotropy 4−64230
$Y_3Fe_{5-x}Ga_xO_{12}$, single crysts., losses during alternating magnetisation *(Russian)* 4−72991
$YFeO_3$, weak ferromagnet, nonlinearity of magnetisation 4−57315
$Y_3Fe_5O_{12}$, scaling functions, critical mag. props. *(Russian)* 4−64219
YGdAlFe garnet, saturation magnetis., Fe content depend. 4−67407
YIG:Si, temp. and field depends. 4−76118
$YIG:Si^{4+}$, photoinduced changes in mag. props. obs. 4−76122
$Y_{3-x}Sm_x(Fe_{2-y}Ga_y)(Fe_{3-z}Ga_z)O_{12}$, effect of tetrahedral vs octahedral Ga site occupancy on props. 4−70183
$Y_3[Fe_{2-x}Ga_x](Fe_{3-y}Ga_y)O_{12}$, saturation value, mol. field theory comparison 4−67398

magnetisation process
see also Barkhausen effect; coercive force; remanence
diamagnetic with dielectric props. in a.c. field *(Russian)* 4−57252
1,3-diazaazulene, in naphthalene cryst., e.p.r., transient effects, phosphoresc. state, dynamics of photomagnetization 4−79777
ferromagnet, irreversible processes, Barkhausen jumps 4−72996
garnet, rel. to magnetoelec. behaviour 4−76111
Ising model crit. field, with first, second-neighbour interactions 4−67331
rocks, disaccommodation and viscous magnetization mechanisms 4−68062
soft magnetic materials, conference, Torino Italy (1973) 4−72929
Dy_2O_3, powder, high-field magnetisation meas., 1.45 to 4.2K 4−76123
Fe, residual elec. resist., current depend. mechanism 4−57072
Fe_7Se_8, mag. props. from Mossbauer studies 4−45218
$Gd_3Fe_5O_{12}$ film, magnetization processes involving planar compensation walls 4−60996
Ge-Mn-Te dilute alloys, magnetisation and magnetoresistance meas. at low temps. 4−44902
$Pd_{1-x}Rh_x$(1%Ni) alloy, high field magnetisation and magnetoresistance meas. 4−44903
$Tb(OH)_3$, mag. and thermal props., Ising-like behaviour 4−45100
$Tb_{0.5}Y_{0.5}Ni$, narrow domain wall propag. and metamag. props. 4−45149
UAsS, anisotropy, temp. depend., model 4−53251
UAsSe, anisotropy, temp. depend., model 4−53251
YIG, laminar domain struct., switching, light diffr. 4−79549

magnetisation state
see also magnetic anisotropy; magnetic domains
Amperian model interpret. of magnetis. energy density 4−60969
ferroliquid, prep. and saturation magnetis. 4−82990
ferromagnet, conducting polycryst., dynamic mag. props. *(Russian)* 4−60974
ferromagnet, fluctuations over spin wave excitation threshold *(Russian)* 4−45126
ferromagnet, infinite interaction range model, spin-free formulation 4−45069
ferromagnetic crystals, time reversal illustration from existence of two spin vectors 4−53183
ferromagnetic particle suspension, mag. viscosity tensor *(Russian)* 4−79555
ferromagnetic plate, local variation in anisotropy const. influence on mag. state *(Russian)* 4−72990
film, reversal magnetisation anomalies at ferro-antiferro. interaction *(Russian)* 4−53266
film with exchange anisotropy, subharmonic oscillations of magnetis. *(Russian)* 4−49200
film with stripe domain struct., mag. reversal curves *(Russian)* 4−49199
Invar with Mn admixture, Mossbauer effect and mag. struct *(Russian)* 4−76204
itinerant electron antiferromagnet, effect of spin fluctuations 4−57244
itinerant electron ferromagnetism, functional integral approach, mol. field theory 4−45086
Kagome lattice, spontaneous magnetis. and correl. functions *(Russian)* 4−67320
permalloy, thin films, relax. of dynamic domain struct. rot. of magnetisation vectors *(Russian)* 4−67390
Permalloy film, cathodically sputtered, mag. props. depend. on deposition parameters *(Russian)* 4−53261
Permalloy film, interaction energy of dislocations with magnetostriction, anisotropy explanation 4−53267
polymer/ferromagnetic filler system, mag. field effect on vol. elec. resist. 4−82991
rail crack detection, defect dynamic field contributions of magnetisation and eddy currents, expt. 4−47278
rare earth orthoferrites, dipolar interactions 4−82568
rare earth-$Fe_2(Co_2)$, temp. depend., Neel model 4−60947
single domain particles, noninteracting assembly *(Russian)* 4−60988
steel, ferritic, grain size meas. by magnetis. discontinuities *(German, English)* 4−49718
steel, transformer grade, textured, surface coatings influence on mag. props. *(Russian)* 4−60976
surface boundary condition for spin wave reson. spectra 4−67457
trimethyl ammonium manganese bromide, canted antiferromag. 4−64213
uniaxial crystals with twinned orientations, mag. reversals *(Russian)* 4−60975
viscous magnetisation characts. of rocks 4−83065
Au-Ni, electrical resistance, magnetisation, temp. depend. 4−72743
Au-Ni alloy, elec. resist. and magnetization, 4.2K-room temp. 4−64056
$BaFe_{12-x}Ti_xO_{19}$, $BaFe_{12-y}Sb_yO_{19}$, mag. anisotropy and saturation 4−82579
BaSr ferrites, sublattice magnetisation, temp. depend. 4−57441
BiMn, ferromagnetic hyperfine field at Bi, low temp. nuclear orientation 4−73053
$CdCr_2S_4(Se_4)$, Curie temp. and Weiss const. obs. 4−60970
CeBi, single crystals, magnetic props., 2-30K 4−70181
Co-12-20 at.% P amorphous alloys temperature and magnetic field dependence 4−45152
Co-P alloys, amorphous, mag. props. 4−60978
$CoCl_2$/graphite laminar cpds., mag. ordered state with easy plane type anisotropy *(Russian)* 4−67406
$CoCl_3((CH_3)_3NH).2H_2O$, metamagnetism, spin arrangements and magnetisation state, n.m.r. obs. 4−57291
$CoFe_2O_4$, form. from $Co(OH)_2+Fe(OOH)$, specific saturation magnetisation meas. 4−44496
Co_cGa, (c=0.85-1.46), Co clusters and giant moments 4−45098
CoS_2-NiS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
$Co_{21}Sn_2B_6$, induced superfine fields on ^{119}Sn below Curie temp. *(Russian)* 4−53347
$CsFeF_4$, layer antiferromagnet, sublattice magnetisation, Mossbauer obs. 4−64241
Cu-Mn-Al alloys, magnetisation and coercive force *(Japanese)* 4−45150
$CuFe_2O_4$, tetragonally distorted mag. ordering behaviour 4−57342
$(Eu,Y)_3(Fe,Ga)_5O_{12}$ mag. bubble films, rot. effects on epitaxial growth and mag. characts. 4−45431
EuYbY garnet films, LEP, charact. 4−49202
Fe, particle suspension, 4.2-300K 4−60989
Fe-Ni conc. and temp. depend., order-disorder transform. behaviour, saturation magnetis., correl. of ferromag. reson. conc. depend. *(Russian)* 4−67459
Fe-Ni-C(Mn) alloys, Invar type, crit. conc. region, ^{57}Fe Mossbauer effect 4−64300
Fe-Si (3 wt.%), mag. anisotropy consts., torque magnetometer obs. *(Russian)* 4−67388
$Fe(Pd_xPt_{1-x})$ alloy, rel. to ordering, cluster model 4−57273
FeS_2-CoS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
Gd-Sm, ferromag. Curie temp. determ. 4−64210
Gd-Y (6-64 at.% Gd), magnetisation and microwave reson., mag. struct. 4−45099
Gd-Y alloy, ordering conc. depend. 4−57272
$(GeTe)_{99}(MnTe)_1$, exchange scatt. obs. 4−45105
$HgCr_2S_4(Se_4)$, Curie temp. and Weiss const. obs. 4−60970
Ho-Co(Fe), amorphous films, mag. props. of amorphous, cryst. states, magnetisation meas. 4−76128
$HoFeO_3$, dipolar interactions 4−82568
$KCuF_3$, neutron scatt. exam. of crit. phenomena, universality and scaling 4−76077
K_2CuF_4, two-dimensional ferromagnet, exptl. obs. *(Japanese)* 4−45125

magnetisation state continued
K_2MF_4, M=Co, Cu, Mn, neutron scatt. exam. of crit. phenomena, universality and scaling 4−76077
$LaFe_{12}O_{19}$, anisotropy and saturation 4−82579
$LaFe_{12}O_{19}$, Mossbauer effect obs. 4−82644
Lu:Tb(Dy)(Er), cryst. field parameters determ. from mag. meas. 4−76053
Mn_3O_4-Mn_2SnO_4, field and temp. depends., ferrimag. *(French)* 4−70148
Nb-Ti(Zr) alloys, supercond., deformed, magnetis. and remanence *(Russian)* 4−70111
Ni (001) film, crit. thickness rel. to magnetisation direction, magnetoresist. meas. 4−57339
Ni-Fe(10 wt.%) alloy films, domain boundary starting field, isotropic stresses influence *(Russian)* 4−61003
Ni-Pt, spin coupling, variation with chem. order 4−70144
$NiCl_2$/graphite laminar cpds., mag. ordered state with easy plane type anisotropy *(Russian)* 4−67406
$NiCl_2$/graphite laminar cpd., mag. ordered, ^{35}Cl n.m.r., spontaneous magnetis. behaviour *(Russian)* 4−67470
NiF_2, weak ferromag., domain struct. changes 4−79551
$Ni_3(Fe,V)$ alloys, vanadium effects on mag. and mech. props. *(Russian)* 4−64235
NiS_2-CuS_2, pyrite struct., ferro-, antiferro- and paramag. props., metal and insulator phases 4−76057
$NpAl_3$, ferromag. ordering, 4-300K 4−64211
Pd-Fe, dilute alloy, exchange field distrib. effect 4−45143
Pd-Fe alloy, dil., sp.ht. and magnetization, effect of strong spin correl. 4−64201
Pd-Ni, dilute alloys high press. mag. behaviour obs. 4−76121
$Pd_{80-x}Co_xSi_{20}$ amorphous alloys, effect of Co conc. 4−70182
Sc:Tb(Dy)(Er), cryst. field parameters determ. from mag. meas. 4−76053
$SmCo_5$, permanent mag. props., annealing temp. depend. 4−57318
$(Sm_{1-x}Pr_x)Co_5$, domain struct. of magnets *(Russian)* 4−67394
$SrMnO_3$, cubic perovskite type, magnetic structure 4−72976
$TmCo_2$ single spherical crystal, magnetic properties, rel. to crystal axes 4−64194
$UAs_{1-x}Sx$ system antiferromag. and ferromag. props. with varying comp., 4.2 to 200K 4−79543
VF_2, helical magnet, mag. props. investigation by Green's function method 4−76061
Y:Tb(Dy)(Er), cryst. field parameters determ. from mag. meas. 4−76053
$YFeO_3$, dipolar interactions 4−82568
YIG, homogeneous mag. relax. near second order phase transition *(Russian)* 4−67373
ZnNi ferrite, temp. depend., neutron field effect 4−57280

magnetism
see also antiferromagnetism; band model of magnetism; diamagnetism; electromagnetism; ferrimagnetism; ferromagnetism; geomagnetism; Heisenberg model; Ising model; magnetic moments; magnetic monopoles; metamagnetism; paramagnetism; rock magnetism; stellar magnetism; superparamagnetism; X-Y model
Bose-operator expansions of tensor operators 4−45070
conference, Boston, USA (Nov., 1973) 4−57227
electron correlation, self consistent random state field approx. 4−64174
Euler's theorem, generalization rel. to static thermodynamic scaling 4−57231
fluid, nonlinear, polarizable, energy-based formulation of stresses 4−76136
free magnetic body, in constant magnetic field, stability calc. *(Russian)* 4−77585
Green's function and magnetism of free electrons, coherent representation *(Russian)* 4−82542
layered isotropic magnets, study of thermodynamic properties at low temperatures 4−53188
Luttinger-Tisza problem for mag. systems, soln. using Fourier transforms 4−49135
magnetocatalytic effects, expt. evidence 4−57883
many-body theory, for ions with complicated level structure 4−67326
nucleus-electron complex system, exchange interactions 4−64173
spin-free quantum chemistry, infinite interaction range model for ferromagnetism 4−45069
spin-free quantum chemistry, spin wave formulation 4−45068
surface reactions over solid substrates, magnetic effects, theory 4−57884
tricritical systems with long-range interactions, elastic spin models 4−76029

magnetization *see magnetisation*

magneto-optical devices
data film, thermal and magnetization dynamics of information spot heating 4−68806
ferrite garnet, laser radiation propag. theory, random magnetization 4−70283
garnet film waveguide, quadratic magneto-optical effect on light propag. 4−76239
h.f. two-coil Faraday modulator 4−62463
Permalloy film store, laser apparatus for data recording 4−59461
$(Y,Gd,La)_3(Fe,Al,Ga)_5O_{12}$ garnet magneto-optical memory based on compensation wall domains 4−49197

magneto-optical effects
see also Faraday effect; Kerr magneto-optical effect; magnetoreflectance; optical constants; Zeeman effect
anthracene:tetracene delayed fluorescence, triplet exciton interactions *(German)* 4−79778
anthracene, in soln., delayed fluoresc., radical ion quenching rel. to conc., mag. field 4−48065
benzene, B_{2u} state, mag. circular dichroism, absorpt. spectra meas., rot. strengths calc. 4−81775
benzole derivatives, magnetic circular dichroism spectra, mol. orbital calcs. 4−43818
Cotton-Mouton effect in strong field, diamag. and paramag. materials 4−61133
dielectric material, light velocity in mag. field 4−71497

magneto-optical effects continued
dinaphth[de-1,2,3; d'e'-5,6,7]azulene, in stretched polymers, polarized absorpt. spectra, linear and mag. circular dichroism 4−57564
ferrimagnetic single crystal, light modulator for one-axis autocollimator 4−46633
ferrite garnet, laser radiation propag. theory, random magnetization 4−70283
film, thermomagnetic writing with laser beams stable domain radii calculation 4−53400
graphite, aquadag colloidal, polydispersiveness determ. 4−50039
magneto-Cosserat fluid, polarisable linear, optical props. 4−71499
magneto-optical intensities, hamiltonians 4−73103
metallographic technique using variable high mag. fields for mag. domain struct. investig. *(German, English)* 4−49196
molecule in dense media, chem. substitution effect on absorpt. spectra and MCD 4−52112
naphthalene magneto-electrets, depolarisation of positive isocharge by light 4−45233
nonlinear, third harmonic generation, kinetic theory 4−43352
nonlinear exciton-magnon absorption coeff. for below threshold incident light wave amplitude *(Russian)* 4−53071
polystyrene, benzene and cyclohexanone solns., aggregation, magneto-optic birefringence 4−48500
rare earth metal films, optical props. and mag. ordering 4−79823
semiconductor, carrier-phonon interaction 4−53399
semiconductor, cyclotron resonance line profile, influence of multiple emission of optical phonons 4−75785
semiconductor, exciton states in high mag. field, interpretation of magnetoabsorpt. meas. 4−44883
semiconductor, in high mag. field, conf., Wurzburg, Germany, (July-Aug., 1974) 4−75747
n-semiconductor, intraband optical absorption in crossed d.c. electric and mag. fields 4−45274
semiconductor, n-type, resonant effects, theory 4−77704
semiconductor with anisotropic energy bands, magnetoabsorpt., longit. elec. field influence 4−79751
solid-state, e.m. wave phenomenon, review 4−53115
tetragonal molecular system, Jahn-Teller instability and mag. circular dichroism for E-orbital state 4−56171
transition metal oxy- and thio-anions, visible u.v. spectra and mag. circular dichroism 4−49375
transition metal phthalocyanines, MCD spectra, charge transfer bands assignment 4−67576
transition metal phthalocyanines, orbital reduction factors in lowest excited states, MCD spectra 4−67577
transparency of magneto-optical materials, absorpt. spectra obs. 4−57576
Voigt profile component determ., use of Fourier transforms 4−47314
$[Mo_6Cl_8]^{4+}$, mag. susceptibility and mag. circular dichroism spectra, ground state config. 4−63397
Ar c.w. laser emission, polarisation in transverse mag. field 4−51559
Au-Ge, Schottky barrier, photovoltaic effect in quantizing mag. fields 4−67277
Bi, band parameters, temp. depend., 4-280K, magnetorefl. obs. 4−79293
Br_2, mol. in soln., mag. circular dichroism, overlapping $0_u{}^+(^3\pi)$ and $^1\pi$ bands 4−67599
$(CH_3NH_3)_2$ $CuCl_4$ single crystals, 6 eV to 40 μ *(German)* 4−79705
$CaF_2:Dy^{3+}$, spin-lattice relax., mag. circular dichroism obs. 4−79768
$CaWO_4:Tb^{3+}$, magnetically induced polarisation of fluorescence lines, cross relaxation *(French)* 4−64433
CdTe, exciton-neutral donor complex luminesc. in mag. field 4−73181
CdTe, studies of donor excitation spectra 4−64362
CdTe excitons, degenerate, magneto-optical studies 4−75835
Cl_2, mol. in soln., mag. circular dichroism, overlapping $0_u{}^+(^3\pi)$ and $^1\pi$ bands 4−67599
$CoCO_3$, mag. birefringence, domain struct. obs. 4−79550
$CoCO_3$, mag. birefringence *(Russian)* 4−79706
CoF_2, antiferromag., circular and mag. circular dichroism meas. 4−57567
Cr(III) ion, absorpt. and mag. circular dichroism spectra 4−49401
Cr_2O_3, antiferromag., $^4A_2 \rightarrow {}^2E$ optical exciton absorpt. spectrum, spin-rotation effect 4−49385
Cs absorption cells, radiooptical resonance lines *(Russian)* 4−53403
Cs_3CoBr_5, absorpt. spectra and mag. circular dichroism of spin-forbidden ligand field transitions 4−61180
$CsCuCl_3$, antiferromag. piezoelectric, field depend. 4−57503
$CsMnF_3$, mag. birefringence *(Russian)* 4−79706
$Cs_2ZrCl_6:Mo^{4+}$, mag. circular dichroism, u.v. absorpt. spectra, temp. depend. and assignments 4−49402
CuBr excitons, degenerate, magneto-optical studies 4−75835
Cu_2O, exciton origin of structure of magnetoabsorption 4−79753
DyAl garnet, time reversed antiferromag. states, magneto-optical rot., magnetisation depend. 4−64361
EuS single crystal, melt-grown, characterization 4−61289
EuSe, mag. field depend. Raman scatt. obs. 4−64386
$FeBO_3$, mag. birefringence, obs. in visible spectrum 4−57575
FeF_2, antiferromag., circular and mag. circular dichroism meas. 4−57567
p-GaAs, excitation above band edge, optical pumping and transverse mag. field effect 4−49446
GaAs, excitons, degenerate, magneto-optical studies 4−75835
GaAs, mechanical stress influence on exciton and magnetooptic absorption spectra 4−67611
n-GaAs:Te, photoluminesc. spectra in strong mag. field to 300 kOe 4−49455
p-GaSb, excitation above band edge, optical pumping and transverse mag. field effect 4−49446
Gd-Co alloy film, amorphous, prep. by sputtering 4−57338
I_2, mol. in soln., mag. circular dichroism, overlapping $0_u{}^+(3\pi)$ and $^1\pi$ bands 4−67599
InP, oscillatory magnetoabsorption spectrum 4−73134
InP excitons, degenerate, magneto-optical studies 4−75835
InSb, mag. resolved fine struct. at E_1 edge 4−79748
InSb, surface polaritons, magneto-optical studies 4−75949

magneto-optical effects continued
- $KMgF_3$:C, magnetic circular dichroism, visible-near u.v. region 4—49369
- $KMgF_3:Mn^{2+}$, mag. circular dichroism, phosphorescence excitation spectrum 4—73171
- K_2MnF_4, antiferromagnet, mag. circular dichroism of $^4A_1$, ^4E region 4—57558
- $KZnF_3:Mn^{2+}$, mag. circular dichroism, phosphorescence excitation spectrum 4—73171
- $MgO:Co^{2+}$, mag. circular dichroism in visible-u.v. region 4—64410
- MnBi, film use in holographic memory stores 4—68709
- MnBi film, magnetooptic properties, component ratio depend. 4—70285
- MnBi film, rel. to optical anisotropy eval. 4—45262
- MnBi:Sb, thermomagnetic writing, ferromagnetic-paramagnetic phase transition, Curie temp. meas. 4—79559
- $MnCO_3$, mag. birefringence *(Russian)* 4—79706
- MnF_2, antiferromag., circular and mag. circular dichroism meas. 4—57567
- MnF_2, antiferromagnet, mag. circular dichroism of $^1A_1$, ^4E region 4—57558
- NaCl crystals with colloid centres, optical activity and magneto-optical props., absorpt. obs. 4—67623
- Nb_3Sn superconducting ribbons, magneto-optical study of flux jumping 4—45052
- Nb_3Sn superconducting ribbon, magnetic flux jumps obs. 4—60913
- NiO, order induced birefringence, Neel temp. 4—60959
- Rb absorption cells, radiooptical resonance lines *(Russian)* 4—53403
- UO_2, mag. circular dichroism, 13000-17000 cm^{-1} 4—45319
- $Y_3Fe_5O_{12}$, film, mag. circular and linear dichroism, absorption 4—73218
- YIG, laminar domain struct., switching, light diffr. 4—79549
- YbTe, thin film, meas. of mag. circular dichroism by visible and u.v. absorpt. spectra 4—53551

magnetoacoustic effects
- acoustic wave propagation in crystals with helical spin ordering 4—73008
- antiferromagnet, sound absorption in spin flop field region, domain wall motion effects *(Russian)* 4—70193
- antiferromagnet, uniaxial, nonresonance absorption of sound in strong mag. fields, magnon-phonon interactions 4—76133
- antiferromagnet, uniaxial, press. effect on magnetoacoustic reson. *(Russian)* 4—76135
- conducting material, damping of u.s. vibrs., mag. field effects 4—58656
- conductive magnetizable medium, sound and simple waves *(Russian)* 4—67415
- coupled magnetoacoustic-flexural wave excitation 4—77497
- excitation relaxation in slow magnetoacoustic wave spectra *(Russian)* 4—82600
- ferrimagnets, acoustic echo 4—57341
- ferromagnet, magnon-phonon mixing, nonlinear effects 4—79565
- ferromagnetic magnetostrictive material, acoustic wave attenuation 4—57340
- heating of semi-infinite body and layer, heat source power determ. *(Russian)* 4—53739
- n-InSb, effect of uniaxial stress on longit. magnetophonon oscills. 4—49009
- liquid crystals, review 4—75446
- metal, u.s. absorpt. meas., magnetisation directional softness versus acoustic ferromag. reson. model 4—61013
- metals, e.m. generation of sound waves, strong magnetic field *(Russian)* 4—79283
- plasma layer, magnetoacoustic wave diffraction, periodically perturbed mag. field 4—44172
- plasma stabilization, drift-dissipative instability 4—48432
- stability of magnetoacoustic modes in inhomogeneous fluid 4—72338
- viscous fluid, MHD approximation 4—52330
- $AuSb_2$, effective mass cryst. orientation depend. 4—82353
- Bi, nonellipsoidal, nonparabolic band struct. effect 4—61011
- Cd, sound vel. quantum oscills., up to 70 kOe, $1.5K \leqslant T \leqslant 4.2K$ 4—79276
- Cr_2O_3, h.f. ultrasonic study of antiferro-paramagnetic transition *(French)* 4—53228
- Dy, u.s. absorpt. near ferromagnetic-spiral transition 4—53274
- EuO, thin reeds, thermoelastic relax. near Curie point, acoustic props. meas. 4—57279
- Ga, strong transverse mag. field, transverse sound velocity dispersion *(Russian)* 4—82358
- Ho, u.s. attenuation, 10 to 70 MHz 4—45164
- Nb, polarization selectivity, Fermi surface determ. 4—60730
- $SmFe_2$, magnetoelasticity, temp. and mag. field depend., u.s. pulse meas. 4—49206
- Tb, u.s. absorpt. near the ferromagnetic-spiral transition 4—53274
- V_3Si, sound vel., to 80 kOe, 5K to 50K 4—79454
- $ZrZn_2$ polycryst., weak itinerant ferromag., elastic moduli, sound velocity meas. 4—82594

magnetoacoustics *see magnetoacoustic effects*

magnetocaloric effects *see magnetothermal effects*

magnetocrystalline anisotropy *see magnetic anisotropy*

magnetoelastic effects *see magnetomechanical effects*

magnetoelastic waves
- acoustic wave propagation in crystals with helical spin ordering 4—73008
- antiferromagnet, uniaxial, press. effect on magnetoacoustic reson. *(Russian)* 4—76135
- coupled magnetoacoustic-flexural wave excitation 4—77497
- deformable media with mag. spin, dynamic classical theory *(French)* 4—70192
- excitation relaxation in slow magnetoacoustic wave spectra *(Russian)* 4—82600
- ferromagnetics, uniaxial, dispersion relns. for bound ferroelectric, spin, elastic and e.m. waves *(Russian)* 4—53247
- stratified media, wave conversion hyperbolic tangent nonuniformities 4—65729
- Dy film, GHz phonon generation through excitation of normal magnetoelastic modes and parametric processes 4—76131

magnetoelastic waves continued
- Fe:Si, single crystal, sound absorption, 300-1200K, magnetoelastic resonance *(Russian)* 4—82601
- Ni, film, magnetic domain wall response for ultrasonic stress due to magneto-eleastic pressure 4—82597
- YIG, magnetized normal to surface, magnetoelastic Rayleigh waves 4—61010
- YIG, Rayleigh wave propagation along tangential bias field 4—45158
- YIG sphere, excitation and propag. of transverse and longit. magnetoelastic waves 4—76134

magnetoelectric effects
- *see also galvanothermomagnetic effects; Hall effect; magnetoresistance*
- antiferromagnet, susceptibility, reciprocity relations 4—45103
- antiferromagnetic domain switching, magnetoelec. effect as simple obs. method 4—76108
- charge carrier drift in ferromag. reson. mode under action of crossed fields *(Russian)* 4—76169
- conducting thin layers, galvanomag. phenomena theory *(Russian)* 4—79338
- coupled magnetoelectric-flexural wave excitation 4—77497
- crystal, kinetoelec., kinetomag. and ferrokinetic effects 4—76106
- crystal, magnetoelec. interactions, conf., Seattle, USA, (May 1973) 4—76056
- crystal, piezoelec., paramag., paramagnetoelectric effect 4—76049
- crystalline media, magnetoelec. symm., e.m. props., elementary group theory 4—72931
- ferromagnetic ferroelectric crystal, high freq. props., phenomenological theory 4—76221
- ferromagnetic metal, prediction of domain-drag effect 4—60983
- ferromagneto-electric crystal, relativistic symmetries and lower bounds for magneto-electric susceptibility 4—82555
- garnet, survey 4—76111
- magnetoelectric materials, possible appl., review 4—76028
- material classification, review 4—82540
- metal, local galvanomag. coeffs., spreading resist. 4—46733
- metal, surface impedance in weak mag. field theory 4—53133
- metal in magnetic field, dispersion equation for e.m. waves *(Russian)* 4—82446
- m.o.s.t. surface quantisation, admittance studies 4—64141
- powder, polycryst., magnetoelec., susceptibility following annealing 4—76059
- Procopiu effect, magnetoelastic phenomenon identification 4—45162
- review, magnetoelec. new materials, recent advances at Weizmann Institute of Science 4—82539
- semiconductor, ambipolar transport noise in mag. field 4—44907
- semiconductor, degenerate diffusivity-mobility ratio under magnetic quantisation 4—79370
- semiconductor, in d.c. mag. field, electron-hole plasma analysis 4—44906
- semiconductor, in high mag. field, conf., Wurzburg, Germany, (July-Aug., 1974) 4—75747
- semiconductor, local galvanomagnetic coeffs., spreading resist. 4—46733
- semiconductor, nondegenerate, nonohmic resistivity in quantising mag. field 4—60803
- semiconductor, nonlinear induction effect in alternating inhomogeneous mag. field 4—75876
- semiconductor, polar, galvanomag. coeffs., a.c. cond., iterative calc. and convergence props. 4—82431
- semiconductor, quantum theory for arbitrary band-widths and electron-phonon coupling 4—72803
- semiconductor, with Kane electron spectra, nonlinear galvanomagnetic phenomena 4—49013
- semiconductor in magnetic field perpendicular to current current discontinuities predicted 4—49004
- semiconductors, galvanomag. props. local determ. potential theory 4—82432
- semiconductors, polar, transport props. in mag. field 4—75904
- spin ordering in magnetoelectrics, survey 4—76088
- thin metal plate, arbitrary contact arrangement 4—79335
- two dimensional plasma, cond. tensor in quantizing mag. field 4—57121
- Ag, low-temp. magnetothermopower, diffusion and phonon drag components 4—53085
- Bi, electron focusing in transverse mag. field *(Russian)* 4—64068
- Bi, low-field galvanomagnetic effect, 80-300K, electron and hole transport parameters 4—49006
- $Bi_{0.7}La_{0.3}(Fe_{0.986}Mn_{0.014})O_3$, antiferroelec. antiferromag. ceramic 4—49011
- $Cd_xHg_{1-x}Te$, galvanomagnetic props. under pressure *(Russian)* 4—82436
- Co-Fe film, 80-100%Co, galvanomagnetic properties 4—49090
- $FeGeO_3$, evidence for spin-reorientation type phase transition 4—57282
- p-Ge, electrical cond. calc. in presence of strong non-quantising mag. field 4—67235
- Ge, rod-like samples, minority carrier bulk lifetime, mag. field depend., 5-77K 4—67229
- $HoPO_4$, magnetoelec. susceptibility meas. simple two sublattice Ising antiferromag. model 4—72955
- n-InAs, compensated, galvanomagnetic properties meas. 4—75897
- InSb, drag on electrons on magnetostatic wave in adjacent YIG 4—53109
- InSb, film, diffusion current effects 4—82499
- n-InSb, impurity hopping cond., mag. field effects 4—75861
- n-InSb, non linear induction effect in alternating inhomogeneous magnetic field 4—75876
- InSb, thickness dependence of galvanomagnetic props. 4—79369
- K, wire, magnetoflicker noise, charge density wave model 4—60786
- Na, wire, magnetoflicker noise, charge density wave model 4—60786
- $NdCrTiO_5$, magnetoelectric cpd. with 2 sets of mag. sublattices, mag. props. 4—67378
- $NiSO_4.6H_2O$, paramagnetoelectric effect, temp. depend., microscopic theory 4—76049
- n-PbTe-oxide interface, surface quantisation effect, tunnelling 4—64130

magnetoelectric effects continued
- n-Si, intervalley scatt. obs. by magnetophonon effect 4−57110
- Sn, supercond., surface reactance, mag. field depend., 174 MHz 4−53179
- p-Te, microwave Faraday effect, carrier props. 4−44952
- $UCrO_4$, magnetoelectric cpd. with 2 sets of mag. sunlattices, mag. props. 4−67378

magnetofluidynamics *see magnetohydrodynamics*

magnetogasdynamics *see magnetohydrodynamics*

magnetohydrodynamic conversion
- fusion reactor blanket-coupled MHD conversion at 2500K 4−55956
- pellet fusion reactor, prospects for MHD and direct energy conversion 4−69356
- CO_2 MHD laser, alkali seed quenching effect on performance 4−69665
- CO_2 MHD laser, analysis, design and shocktunnel expts. 4−69666
- K, non-equilib. flow through convergent-divergent nozzle 4−44137

magnetohydrodynamic convertors
- 10 MW_{el} IPP test generator, exptl. performance design of short-time combustion generator 4−63703
- 10 MW MHD generator, design and modeling of gas flow system 4−63707
- a.c., MHD flow eqns., design appls. *(Russian)* 4−81948
- biphase DC MHD generator 4−69659
- cold wall type, plasma injection effects 4−52626
- combustion MHD generator, boundary layers, laser Doppler velocimetry 4−69655
- direct coal fired MHD generator, testing 4−63704
- direct-coal-fired MHD generator system development 4−63709
- disc generator, high MHD interactions 4−69663
- Faraday MHD generator, boundary layer development effects 4−69664
- generator, plasma vel. meas., correl. meter for 4−74195
- generator windings, magnetic field analysis *(Russian)* 4−55006
- induction generator, finite width effects 4−69662
- induction generator, various models comparison 4−69661
- induction M.H.D. generators, electrical efficiency, small Reynolds number 4−78826
- liquid metal, design effects of secondary flows between rot. coaxial cylinders 4−81949
- magnetoplasmadynamic arc, quasi-steady, electrolytic capacitor power source design 4−82043
- MHD channel design, MHD flow effects in rectangular ducts 4−69624
- MHD direct coal fired generator, diagnostic instrumentation 4−69654
- MHD generator, circ. channel cross section, integrated characteristics *(Russian)* 4−63698
- MHD generator, stabilisation of ionisation instability 4−48452
- MHD generator channel, two-dimensional electric field, optimum loading circuits 4−63710
- MHD generator with large-scale superconducting magnet, power generation expt. 4−63705
- MHD induction devices, param. eval. *(Greek)* 4−66777
- MHD segmented open-type generator, mag. field effect on output performance 4−63711
- MHD two-phase liquid metal generator, boundary layer control 4−69660
- non-equilibrium generation, shock tube performance obs. *(Japanese)* 4−75142
- nonequilibrium diagonal duct type, optimum design 4−75323
- nonequilibrium plasma stability in fully ionised seed region 4−81989
- open cycle generator system, KIVA-I exptl. results and status 4−63708
- optimal plane MHD generator, distrib. of potential and magnetic field 4−78825
- optimisation calcs., end effects for generator with anisotropic conduction *(Russian)* 4−81953
- performance curves, calc. for real duct at low Re_m *(Russian)* 4−81952
- shock tube flow interaction with section of linear MHD generator 4−52433
- Stanford M-8 MHD generator, Hall field limitation investigation 4−63706
- symposium, (April 1974) 4−63702
- time dependent MHD generator, unsteady MHD channel flow 4−69658

magnetohydrodynamic generators *see magnetohydrodynamic convertors*

magnetohydrodynamic waves
- Alfven collisional wave, high density plasma 4−75275
- Alfven waves, torsional, cylindrical partially ionized magnetoplasma 4−78762
- Alfven waves in plasma, threshold for production and decay 4−52568
- Alfven waves in solar wind, spatial variations of amplitudes 4−50465
- anisotropic surface, and instabilities under vertical e.m. force 4−60235
- astrophysical plasmas, magnetic wave penetration rel. to cosmic ray production 4−54360
- Coriolis force influence 4−52478
- cosmic ray confinement, leaky box model, effect of turbulent magnetic field 4−58156
- ELF ion wave Poynting vector, rotation with geomagnetic field 4−50341
- interplanetary transverse Alfven mode propagation 4−65136
- ionosphere, waves in viscous anisotropic conducting plasma *(German)* 4−70773
- ionosphere lower boundary, MHD pulse excitation and propagation 4−68226
- ionospheric hydromagnetic gradient waves 4−54261
- ionospheric MHD wave interpretation 4−64952
- l.f. waves in magnetosphere, Dessler max. and reflection coefficients 4−50354
- magnetoacoustic double waves interaction 4−60225
- magnetospheric Alfven wave generation by whistler interactions 4−61848

magnetohydrodynamic waves continued
- magnetospheric plasma with finite conductivity, hydromagnetic waves 4−50351
- MHD induction devices, param. eval. *(Greek)* 4−66777
- nebula plasma, penetration of l.f. magnetic wave 4−76774
- Pc 1 micropulsations, polarization ellipse, production mechanisms 4−58065
- Pi 2's, selective enhancement by plasmasphere 4−46092
- pinch, straight discharge dynamic stabilisation, effect of limiters 4−75292
- plasma, Alfven wave excitation by fusion products 4−44251
- plasma, Alfven wave excitation in decay instabilities 4−75267
- plasma, low pressure, eqns. of motion, equilibrium and stability 4−56478
- plasma, toroidal, localized interchange modes, trapped particle stabilization 4−63656
- plasma, torsional Alfven wave propag. in inhomogeneous axisymmetric mag. fields 4−44245
- plasma column, axial current effect on wave propag. 4−75241
- plasma cylinder with distributed current, Alfven wave absorpt. 4−44308
- plasma kink instabilities 4−82006
- polar ionosphere, ion-acoustic wave detection by satellite radio beacons 4−50338
- polar ionosphere, VHF satellite signal amplitude variations, ion-acoustic waves 4−50339
- polarisable and magnetisable medium, low amplitude waves *(Russian)* 4−63598
- propagation, in compressible plasma *(Italian)* 4−75236
- relativistic anisotropic fluid, wave and discontinuity phenomena *(French)* 4−44161
- satellites, long cylindrical, associated 4−52477
- shock wave structures, existence and uniqueness 4−60226
- solar corona and chromosphere heating above mag. regions by nonlinear Alfven waves 4−70918
- switching-on and switching-off waves, evolutionary props. *(Russian)* 4−69634
- upper atmosphere, directed MHD signal generation by acoustic pulse 4−68211
- He, high density, high-β plasma, coupled collisional drift and Alfven wave 4−66732

magnetohydrodynamics
see also electrohydrodynamics; magnetohydrodynamic waves
- α-dynamos, boundary layer anal., and general eigenvalue problem 4−56438
- axisymmetric equilibria, closed representation of all polynomial solns. 4−75205
- axisymmetric MGD flows, steady and unsteady type 4−63611
- beam-plasma system, h.f. electrostatic oscillations influence on flute instability 4−44248
- boundary flow in transition from crossed fields to aligned fields 4−66645
- boundary layer, unsteady, enthalpy, skin friction and heat transfer anal. 4−44102
- boundary layer at porous plate, variable blowing *(Russian)* 4−63555
- boundary layer cooling effect on semi-hot wall 4−44098
- boundary layer development in viscous incompressible fluid 4−44099
- boundary layer equations, existence and uniqueness of soln. *(Russian)* 4−63610
- boundary-layer equations, integration by Meksyn's method 4−44105
- bubble surfacing in electroconductive liquid, longitudinal mag. field *(Russian)* 4−63617
- Cauchy problem, linearized eqns., asymptotic soln. 4−52479
- channel flow, forced and free convection in entrance region 4−52473
- channel with electrodes, variable section, internal resistance *(Russian)* 4−63609
- chemically reactive binary gas mixture, convection in mag. field *(Russian)* 4−63628
- collapsing neutral regions, neutral sheets, thermal particle acceleration 4−65050
- compact nonthermal radiosources, radiation processes 4−46248
- compressible plasma with Hall currents, hydromagnetic stability 4−73600
- conducting flow between a sliding and stationary cylinder, strong blowing 4−56435
- conducting fluid in electric magnetic fields, convective instability *(Russian)* 4−60231
- conducting gas, vorticity and current density behind shock wave 4−52471
- conducting liquid, boundary layer flow on cylinder, radial mag. field *(Russian)* 4−63608
- conductive emulsion, in MHD separator, particle dynamics *(Russian)* 4−63622
- convection, topological pumping of magnetic flux 4−72337
- convection driven dynamo, weak field case 4−44100
- convection in vertical channel in nonuniform mag. field 4−48339
- convective stability of conducting fluid, mag. field effect *(Russian)* 4−52472
- coronal heating, magnetic neutral surface collapse and particle acceleration 4−65057
- cosmic ray pitch angle scatt., Fokker-Planck coeff. 4−65011
- drag due to steady flow of conducting fluid past disc at high Hartmann number 4−48338
- droplet, nonconducting, effect of current on vel. field and dissolution rate in liq. *(Russian)* 4−81962
- duct flow at high mag. Reynolds number 4−60236
- dusty gas, MHD flow past flat plate 4−56452
- dynamo action; isotropically driven motions, rotating fluid 4−75174
- electric current discharge generated flow 4−52474
- electrically conducting fluid in spherical envelope driven by calotte, rot., slow motion in axial field *(French)* 4−60230
- electrolyte, dielectric drop vel. in crossed electric and mag. fields *(Russian)* 4−44129
- e.m. waves in moving plasma in mag. field 4−78734
- engineering aspects, symposium, (April 1974) 4−63702
- ferromagnetic liquid, effect of rot. mag. field, separation appl. *(Russian)* 4−81955

magnetohydrodynamics continued
ferromagnetic liquid, sound reson. excitation by mag. field *(Russian)* 4-80838
ferrosol, ferroparticle association in mag. field *(Russian)* 4-63621
flare star starspots, convection cell hypothesis 4-80573
flow characteristics in travelling mag. field, local turbulence and duct width effects *(Russian)* 4-81954
flow coupler, performance 4-60236
flow equations, a.c. generator design appls. *(Russian)* 4-81948
fluid mixtures, magnetisable dielectric, thermodynamic anal. 4-60227
free convection turbulent flow in conducting fluid, MHD 4-75168
fusion reactor instability, computer controlled feedback stabilisation 4-69369
fusion reactors, toroidal, MHD blanket scaling 4-69345
galactic magnetic field, influence on density wave, 3-D case 4-80634
Hartmann's flow, spline-blended approximation 4-63591
Hartmann flow, perturbation theory for stability regimes *(Russian)* 4-81945
Hartmann flow stability in transverse magnetic field 4-44101
heliotron magnetic trap, stable plasma distrib. 4-60306
hydraulic drag of rough channel, MHD flow of conductivity fluid *(Russian)* 4-75164
impulsive rotating disc, hydromag. flow 4-78686
inclined mag. field, flow past thin profile *(Russian)* 4-81947
incompressible fluid, nonlinear Kelvin-Helmholtz instability, effect of aligned mag. field 4-78671
instability and anisotropic surface waves under vertical e.m. force 4-60235
instability onset, flow equations *(Russian)* 4-81950
interstellar gas equilibrium states in presence of magnetic and gravitational fields 4-80645
interstellar medium basic plasma physics 4-50697
ionised gas, annular channel, flow eqns. *(Russian)* 4-81990
ionized Ar shock wave, mag. field penetration, refl. and transmission characts. 4-72379
Kelvin-Helmholtz hydromagnetic instability of plasma-plasma interface 4-56488
kinematic spherical dynamo problem, spectral form of magnetic induction eqn. 4-72339
laminar flow, transverse field, stability contours *(Russian)* 4-81944
linear pinch, long wavelength instability 4-75248
liquid figures, quasistationary rot. selfgravitation, relative equilib. *(Russian)* 4-63592
liquid metal, turbulent flow, heat transfer 4-44106
liquid metal condenser cycle with preheating *(German)* 4-69600
Loytsyansky-type invariant, MHD turbulence *(Russian)* 4-63606
Maclaurin spheroid stability, MHD theory *(Russian)* 4-81995
magnetic field generation, mirror-symmetric turbulence *(Russian)* 4-63595
magnetically driven rotating fluid flow, stability 4-48337
magneto-acoustic wave propagation in liquid electroconducting waveguide *(Russian)* 4-63596
magneto-fluid-mechanic channel, turbulence, meas. appl. to liquid metal heat exchangers for fusion reactors 4-78683
magnetoacoustic mode stability in inhomogeneous fluid 4-72338
magnetospheric MHD generator theory 4-64967
MGD flows of finite cond. past wedge profile, Hall effects investigation 4-60233
MHD channel, stream conductivity effect on current distrib. *(Russian)* 4-75167
MHD channel flow, periodic boundary conditions, boundary value problem *(Russian)* 4-63600
MHD channel flow, three-dimensional to two-dimensional turbulence transition, rel. to orientational magnetisation *(Russian)* 4-63607
MHD flow in rectangular duct, MHD channel design 4-69624
MHD flow past finite flat plate, nonaligned mag. field 4-60229
MHD flow past flat plate, soln. by initial value method 4-78679
MHD ionised gas flow round body, heat flux *(Russian)* 4-75165
MHD model of weak tornado *(Russian)* 4-64919
MHD turbulence degeneration *(Russian)* 4-63603
MHD unsteady flow near infinite flat wall 4-56437
mirror machine, volume flute modes stabilization by electrode feedback system 4-44247
multiple boundary layer growth, electrically conducting rotating fluid 4-78682
neutron star, rotating with aligned magnetic field electrodynamic equilibrium of space charge region 4-65157
neutron star magnetic field origin in core by hydromagnetic dynamo 4-62147
non-Newtonian MHD shear flow *(Russian)* 4-63599
nonlinear nonstationary boundary-value problem soln. 4-78685
numerical methods for steady magnetohydrodynamic flow past circular cylinder 4-81943
Ohm's law, quasiunidimensional definition *(Russian)* 4-63602
particle acceleration in nonstationary magnetic fields 4-68321
photosphere, hydraulic concentration of magnetic fields, Bernoulli effect 4-65055
photospheric magnetic field hydraulic concentration by turbulent pumping 4-61995
plane steady state fluid flow, constantly inclined magnetic and velocity fields 4-48335
plasma, cylindrical, expansion in mag. field, numerical calc. 4-63674
plasma, diffuse pinch, finite resist. effects of stability 4-44372
plasma, electrostatic macroinstabilities, nonlinear stabilisation 4-82004
plasma, electrostatic macroinstabilities, nonlinear stabilisation, numerical verification 4-82005
plasma, in axisymmetric tori, free boundary MHD equilibria 4-63677
plasma, instability in combined pinch, stabilization by longit. h.f. current 4-44376
plasma, kink instabilities in high-β Tokamaks and belt pinches 4-44228
plasma, low temp. ionisation non equilib., stabilisation by e.m. field variation *(Russian)* 4-81997

magnetohydrodynamics continued
plasma, magnetoacoustic oscillations in poloidal mag. field confined system 4-44301
plasma, MHD equilibria, stability criteria 4-44343
plasma, nonequil., stability in fully ionised seed region 4-81989
plasma, quadrupole configurations, critical β, MHD stability 4-44350
plasma, Rayleigh-Taylor instability, finite ion-Larmor radius effect 4-78745
plasma, reconnexion of unequal antiparallel mag. fields, convection region solns. 4-78740
plasma, T-layer form., obs. 4-52573
plasma, thermonuclear Alfven instability, nonlinear theory *(Russian)* 4-69637
plasma, various cross-sections, MHD equilibrium 4-52557
plasma, X-type reconnection line, mag. fields, fluid flows parallel to X-line 4-78739
plasma dynamic stabilization in stellarators and Tokamaks 4-44356
plasma flow, shock induced, unsteady interaction with mag. and elec. fields 4-72363
plasma flow in disc channel in conditions of spontaneous current layer form. *(Russian)* 4-78743
plasma flute instability in short trap, plasma loss oscill. amplitude limit 4-78770
plasma focus, Mather type, charact. curves, scaling laws and MHD calcs. 4-44402
plasma in solenoidal magnetic field, laser pulse heating 4-60280
plasma instabilities, stabilisation by h.f. current in straight system 4-75268
plasma probe, ion-acoustic reson. MHD eqns. 4-75303
plasma rotation, mag. induced, in theta pinches 4-69623
plasma sheet near $30R_e$, cross-tail current 4-58110
plasma shell, radially accelerated cylindrical, in mag. field, viscosity effect 4-44198
polyatomic gas, rarefied, Senftleben-Beenakker effect of viscosity, Knudsen corrections 4-48341
pulsar magnetospheres, steady-state fields of inertial charge distrib. 4-50630
pulsar rotating e.m. fields, Lorentz force-free problem 4-46252
Rayleigh Taylor instability with Hall currents 4-72335
Rayleigh-Taylor instabilities due to electromagnetic forces *(Russian)* 4-63601
relativisitc anisotropic fluid, MHD eqns. *(French)* 4-48383
relativistic, congruences of current lines *(French)* 4-44162
relativistic, current lines, curve derivation *(French)* 4-44160
relativistic anisotropic fluid, wave and discontinuity phenomena *(French)* 4-44161
relativistic MHD flow for perfect thermodynamic fluid 4-72349
relativistic plasma, singularities on light cylinder 4-63712
rotating cylinder in axial mag. field, moments acting on side surfaces *(Russian)* 4-63604
rotating fluid masses containing toroidal magnetic field, figures of equilibrium 4-65053
rotating superposed plasmas, tensor cond. effect on vortex sheet stability 4-56474
rotational flow, motion of nonconducting particle in liq. conductor *(Russian)* 4-81951
Scott effect, torque resonances, free-path model 4-48340
secondary flows, rot. coaxial cylinders 4-81949
shearing boundary layer, relative instability with imbedded shearing mag. fields 4-44103
shock generated plasma, interaction with mag. field, ionisation effects 4-72378
shock wave front thickness, mag. diffusivity depend. 4-56434
shock wave interaction with small disturbances *(Russian)* 4-66617
shock waves, low intensity in magnetising medium *(Russian)* 4-63597
skin friction on accelerated plates 4-81942
solar flare excitation location and velocity field from magnetograms 4-70871
solar flare particle acceleration by electric field induced by rapidly evolving magnetic field 4-50453
solar force free magnetic fields, method of examination using magnetograph obs. 4-65224
solar force-free magnetic field evolution, response to photospheric motion 4-70872
solar wind, plasma outflow from rotating source, single-fluid MHD 4-50461
solar wind shock wave interaction with magnetosphere 4-68250
solidification of conducting liq., MHD struct. effects *(Russian)* 4-82261
stability conditions for circular flow of ordinary and hydromag. fluid in axial mag. field w.r.t. flute-mode perturbations 4-66644
stability of hot rotating fluid layer, Liapunov method 4-52475
stability theory for closed mag. field lines 4-75294
stationary dynamo magnetic fields, dynamical stability 4-46148
stellar atmosphere, thermal-convective instability with rotation and Hall effect 4-58290
stellar interior, explosion wave propag. 4-80556
stellarator, Garching high-β torus ISAR T1, equil. and instabilities 4-44345
Tokamak, equil. and energy balance phenomena 4-44338
Tokamak ATC experiment, MHD stability and heating 4-44333
Tokamak equilibria, arbitrarily shaped, resist. effects 4-44364
Tokamak plasma, cylindrical, MHD modal analysis for realistic current density profiles 4-44342
Tokamak plasma, stationary convection phenomena 4-44359
Tokamak plasma, vacuum bubbles phenomena 4-44227
Tokamak stability at high plasma press. 4-78801
Tokamak system, multipole, MHD equilib. eqn. soln. 4-78799
Tokamak T-6, plasma column perturbations leading to disruptive instability 4-44226
Tokamak with noncircular cross section, parabolic current effect on stability limit of MHD equilibrium 4-44341
toroidal configurations, theory of local hydromagnetic stability 4-52606
toroidal discharge, dynamic stabilization conditions in modulated longit. mag. field 4-44358
toroidal plasma, anisotropic, MHD simulation 4-44339

magnetohydrodynamics continued
toroidal plasma, particle collisional diffusion, mag. field perturbation effects 4—44336
toroidal plasma, screw pinch, dynamic stabilization 4—44377
toroidal plasma pinch, two-dimens. MHD computer code 4—44378
toroidal trap, self-stabilization effect of h.p. plasma *(Russian)* 4—63682
turbulence, anomalous energy transfer *(Russian)* 4—81946
turbulence, magnetic field effects, mean electromotive force 4—72336
turbulent flow in MHD channel, Hall currents, flow separation, asymmetry 4—69625
universal stability of unsteady motion of incompressible magneto-micropolar fluid 4—56436
unsteady isoentropic MGD eqns., class of solns. *(Italian)* 4—78680
unsteady viscous compressible flow through straight channel with porous walls 4—60234
upper atmosphere dynamical model based on MHD, Joule heating and winds due to magnetic storm 4—46060
vertical flat plate, hydromagnetic free convective flow with variable viscosity and thermal cond. 4—75169
viscoelastic Maxwell fluid, unsteady channel flow under radial magnetic field 4—78684
viscous, low Hartmann flow, annular gap, magnetic Prandtl number expansion 4—69601
viscous electrically conducting liq. in mag. induction field, plane oscillations *(French)* 4—44097
wave propagation in fluids in e.m. fields 4—60228
wind, energetic electrons in Jovian magnetosphere 4—58236
Ar plasma, supersonic, heat transfer to semispherical body 4—48406
H^+, H^-, purely ionic plasmas, transverse mag. field, low β interactions, near crit. field *(French)* 4—78742
Hg, cavitation during flow in transverse mag. field *(Russian)* 4—81961
Li, in conducting wall pipe in transverse mag. field, MHD pressure drop, rel. to fusion reactor blanket cooling 4—69603
Li cooled fusion reactor blanket, use of insulated walls to reduce MHD pressure effects 4—69341
Li exploding-wire plasma, numerical one-dimens. MHD calc. 4—60279

magnetomechanical effects
see also gyromagnetic effect; magnetoelastic waves; magnetostriction
antiferromagnets, perfect sinusoidal, and helimagnets, existence of internal stresses 4—76130
Armco iron, deformation near Curie temp. 4—79978
electromagnetoelastic bodies, vibrations of thin dielectric shells *(Russian)* 4—51394
α-Fe, atomic treatment of magnetovolume effect 4—45161
ferromagnet, bulk, acoustic reson. and dispersion, magnetoelastic interactions, theory 4—64266
ferromagnet, internal friction due to charged point defect interactions with domain boundaries *(Russian)* 4—53272
ferromagnet, irreversible magnetisation changes under mech. stress 4—72996
ferromagnet, long-range dipolar effects, acoustic mode depend. 4—53273
ferromagnetic materials, magnetic cold-work peak theory 4—76104
fluid, nonlinear, polarizable, energy-based formulation of stresses 4--76136
fusion Tokamak reactor torus, superconducting coil elastic stability analysis 4—59873
isotropic elastic lattice, phase transition, renormalization group 4—60956
l 4—72997
magnetoelastic buckling of magnetically soft plate 4—65686
magnetoelastic fields of statistically deformed ferromagnetic bodies *(Russian)* 4—53276
Procopiu effect, magnetoelastic phenomenon identification 4—45162
steel, static stresses on damping of torsional vibrations in magnetic field 4—82599
wires, vibrations, magneto-thermo-viscous-elastic, anal. 4—61014
$BaFe_{12}O_{19}$, elastic moduli, 80-303K 4—82595
Cr-Co nonferromag. dil. alloys, Invar and Elinvar characts. *(Japanese)* 4—61012
Er, elastic constants and magnetoelasticity in single crysts., 4.2-300K rel. to ordering transitions 4—45160
Fe unmagnetised specimens, high magnetic field production at breakage under tension 4—45156
Fe-Ni, local mag. moments and effective magnetomechanical ratio 4—53275
Fe-Ni Invars, influence of magnetoelasticity on Debye temp. 4—79562
Fe-Si alloy, static mag. characteristics, elastic stress effect *(Japanese)* 4—57343
Fe-Si(100) single crystal, domain structure induced by bending 4—67397
Fe-Si(3%), grain oriented strips, Barkhausen noise after plastic deform. 4—72994
$Fe_{65}Ni_{35}$, Invar alloy, mag. and magnetoelastic props., thermodynamic discussion 4—76132
Fe_3Pt Invar, influence of magnetoelasticity on Debye temp. 4—79562
$FeS_{1+\delta}$, Neel and ferrimag. Curie temps., press. effects 4—67367
Fe_2TiO_4, anomalously small elastic const., theory 4—45159
Ho, elastic constants and magnetoelasticity obs. from 4.2 to 300K 4—67414
$MgFe_2O_4$, polycryst., elastic behaviour, mag. field depend. 4—61009
Mn-Ni-Fe antiferromag. Elinvar-type alloy characts. 4—79567
$Mn_xZn_{1-x}Fe_2O_4$, elastic moduli, 80-303K 4—82595
Ni, electrolytic, anisotropic effects in magnetoelastic behaviour 4—49207
Ni, magnetoelastic damping, domain struct. and boundaries *(Russian)* 4—67412
Ni-Pt, thermal expansion near crit. conc., low temp. 4—72579
Ni-Pt alloys, influence of magnetoelasticity on Debye temp. 4—79562

magnetomechanical effects continued
Ni-Zn ferrite 400 NN, magneto-elastic props, appl. to transducers *(Russian)* 4—82593
Ni_3Al, thermal expansion near crit. conc., low temp. 4—72579
$NiFe_2O_4$, polycryst., elastic behaviour, mag. field depend. 4—61009
$Ni_xZn_{1-x}Fe_2O_4$, elastic moduli, 80-303K 4—82595
Pd, influence of magnetoelasticity on Debye temp. 4—79562
Si steel, deformation near Curie temp. 4—79978
$SmFe_2$, magnetoelasticity, temp. and mag. field depend., u.s. pulse meas. 4—49206
YIG, CO^{2+} ion magnetoelastic coupling, f.m.r. obs. 4—73006
YIG single-crystal resonator, influence of thickness on ΔE effect 4—79564
$ZrZn_2$ polycryst., weak itinerant ferromag., elastic moduli, sound velocity meas. 4—82594

magnetometers
see also magnetic field measurement
astatic, errors in magnetisation measurements 4—80394
Automatic Magnetic Observatory System 4—68266
compensation of magnetic interference from carrier *(Russian)* 4—51120
correlation search coil magnetometer for artificial satellite 4—71075
design and applications of magnetometer using miniature transducer 4—80963
electrical prospecting system with wideband sensitive element *(Russian)* 4—58131
ferromagnetic probe magnetometer with square-wave excitation 4—46767
fluxgate, Barkhausen noise 4—58869
fluxgate, design for outer planet exploration 4—71078
follow up type, n.m.r. based, cct. 4—77127
geomagnetic, results expression w.r.t. B and H vectors 4—61895
Hall bridge applic. *(Spanish)* 4—46766
induction triaxial magnetometer, artificial mag. field meas., 4 Hz to 4 kHz *(French)* 4—68267
Josephson junctions applications 4—80853
marine proton, use in aerial surveying *(Russian)* 4—58135
nuclear precession, e.m. interference reduction *(Russian)* 4—51121
PAR Foner-type vibrating sample magnetometer, improved drive rod and sample holder 4—68745
proton precession type, compact bias coil system for geomag. meas. 4—61905
quantum, self-oscillating, geomagnetic field meas. *(Russian)* 4—54325
self-oscillating, with Cs vapour, freq. shifts 4—58870
shipboard nuclear-precession Z-magnetometer 4—50377
spinner magnetometers, simplified meas. technique for time-saving 4—71219
SQUID, for geomagnetic meas. 4—70829
SQUID, geometry and operation 4—58767
SQUID, second derivative gradiometer applic. for magnetocardiography 4—68749
superconducting device, obs. of mag. props. of oxidized impurities in Cu 4—61383
superconducting for mag. susceptibility meas. to 10^{-10} cgs 4—42841
superconducting quantum interference magnetometers, applications to geophysical prospecting 4—70809
suspended magnet type for electroprospecting, causes of temp. instability *(Russian)* 4—54318
thin film, inductance variation, recent advances 4—68748
vibrating sample magnetometer for mag. meas. under hydrostatic pressure 4—68746
vibrating sample type, dipole approximation sample 4—68744
Cs, absorption chamber temperature stabilizing system *(Russian)* 4—46768
He, employing optical pumping, use of ultrashort wave oscillator *(Russian)* 4—51124
He quantum, width of resonance line *(Russian)* 4—80962
^3He nuclear precession, using optically polarised gas, for geomagnetic meas. 4—70828
^4He parametric resonance, in optically pumped gas, for geomag. field meas. 4—70830
Rb, optically pumped resonance cell, appls. 4—46761

magnetooptics *see magneto-optical effects*

magnetoplasma *see plasma*

magnetoplasmadynamics *see magnetohydrodynamics*

magnetoreflectance
graphite, pyrolytic, reflectivity meas. in megagauss mag. fields 4—70302
Si, carrier conc. and diffusion length meas., 34 GHz 4—82767
$CoCr_2S_4$, hot pressed microcryst. powder, near i.r. 4—57504
EuO(S)(Se)(Te), EuO:Gd, mag. semiconds., optical props., band struct. investig. 4—64400
Fe, single cryst. film, orientational effect 4—57505
Ge, carrier conc. and diffusion length meas., 34 GHz 4—82767
Ni, single cryst. film, orientational effect 4—57505
n-PbSe, frequency-dependent electron relaxation time, i.r. magnetoreflectivity meas. 4—82699

magnetoreflection *see magneto-optical effects*

magnetoresistance
see also Corbino effect
amorphous semiconductor, hopping model 4—79354
conducting thin layers, galvanomag. phenomena theory *(Russian)* 4—79338
dilute magnetic alloy, calc. using field-depend. infinite-U Anderson model 4—53083
ferromagnetic overlayer, current perturbation, force on domain wall 4—76114
p-Ge, elec. cond. in strong mag. field, deform. potential const. depend., calc. 4—60818
graphite, Kohler's rule 4—75886
hot carrier instability in transverse magnetic field 4—44928
n-InSb, effect of uniaxial stress on longit. magnetophonon oscills. 4—49009
longitudinal contrib. of nonparabolic energy bands 4—44944
magnetophonon oscillations of conductivity of semiconductors with hot electrons 4—53113
metal, cubic, Boltzmann eqn. soln. 4—79334

magnetoresistance continued
- metal, electron diffusion magnetothermopower, model 4−70010
- metal, Fermi surface models, electron focusing 4−82356
- metal, high field magnetoresistance data anal. 4−60780
- metal, induced and intrinsic anisotropy effects, review 4−44896
- metal, local galvanomag. coeffs., spreading resist. 4−46733
- metal, low temp. resist. theory *(Russian)* 4−70011
- metal, phonon conductivity, influence on thermal magnetoresistivity tensor 4−72754
- metal with closed Fermi surface, transverse elec. cond. in strong mag. field, low temp. *(Russian)* 4−72756
- nondegenerate semiconductor, in strong mag. field 4−60816
- p^+-i-n^+ structures, asymmetric, negative magnetoresistance 4−79409
- piezoelectric semiconductor, wurtzite-type, anisotropy of transverse cond. in strong quantizing mag. field, theory 4−57112
- polymer/ferromagnetic filler system, mag. field effect on vol. elec. resist. 4−82991
- pyrocarbons, negative magnetoresist. meas. 4−60815
- semiconductor, degenerate, longit. magnetoresist. in quantizing mag. field, scatt. inelasticity and band nonparabolicity effects 4−49015
- semiconductor, exponential mag. field depend., theory 4−72802
- semiconductor, Hall mobility meas. influence 4−64073
- semiconductor, local galvanomagnetic coeffs., spreading resist. 4−46733
- semiconductor, many valley, odd magnetoresist. in heating elec. fields, pressure influence 4−75896
- semiconductor, transport theory of electrons in arbitrary electric and mag. fields 4−72759
- semiconductor, with Kane electron spectra, nonlinear galvanomagnetic phenomena 4−49013
- semiconductor, zero gap, anomalous, effect of static mag. field., r.p.a. calc. 4−49291
- semiconductor in magnetic field, potential equation using expansion technique 4−70038
- n-Si, odd magnetoresist. in heatng elec. fields, pressure influence 4−75896
- tetrahedral amorphous semiconductors, transport meas. 4−79360
- n-YIG:Si, elec. cond., thermoelec. power, Hall effect and magnetoresist. meas., mag. effects 4−79349
- Al, linear component meas. at 4.2K 4−60781
- As-Sb, single cryst., low field, orient. depend. 4−49003
- As_2Te_3, glass, gaps and localised states 4−75768
- $AuPb_2$, oriented crystallites, open orbits obs. 4−48966
- Bi, ang. depend., rel. to Fermi surface, carrier mobility 4−60812
- Bi, Hall components of magnetoresist. tensor, 5.6-65K *(Russian)* 4−72804
- Bi, low-field galvanomagnetic effect, 80-300K, electron and hole transport parameters 4−49006
- Bi film, thickness depend., 77-300K 4−60884
- Bi magnetoresistance tensor component, low temp. meas. 4−82434
- Bi-Sb alloys, nonlinear band parameters investig. using Shubnikov-de Haas oscill. meas. 4−64015
- BiSb alloy, gapless state transition in mag. field, galvanomag. meas. rel. to band edge motion 4−57115
- Bi_2Se_3, melt-grown, electronic props. 4−82360
- BiSeI, Shubnikov-de Haas oscillations 4−67157
- C, amorphous, nonmetal-to-metal transition obs. 4−57150
- C, Kohler's rule 4−75886
- C structural material, graphitisation degree effect on magnetoresist. changes during neutron irrad. 4−71998
- Cd, whiskers and platelets, transverse magnetoresistance obs. at 4.2K 4−57080
- $Cd_{0.25}Hg_{0.75}Te$, magnetophonon oscillations of transverse magnetoresistance 4−57114
- $Cd_xHg_{1-x}Te$, longit. magnetoresistance and Hall coeff. meas. in strong mag. fields, 1.8 to 300K 4−75891
- $Cd_xHg_{1-x}Te$, negative longit. magnetoresistance obs., field depend. 4−75899
- n-$CdSnAs_2$, pressure depend. meas. up to 10 kbar, complex band struct. 4−75856
- $CeAl_3$, obs. below 1K, evidence for transition to mag. state without mag. scatt. 4−60960
- Co, nonuniform current distrib. in neighbourhood of 180° domain wall, 4.2K 4−60979
- Cu, small angle scattering effects 4−67202
- Cu-Cr alloy, dil., transport props. in mag. field 4−53082
- Dy, and field-induced phase transitions in the helical antiferromagnetic state 4−45112
- Fe, residual elec. resist., current depend. mechanism 4−57072
- GaAs, compensated, metal-insulator transition in mag. field 4−49048
- GaAs:Cr, semi-insulating, meas. of carrier mobility, mixed conduction obs. 4−53108
- $GdZn_{1-x}In_x$, and Hall effect anomalies, $(0 \leqslant x \leqslant 0.15)$ 4−64102
- p-Ge, calc. of Landau levels from effective mass stress Hamiltonian, effect of de Haas Shubnikov oscills. 4−48905
- n-Ge, magnetocond. tensor, electron-phonon drag effects 4−79368
- p-Ge, Shubnikov-de Haas oscillations and longit. magnetoresistance obs. 4−75892
- p-Ge:Ga, d.c. magnetoresist. in hopping cond. range 4−75889
- Ge-Mn-Te dilute alloys, magnetisation and magnetoresistance meas. at low temps. 4−44902
- $(GeTe)_{99}(MnTe)_1$, exchange scatt. obs. 4−45105
- n-$Hg_{0.8}Cd_{0.2}Te$, 1.8-77K, high and low mobility samples 4−67234
- $Hg_{1-x}Cd_xTe$, press. induced gapless state obs. *(Russian)* 4−67168
- HgSe, Shubnikov de Haas oscills., effect of uniaxial stress 4−53045
- In, galvanomagnetic props., anisotropy, Fermi surface contrib. 4−48964
- In, Sondheimer oscillations obs., galvanomagnetic size effects 4−75843
- InAs, epilayer, anomalous transport coeffs. 4−79417
- n-InP, magnetophonon effect, warm electron relax. 4−57107
- n-InSb, effect of mag. field on electron heating 4−49017
- InSb, effect of sample geometry on meas., conformal mapping technique 4−53112
- p-InSb, effective mass of holes determ. from galvanomag. meas. 4−79372
- n-InSb, longit. magnetoresist. in quantizing mag. field scatt. inelasticity and band nonparabolicity effects 4−49015

magnetoresistance continued
- n-InSb, negative longitudinal magnetoresistance at 77K 4−49002
- n-InSb, observations of negative conductions under high mag. fields 4−82433
- K, longitudinal helicon oscills. obs., magnetoresistance and Hall coeff. meas. 4−57079
- K, model for analysis of magnetoresistance, comment 4−48968
- $NbSe_2$, transport props., variation with temp. and purity 4−53105
- $NbSe_2$:Fe, anisotropic Kondo resist. 4−64189
- (Ni,Cu)Al, β-phase, rigid band model approach to electron transport props. 4−67197
- Ni, negative magnetoresist., disappearance after H absorpt. 4−72755
- Ni (001) film, crit. thickness rel. to magnetisation direction, magnetoresist. meas. 4−57339
- $Ni_{1-x}S$, elec. props. exam., metal-semiconductor transition at 265K 4−75930
- $Pb(Fe_{0.5}Nb_{0.5})O_3$, 173-293K 4−53111
- PbS, n- and p-type, heavily doped, Hall effect obs. of anomalous effects 4−49010
- PbSe, epitaxial film, galvanomag. meas., O_2 and H exposure effects 4−75979
- Pd-Fe, dilute alloy, exchange field distrib. effects 4−45143
- $Pd_{1-x}Rh_x$(1%Ni) alloy, high field magnetisation and magnetoresistance meas. 4−44903
- Sb, effect of twinning on cond. and magnetoresist. 4−75894
- Si, (100) and (111) f.e.t.s, p-type inversion layers, quantum oscills. 4−70078
- n-Si, influence of compensation 4−57111
- Si, n-channel (100) inversion layers in FETs, negative magnetoresistance at 2 to 10K 4−57175
- Si, p-type inversion layers, oscillatory magnetoconductance 4−44940
- Si, surface oscills. 4−75967
- n-Si, transverse linear magneotocond. calc. in heating elec. field 4−72801
- Si:B, uniaxially deformed, valence band splitting, elec. props. 4−67238
- Te, negative effect, anisotropy *(Russian)* 4−64105
- Te, trigonal warping of valence band Fermi surfaces, magnetoresistance meas. 4−82363
- p-$TlSbTe_2$, elec. transport props., many valley valence band 4−72771
- YIG:Si, positive isotropic magnetoresist. mechanism 4−75900

magnetoresistivity *see magnetoresistance*

magnetosphere
- *see also radiation belts*
- 1972, August 3-9 magnetospheric storm, auroral zone neutral winds 4−64956
- albedo particles, motion in geomagnetic field 4−68253
- Alfven wave generation by whistler interactions 4−61848
- artificially injected electrons, observed and theoretical motions, Electron Echo expt. 1 4−64964
- auroral ions and current sheet acceleration model 4−50349
- auroral latitutdes, solar proton flux enhancements 4−46088
- auroral plasma, anomalous resistivity rel. to ion density var. 4−50366
- auroral processes rel. to magnetospheric physics 4−64973
- auroral zone, energy spectral var. during SVA electron precipitation events 4−64972
- auroral zone disturbances rel. to interplanetary magnetic field direction 4−62091
- bow shock, obs. of upstream proton fluxes, satellite obs. 4−62092
- bow shock fine structure 4−61867
- compressed geomagnetism field rel. to dipole tilt 4−57956
- conjugate v.l.f. transmissions from Alaska to New Zealand 4−50365
- conjugation of long-period geomagnetic pulsations in polar cap 4−50254
- convection electric field and high-latitude F_2-layer 4−46086
- convection model, support from recent plasma meas. 4−61873
- correction, effect of east-west component of interplanetary magnetic field 4−83131
- correlated interplanetary and magnetospheric obs., symposium (Saulgau, W.Germany, 22-25 May 1973) 4−61859
- current flow during substorms 4−61857
- current-produced forces and torques on the Earth 4−46090
- detached plasma regions 4−61850
- dPi's, Pi 2's power spectra between geomagnetic latitudes 64° and 54°N 4−46091
- dPi generation in magnetosphere 4−64833
- drifting energetic particle bunches, ATS 5 obs. 4−61846
- Dst and solar wind merging electric field, theoretical relation 4−80265
- dynamics, artificial plasma clouds 4−68288
- dynamics, interplanetary control 4−62089
- dynamics and solar wind 4−62026
- electric field, configuration and features 4−61871
- electric field and currents connected with Y-component of interplanetary mag. field 4−58112
- electric field derivation from whistler data in dynamic geomagnetic field 4−70798
- electric field meas. role of geostationary satellites 4−61943
- electron precipitation to auroral zone variations modulated by magnetospheric compression and expansion 4−64974
- electron trapping boundary, v.h.f. radar backscatter and visual aurora 4−64966
- Explorer 45 obs. of magnetospheric boundaries 4−61881
- external geomagnetic field, theoretical determ. from intensity meas. 4−80398
- field changes at sudden impulses and substorm onsets 4−54278
- field model, neutral points coords., and last closed field line boundary 4−73567
- geomagnetic field of external origin obs. at Earth surface 4−68104
- GEOS waves experiment, elec. and mag. fields *(French)* 4−58143
- gyroresonant wave-particle interactions, phase-bunching and nonlinear processes 4−50350
- HEOS 2 MPI plasma expt., particle fluxes 4−61870
- HEOS 2 polar cusp meas. 4−61868
- high latitude dayside, elec. field and particle meas. 4−83128
- inductive electric field of field aligned current system 4−70802
- inner, non-ducted two-hop whistlers, rocket meas. 4−58109

magnetosphere continued
- ion cyclotron wave non-linear interactions obs., satellites and fundamentals 4—50371
- Kelvin-Helmholtz hydromagnetic instability of plasma-plasma interface 4—56488
- laboratory experiment, penetration of fast electrons and precipitation 4—68255
- laboratory experiments, partial scale model, plasma phys. processes 4—68287
- laboratory simulation, particle precipitation and radiation belt 4—50361
- l.f. MHD waves, Dessler max. and reflection coefficients 4—50354
- longitudinal photons in plasma 4—73589
- low latitude whistler duct enhancement factors from dispersion meas. and magnetospheric electron density 4—76746
- magnetic pulsation events in 20-200 Hz range 4—83127
- magnetic storm, 1970 February 24, electric and magnetic field obs. by Injun 5 4—83133
- magnetopause, electric currents and geomagnetic dipole field 4—61860
- magnetopause, HEOS 2 obs. of energetic electrons 4—61864
- magnetopause, OGO-5 obs. 4—61863
- magnetopause boundary surface, two simplified representations of Willis-Pratt model 4—50370
- magnetopause reconnection rate 4—50364
- magnetopause rel. to magnetic field 4—61861
- magnetoplasma field line reconnexion and mag. energy release 4—54376
- magnetotail, access of energetic solar particles 4—61877
- magnetotail, self-consistent theory 4—61862
- magnetotail at 60 R_e, plasma and particle populations 4—61874
- magnetotail var. rel. to southward interplanetary magnetic field 4—61847
- MHD generator theory 4—64967
- MHD waves in magnetospheric plasma with finite conductivity 4—50351
- micropulsation generation by ground-based current loop, effect of conducting Earth 4—45985
- micropulsation periods, size of magnetosphere 4—61852
- mid-latitude plasmapause, Isis 1 Langmuir probe meas. 4—61851
- midlatitude trough at dawn and dusk, and plasmapause position 4—73568
- near Earth magnetic disturbance, scalar magnetic field disturb. Ogo 2, 4, 6 obs. 4—64826
- near-Earth magnetic disturbance in total field at high lats. Ogo 2, 4, 6 data 4—68115
- near-Earth magnetotail, solar proton meas. 4—61882
- neutral sheet, current dissipation and plasma acceleration simulation 4—61853
- open configuration rel. to interplanetary field directions 4—50358
- outer zone particle saturation, nonlinear model 4—64963
- partial ring current rel. to storm-time geomagnetic disturbance field 4—46089
- particle clouds, time dependent electric field model for drift motion 4—50362
- Pc 5 storm time pulsations at magnetospheric equator and ground stations 4—64829
- Pi 2's, selective enhancement by plasmasphere 4—46092
- plasma densities, thermal and suprathermal 4—64965
- plasma flow and electric fields from whistler obs. 4—61875
- plasma flow from 30 eV-30 keV proton studies, rel. to boundary layer nature 4—61872
- plasma sheet at 18 Earth radii during substorms, plasma flow 4—50359
- plasma sheet at lunar distance during magnetospheric substorms 4—61854
- plasma sheet near 30R_e, motion, magnetic field structure 4—58110
- plasma sheet rel. to magnetic field 4—61861
- plasma wave generation by artificially injected electron beam 4—50334
- plasmapause formation, Roche limit of ionospheric plasma 4—58111
- plasmapause location from oblique plasma resonance satellite obs. 4—64971
- plasmapause motion near Sanae, Antarctica from whistler occurrences 4—70804
- plasmasphere, relation between ELF hiss and plasma density 4—61856
- plasmaspheric e.l.f. hiss intensity var. during magnetic storms 4—64969
- polar cap, solar proton intensities from two-satellite study 4—50355
- polar cap auroral electron fluxes, Isis 1 obs. 4—46085
- polar cap magnetic var., role of solar local time coord. system 4—64831
- polar cap solar proton precipitation rel. to magnetospheric boundaries 4—61866
- polar caps, interplanetary magnetic field azimuthal component rel. to geomagnetic field 4—62090
- polar cusp u.l.f. meas. 4—61869
- polar magnetopause distance, HEOs-2 obs. 4—61865
- proton propagation in Earth's magnetic cavity, 5-300 MeV 4—61878
- ring current region, wave-wave coupling in multiple-ion plasmas 4—64970
- SAR arc formation by magnetospheric heat conduction, VHF ionospheric scintillation obs. 4—83112
- simulation using superconducting magnets in earth orbit 4—68257
- solar electron access, use as probe of geomagnetic topography 4—61880
- solar particle access rel. to magnetospheric diagnostics 4—61876
- solar proton entry, satellite data interp. 4—50368
- solar proton entry, trajectory comparison for two models 4—50369
- solar proton trajectory comp. for 3 models 4—61879
- solar wind, upstream proton component, bow shock perturbation 4—70891
- solar wind interaction with magnetosphere and reflection of particles at magnetopause 4—70892
- solar wind shock wave interaction with magnetosphere 4—68250
- solar wind torque, effect on Earth rotation 4—50363
- space laboratory for magnetospheric and plasma research 4—62268
- storm structure, interplanetary magnetic field and reconnection rate 4—68403

magnetosphere continued
- subauroral sporadic F_2-layers rel. to ionization and plasmapause 4—54273
- substorm, plasma processes and auroral breakup 4—50360
- substorm characterization using variability of mid-latitude magnetic parameters 4—70801
- substorm development rel. to excitation of Pi1 and Pc1 micropulsations 4—50253
- substorm injected plasma boundary, correlation with Kp 4—83132
- substorm mechanism, self consistent stability 4—70799
- substorm model, plasma sheet formed on closed field lines 4—70803
- substorm over Sanae, pulsation phenomena 4—80273
- substorms, local time-universal time development mapping 4—70800
- sudden impulse, ionospheric electric field, surface magnetic field meas. 4—61858
- sudden impulsive and sudden commencement events in magnetosphere rel. to interplanetary magnetic field 4—73569
- synchronous altitude region, obs. of 10-90 MeV solar protons 4—50356
- synchrotron loss rates of energetic electrons 4—64968
- trapped particles and magnetospheric solar protons during substorm activity 4—61845
- trapping region, electrostatic waves at half gyrofrequency 4—61855
- two-dimensional model of magnetosphere shape 4—68252
- u.l.f. modulation of v.l.f. emissions, theory 4—83126
- u.l.f. wave stimulated amplification by injection of plasma clouds and particle beams 4—70805
- vector magnetic field charge region, diurnal var. rel. to field-aligned currents 4—64832
- v.l.f. amplification, stimulation by injected plasma 4—68256
- VLF emission triggered by whistlers, non linear theory 4—58114
- VLF wave decay instability 4—68251
- v.l.f. wave injection, ion and electron distrib. 4—68286
- v.l.f. wave injection from Siple station, Antarctica 4—68254
- warm collisionless multicomponent magnetoplasma, v.l.f. loop antenna impedance 4—46087
- wave particle interaction, French-Soviet ARAKS project, 1975 4—68289
- whistler dispersion measurement method *(Japanese)* 4—61935
- whistler triggering of energetic particles 4—58115
- whistler waves upstream from collisionless bow shock 4—50357
- whistler-wave guidance along field aligned irregularity with quadratic distribution of ionization density 4—73570
- whistlers, quasimonochromatic, nonlinear freq. shift and self modulation 4—58113
- He^+ energetic ion discovery 4—83129
- He^+ ions in plasmasphere rel. to 304 Å radiation 4—50367
- O^+ energetic ions, 1969-25B satellite obs. in 1, 3 and 9 keV 4—61849

magnetostatic waves
- ferrite magnetised perpendicular to interface 4—49204
- ferromagnetic film, surface pinning effect 4—76129
- garnet, single crystal, correlation with chemical and physical props. 4—64253
- magnetic film, propagation along domain walls 4—57332
- surface e.m. modes, of a ferrite slab 4—61008
- Fe:Si, single crystal, magnetoelastic resonance, elastic waves and surface magnetostatic oscillations interaction *(Russian)* 4—82601
- LiF_5O_8, dispersion relations and propagation losses derived 4—45157
- YIG, dispersion relations and propagation losses derived 4—45157
- YIG, drag effect on electrons in adjacent InSb 4—53109
- YIG, ferromag. reson., magnetostatic waves in normally magnetized disc 4—76165

magnetostriction
- dynamic Wiedemann effect, biaxial anisotropy 4—45163
- ferrites, stabilization of props., thermomagnetic treatment *(Russian)* 4—61006
- ferromagnet, h.c.p., renormalization of maghon-phonon interaction, magnetostriction parameters 4—82570
- ferromagnetic magnetostrictive material, acoustic wave attenuation 4—57340
- forced, in cubic ferro-, ferri- and antiferromagnets, field depend. 4—67413
- Invar, r.f. striction of paraprocess, Mossbauer obs. *(Russian)* 4—70244
- inverse Wiedemann effect on circular remanence 4—79561
- itinerant electron ferromagnet, magnetovolume effects press. depend. of Curie temp., theory 4—76046
- magnetite, high-temp. magnetostriction of natural and synthetic crystals 4—70638
- measurement, exact formalism 4—73005
- Permalloy film, interaction energy of dislocations with magnetostriction, anisotropy explanation 4—53267
- Permalloy type alloys, powder metallurgical prod. method and mag. characteriz. 4—80060
- steel, Fe-Si, new high permeability, core loss and magnetostriction improvements, transformer appl. 4—72995
- steel, transformer grade, textured, surface coatings influence on mag. props. *(Russian)* 4—60976
- Al, oscillatory, Fermi surface stress depend. 4—82355
- $CdCr_2S_4$, obs. by ferromag. reson. method at 10 GHz 4—49205
- $Co_2BaFe_{16}O_{27}$, W-type hexaferrite, influence of Co^{2+} ions on magnetostriction 4—73007
- $CoFe_{2-x}Cr_xO_4$ ($x=0.5$; 1; 2), in temperature range 77K to room, fields up to 12 kOe *(Russian)* 4—82589
- $CuFe_2O_4$, tetragonally distorted mag. ordering behaviour 4—57342
- Fe-Ni alloys, Invar type, magnetovolumetric effects *(Russian)* 4—61005
- Fe-Ni-C alloy, dil., magnetostrictive aftereffect due to interstitial redistrib. 4—79563
- Fe-Si(3%), grain oriented, domain struct. rel. to mag., metallurgical props., review 4—79538
- $Fe(Pd_xPt_{1-x})$ alloy, mag. props., mag. transitions 4—57273
- Fe_2TiO_4, giant magnetostriction, theory 4—45159
- Gd-Y alloy, mag. props., electrical resistivity, thermal expsn. 4—57272
- In, oscillatory, Fermi surface stress depend. 4—82355
- $LiFeTiO_4$, paraprocess, site replacement effect 4—79566
- Mg, oscillatory, Fermi surface stress depend. 4—82355

magnetostriction continued
MgFe$_{2-x}$Al$_x$O$_4$ spinel ferrites for magnetic bubble domain memory 4−57308
MnF$_2$, antiferromagnet, magnetostriction meas. 4−82596
Ni-Sc ferrite, conc. depend., homogeneous region *(Russian)* 4−61007
NiCoCuMn ferrite, piezomagnetic, static magnetic props. 4−64252
NiZn ferrite, Co substituted, temp. depend. of mag. props. 4−73001
Sn, magnetostriction, quantum oscills. under mag. interaction conditions at 0.37K *(Russian)* 4−73009
TmCd, low temp. thermal expansion and magnetostriction obs. 4−82598
Y$_3$(Fe,Ir)$_5$O$_{12}$, and anisotropy, ferromag. reson. 4−45127
YIG:Ga, single cryst., comp. depend. 4−82576
Zn, oscillatory, Fermi surface stress depend. 4−82355
Zn$_2$BaFe$_{16}$O$_{27}$, W-type hexaferrite, field depend. of magnetostriction 4−73007

magnetostrictive devices
design, anisotropic ferromagnetic media with cube crystal lattice, magnetostrictive effects anal. applic. *(Bulgarian)* 4−82580
generators of high intensity mechanical vibration, sound and ultrasound 4−58748
instrumentation object positioning by microshift magnetostrictive drive 4−46557

magnetostrictive microphones *see microphones*

magnetostrictive transducers *see magnetostrictive devices; transducers*

magnetothermal effects
see also galvanothermomagnetic effects
coupled magnetothermal-flexural wave excitation 4−77497
deformed metal, magnetic field appearance on heating, vortex electric current explanation *(Russian)* 4−82395
film, thermomagnetic writing with laser beams stable domain radii calculation 4−53400
graphite, pyrolytic, magnetothermal cond. meas. 0.36 to 4.2K, electronic and lattice contribs. 4−60813
Hall coefficient rate of change, estimation using Fermi and Nernst-Ettinghausen data 4−60784
isotropic elastic lattice, phase transition, renormalization group 4−60956
Luttinger method in theory of thermomag. phenomena *(Russian)* 4−75901
magneto-optical film, thermal and magnetization dynamics of information spot heating 4−68806
magnetostrictive ferrites, stabilization mechanism *(Russian)* 4−61006
metal, electron diffusion magnetothermopower, model 4−70010
methane, thermomag. force on small spheroidal particles 4−75066
Nernst generator with internal heat exchange, thermodynamic analysis *(Russian)* 4−54838
plasma, laser produced, magnetic instability theory *(Russian)* 4−72355
plasma, laser produced, spontaneous magnetis. of electron thermal cond. *(Russian)* 4−72354
polyatomic gas, thermomag. force, theory 4−75065
polyatomic gas, thermomag. force on small spheroidal particles 4−75066
polyatomic gases, thermal slip thermomagnetic press. difference meas. 4−63513
rarefied molecular gases, mag. field depend. of heat flux *(Russian)* 4−69550
Scott effect, torque resonances, free-path model 4−48340
Scott effect rotating cylinder in axial mag. field, moments acting on side surfaces *(Russian)* 4−63604
semiconductor, nonpolar, magnetophonon struct. in longitudinal magnetothermal emf investig. 4−64104
torque on cylinder in magnetic and thermal fields, conservation of momentum 4−63514
wires, vibrations, magneto-thermo-viscous-elastic, anal. 4−61014
n-Ag$_2$Te, temp. and carrier density depends., carrier mobility 4−70039
Bi, crystal, separation of electronic and lattice thermal conductivities, high magnetic field method 4−82249
CO, thermomag. force on small spheroidal particles 4−75066
Cr-Co nonferromag. dil. alloys, Invar and Elinvar characts. *(Japanese)* 4−61012
GaAs, band struct., influence of impurity ions under moderate doping conditions, expt. 4−48914
n-GaSb:Te, Nernst-Ettingshausen effects and electron scatt. 4−44938
GeSb$_4$Te$_7$, high purity, single crystals, Nernst-Ettingshausen coeff. 4−44922
HD, gas, thermomag. force on small spheroidal particles 4−75066
HD, thermomagnetic torque, effect of nuclear spin coupling 4−56342
HgTe-ZnTe solid solutions, Maggi-Righi-Leduc effect, 4 to 300K 4−57113
K, magnetothermal resistivity, 0 to 5K 4−44899
Mn-Bi, thermomagnetic recording, repeated cycling, appls. *(French)* 4−54952
Mn-Ni-Fe antiferromag. Elinvar-type alloy characts. 4−79567
MnBi film, appl. to thermomag. writing 4−53271
MnBi film, coercive force temp. depend., rel. to laser beam addressing 4−57337
MnBi film, thermomagnetic writing using electron beam 4−65469
MnBi:Sb, thermomagnetic writing, Curie temp. meas. 4−79559
MnFe$_{2-x}$Cr$_x$O$_4$ spinel-ferrites, mag. compensation pts. detection *(Russian)* 4−82566
N$_2$, thermomag. force, theory 4−75065
N$_2$, thermomag. force on small spheroidal particles 4−75066
NO, thermomag. force, theory 4−75065
Sn, torsionally deformed, magnetic moment excitation by heat flow, anisotropy *(Russian)* 4−82396
p-TlSbTe$_2$, many valley valence band struct., 300-700K 4−72771
V, Fermi surface investig. 4−64018
p-ZnSiAs$_2$, Nernst-Ettingshausen effect, effective mass of holes investigation 4−67241

magnetrons
cold cathode ion gauge, latit. atm. density var. meas. 4−80371

magnetrons continued
injection gun (MIG), unstable electron beam giving cyclotron radiation 4−77124
microtrons, parameters of microwave path 4−77141

magnets
see also electromagnets; permanent magnets; superconducting magnets
air-cored, for charged particle beam, calc. of bending power 4−55018
charge-state separator based on offset magnetic quadrupoles, design and operation 4−55019
High Field Magnet Laboratory, Grenoble, review 4−74099
homogeneous field, effective field boundary rapid meas. 4−71459
magnetostatics of axially symmetric structures 4−62778
particle accelerator, some technological aspects 4−80975

magnons
see also spin waves
antiferromagnet, cubic, two-magnon Raman scatt. in ordered region 4−57538
antiferromagnet, one magnon light scatt., temp. depend. 4−74531
antiferromagnet, spin wave damping, contrib. of magnon-phonon interactions, relax. processes 4−70174
antiferromagnet, uniaxial, nonresonance absorption of sound in strong mag. fields, magnon-phonon interactions 4−76133
antiferromagnet parametrically excited spin system, magnon excitation in spin wave formalism *(Russian)* 4−82573
antiferromagnetic resonance linewidth, influence of magnon-phonon interactions 4−76167
antiferromagnetic resonance linewidth calc., contrib. of magnon scatt. processes 4−57384
electron-magnon bound states, Hubbard model extension 4−57245
ferroelectric, rel. to Frenkel exciton generation by electron beam *(Russian)* 4−67191
ferroelectric ferromagnetic crystal, segnetomagnons, phenomenological theory 4−76221
ferromagnet, magnon sideband shapes, impurity effects, one-dimens. calcs. 4−72979
ferromagnet, magnon-phonon mixing, nonlinear effects 4−79565
ferromagnetic, spin configs. in periodic loop 4−49139
ferromagnetic crystal dislocation centre, magnonic spectra, microscopic exam. *(Bulgarian)* 4−57295
ferromagnetic insulator, quantum transport eqns. for parametric excitation of spin waves 4−79531
ferromagnetic metal, impurity corrections to magnon damping 4−57300
ferromagnetic semiconductor, electron-magnon interaction, light absorption *(Russian)* 4−61134
ferromagnetic semiconductor, heavily doped, screening, uniform state instability and charge carrier scattering 4−79340
ferromagnetic semiconductors, conduction electron in magnon field 4−79341
ferromagnetic semiconductors, Hamiltonian of electron-magnon interaction *(Russian)* 4−60964
Heisenberg antiferromagnet, linear, two-magnon bound states 4−76034
Heisenberg ferro and antiferromagnets, disordered, distribution of magnon modes 4−57243
Heisenberg ferromagnet, magnon damping caused by spin-spin exchange interaction 4−70132
Heisenberg ferromagnets, spin wave interaction effects on longitudinal dynamical susceptibility 4−82545
Heisenberg model, anisotropic, single-magnon Green's function, generalized Hartree-Fock approx. 4−53198
Heisenberg model, one-dimensional, with second-neighbour interaction, two-magnon states 4−60935
Ising system, spatial degrees of freedom, magnon-phonon system, partition function evaluation 4−81247
kinematic interaction, renormalized spin-wave theory, isotropic ferromagnet 4−67382
nonlinear exciton-magnon absorption coeff. for below threshold incident light wave amplitude *(Russian)* 4−53071
nuclear magnons investigation by inelastic light scatt. techniques 4−64226
paramagnetic phase, thermodynamics and elementary excitation spectrum 4−60937
paramagnon effect and BCS state in ^{3}He 4−63962
semiconductor, ferromag., hot electrons, magnon scatt. processes 4−72791
semiconductor, ferromagnetic, spin wave amplification, plasma effects and s-d interaction 4−82572
semiconductors, magnetic with narrow bands, spin polaron theory 4−75826
spectrum and damping in anisotropic Heisenberg model, single-particle Green's function 4−70133
three-magnon nonlinear processes, saturation and coherence props. 4−57299
uniaxial ferromagnet, perpendicular spin wave resonance theory 4−64264
CoCl$_2$.2H$_2$O, linear Ising system, multiple magnon spectrum, far i.r. transmission obs. 4−57540
CoF$_2$, Heisenberg antiferromagnet, two-magnon Raman scatt. using model Hamiltonian 4−45290
EuO, powder, ferromagnetic, nuclear spin-lattice relax. time determ. 4−73044
EuTe, antiferromag. reson. line width, temp. and freq. depend. 4−61036
FeBO$_3$, Raman scatt. by two-magnon excitations 4−64373
FeCl$_2$, magnon temp. renormalization and magnon-phonon coupling 4−57297
FeF$_2$, Heisenberg antiferromagnet, two-magnon Raman scatt. using model Hamiltonian 4−45290
FeF$_2$, magnon and phonon interactions, external mag. field effects, theory 4−57296
^{3}He, heat capacity, paramagnon contribution temp. dependence *(Russian)* 4−82302
K$_2$CuF$_4$, two-dimensional ferromagnet, parallel pumping of Brillouin-zone-boundary magnons 4−76096
KMn$_{1-x}$CoF$_3$, exciton-magnon transitions in absorption spectra 4−70322
Mg$_5$Si$_3$, rel. to anisotropy of transport props. 4−60773

magnons continued
- MnF_2, mag. field depend. of nuclear mag. relax. 4−76181
- $MnFe_2O_4$, inelastic neutron scatt. study of acoustical magnons at room temp. 4−67385
- Np, classical model for electron-paramagnon resist. 4−44901
- $Pd_{90}Pt_{10}$, paramagnon effects associated with Ni impurities 4−64183
- Pu, classical model for electron-paramagnon resist. 4−44901
- VF_2, helical magnet, mag. props. investigation by Green's function method 4−76061
- YIG, drag effect on electrons in adjacent InSb 4−53109

Magnus effect *see fluid dynamics*

maintenance *see maintenance engineering*

maintenance engineering
- breakdown statistics for clinical linear accelerators 4−73909
- fusion reactor structure renewal and maintenance problems 4−55934
- fusion reactors, neutron activation hazards and accessibility 4−63299
- vibration analysis, using heterodyne wave analyser *(Dutch)* 4−77032

Majorana forces *see nuclear forces*

majority algebra *see algebra*

Malter effect *see secondary electron emission*

management
- *see also administrative data processing; research and development management*
- ORMAK program, engineering and management aspects 4−56531
- plasma confinement, toroidal theta-pinch experiment Scyllac 4−56506
- PLT project 4−56533
- pressurised water reactor fuel management study 4−81588

management information systems
- *see also administrative data processing*
- patient management, use of radiology as information system 4−58542

Mandelstam representation
- analytic continuation of dual amplitudes with Mandelstam analyticity, pole structure 4−51723
- dual model of deep inelastic electroproduction and annihilation 4−74611
- meson-baryon scattering, linear zeros versus SU(3) 4−63021
- K^-p backward elastic scatt., factorizing dual amplitude with Mandelstam analyticity 4−59614

manganese
- aragonite:Mn^{2+}, anisotropy effects, exptl. obs. 4−51117
- atom, internal partition function, 0-15000K 4−47820
- atom, K hypersatellite line energy determ. 4−74841
- atom, photoelectric cross section of valence level 4−72058
- cadmium formate dihydrate:Mn^{2+}, e.p.r. rel. to γ-irrad. crystal obs. 4−57364
- calcite:Mn^{2+}, forbidden lines in e.s.r. spectrum 4−67441
- determination in blood serum using graphite furnace at. absorpt. technique 4−51205
- determination in oil ashes using modulated internal standard method 4−68835
- e.p.r. of divalent ions in aqueous solns., absorpt. profiles, Anderson theory applic. *(French)* 4−61025
- film electron energy loss spectra and optical consts., 2 to 120 eV 4−69837
- fine particles, oxide layer growth rate and morphology, electron microscope obs. 4−63994
- optical constants, meas. on evaporated film, 0.5-6.5 eV 4−73095
- optical properties, 0.8-4eV, comparison with nondirect transitions calc. 4−53464
- particle growth in flowing inert gases, electron microscope and diffr. obs. 4−49562
- radioactive corrosion product transfer in LMFBR, computer simulation 4−81570
- sediments at bottom of eastern tropical Atlantic, spatial distrib. of Fe, Ni, Co, Mn, Ti, and Cr trace elements *(Russian)* 4−80305
- substrate, stability of amorphous Bi films *(Russian)* 4−67128
- Tutton salt:Mn^{2+}, single cryst., e.p.r. 4−70206
- X-ray photoemission spectra of valence bands 4−45404
- AlN:Mn, cathodic luminesc. *(Russian)* 4−45367
- β-Al_2O_3-BaO(La_2O_3, K_2O):Eu, Mn, phosphor depreciation under u.v. irrad. 4−61213
- $BaO.6Al_2O_3$:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
- Ba_2ZnS_3:Mn^{2+} phosphor efficiency obs. 4−57603
- $CaCO_3$:Mn^{2+}, uniaxial stress e.p.r. expts., temp. depend. of axial parameter 4−67445
- CaF_2:Mn, cubic Mn centre, kinetics, e.p.r. study 4−73026
- CaF_2:Mn, dielectric props., freq. and temp. depend. 4−64327
- $Ca(OH)_2$, $Ca(OD)_2$:Mn^{2+}, isotope effects in e.p.r. 4−64258
- $Ca_3(PO_4)_2.CaF_2$ based luminophor activated by Sb and Mn *(Russian)* 4−73193
- $CaSO_4$:Eu, Mn, sensitised photoluminesc. obs. *(Russian)* 4−61205
- $CaSO_4$:Mn, phosphor, i.r. stimulation, differential thermal quenching *(Russian)* 4−57596
- CdF_2:Mn, luminescence, evidence for two channel excitation 4−79791
- $CsCdCl_3$:Mn^{2+}, single cryst., e.p.r. isolated ions and pairs 4−70207
- $CsMgBr(I)_3$:Mn^{2+}, e.s.r. 4−53299
- Cu:Mn, cond. electron spin polarisation near Mn impurities, n.m.r. meas. 4−57262
- Fe-Ni alloy electrodeposition, effect on hardness and microstructure 4−82842
- FeSi:Mn, n.m.r., preferential site occupation 4−70224
- GaAs:Mn, epitaxial growth from liquid phase *(Slovak)* 4−82823
- GaAs:Mn, photoionisation cross section, 0.11-0.45 eV 4−49357
- K_2CrO_4:Mn^{2+}, site occupancy, e.s.r. obs. 4−82610
- $KMgF_3$:Mn^{2+}, exchange coupled Mn^{2+} pairs, phosphorescence excitation spectrum 4−73172
- $KMgF_3$:Mn^{2+}, mag. circular dichroism, phosphorescence excitation spectrum 4−73171
- KN_3:Mn^{2+} spin lattice coupling, fine struct. reson. shift due to uniaxial stress 4−49221
- $K_2O.11Al_2O_3$:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
- $KZnF_3$:Mn^{2+}, exchange coupled Mn^{2+} pairs, phosphorescence excitation spectrum 4−73172

manganese continued
- $KZnF_3$:Mn^{2+}, mag. circular dichroism, phosphorescence excitation spectrum 4−73171
- $La_2O_3.11Al_2O_3$:Eu, Mn, fluoresc., emission and excitation spectra 4−61212
- $Li_{0.5}Ga_{2.5}O_4$:Mn^{2+}; e.s.r. spectra at 37 GHz 4−45178
- $LiNbO_3$:Fe, Mn, hologram storage, photochromic behaviour 4−42811
- $LiNbO_3$:Mn, optical absorption spectra, correlation with photorefractive sensitivity 4−57586
- MgO:Mn^{2+}, e.p.r. many-quantum transitions 4−57368
- MgO:Mn^{2+}, flexural-strain-modulated e.s.r. spectra 4−49227
- $Mg_4Ta_2O_9$:Mn, fine structure in the low temperature luminescence 4−64425
- α-Mn, antiferromag. and paramag. states, thermal expansion from 2 to 300K 4−48778
- α-Mn, evidence for localised mag. moment from multiplet splitting 4−76055
- Mn II interstellar absorption lines in u.v. spectra of four bright stars 4−46218
- Mn III $3d^5$, spin-dependent interactions, energy level calcs. 4−66276
- Mn XVIII, MN XIX, spectral classification, ions in laser produced plasma 4−59910
- Mn-Ge alternating layer system, appl. as neutron monochromator 4−78867
- Mn^{2+}, in $CsMgBr_3$, electronic spectra, meas., mag. suscept. investig. rel. to temp. 4−53461
- Mn^{2+}, relativistic 3d wavefunction generated by configuration interaction due to spin-orbit coupling 4−78325
- Mn^{2+}, temp.-depend. e.p.r. meas. in diamag. garnets 4−73020
- Mn^{2+}, zero-field splitting, effect of orbital variation of spin-orbit interaction 4−67171
- Mn^{2+} in cadmium acetate trihydrate, allowed and forbidden transitions in e.p.r. 4−67440
- Mn^{2+} in cubic crystals, hyperfine coupling const. temp. var. 4−44865
- MnI, II, III, beam foil mean lives, appl. to revised Mn solar abundance 4−69416
- NaBr:Mn^{2+} e.s.r. determ. of diffusion and distrib. coeffs. 4−70205
- NaCl:Mn^{2+}, e.p.r. forbidden transitions, r.f. field parallel to static field 4−73025
- $NaNO_3$:Mn^{2+}, e.p.r., g-factor and hyperfine coupling constant determ. 4−79590
- Na_2ZnGeO_4:Mn, properties of ionisation domains, luminous spots obs. 4−67664
- SnTe:Mn, e.p.r. linewidth, dependence on Mn conc. 4−73017
- SnTe:Mn, e.p.r. linewidth, temp. depend., 120-480K 4−73018
- SrO:Mn^{4+}, cubic centres, e.s.r. 4−79596
- Zn:Mn, e.p.r. g-factor anisotropy 4−57373
- $ZnGa_2S_4$:Mn^{2+}, luminescence obs. and comparison with Ga_4A_3 and ZnS 4−57602
- $Zn(NH_4)_2(SO_4)_2.6H_2O$:Mn^{2+}, e.s.r. spectrum obs. around 0.1 K 4−76153
- ZnO-B_2O_3:Mn^{2+}, devitrification, optical, X-ray and e.p.r. meas. 4−60417
- ZnS:Cu,Mn, electroluminesc., trap spectrum 4−82750
- ZnS:Mn, cryst. struct. depend., zero-phonon and phonon-assisted emission 4−70349
- ZnS:Mn, electron emission during radical recomb. luminesc. *(Russian)* 4−82723
- ZnS:Mn, polarisation of visible luminesc. under excitation with light obs. 4−57618
- ZnS:Mn^{2+}, relativistic contrib. to spin-lattice coupling and elec. field effect 4−73024
- ZnS-Se:Mn, investigation of Mn ion using luminescence, optical absorpt. and e.s.r. spectra 4−45360
- ZnSe:Mn, elec. and optical props. 4−61235
- Zn_2SiO_4:Mn, fine structure in the low temperature luminescence 4−64425
- Zn_2SiO_4:Mn, Ti, X-ray luminesc. characts., temp. and conc. depend. *(Russian)* 4−79802

manganese alloys
- *see also manganese compounds*
- cavitational surface failure *(Russian)* 4−53718
- Heusler alloys, Mossbauer spectra, Sb and Sn hyperfine fields 4−64288
- Ag-Mn, dilute alloy, impurity interaction effects, Kondo type elec. resist. minimum 4−57071
- Al-Mn, nonequil. crystn. influence on UTS *(Russian)* 4−53742
- Al-Mn, soft X-ray emission spectra and electronic states 4−64445
- Al-Mn(1.3 wt.%), precip. during recrystn. 4−79968
- Al-Mn(2.9 wt.%), Al_6Mn precip., activation energy determ. 4−53689
- Al-Mn(3 wt.%) rapidly solidified structures, solidification rate and thickness effects *(Japanese)* 4−67763
- Al-Ni-Si-Mn bronze, magnesium effect on struct. and mech. props. 4−61442
- AlMn, dilute, resistivity between 0 and 100°C generalised model approach 4−82388
- Au-Mn, dilute, local d-spin interaction effect 4−57259
- AuMn, dilute, mag., pair description of thermoelectric power 4−60783
- Au_2Mn, antiferromag. spiral and ferromag. phases, sp. ht., 0.3-4K 4−53233
- BiMn, ferromagnetic hyperfine field at Bi, low temp. nuclear orientation 4−73053
- Co-Mn, electrodeposited, electrolyte parameters influence *(Rumanian)* 4−60987
- Co_2MnSn ferromagnetic alloy under 14 kbar pressure, Mossbauer effect *(Russian)* 4−82647
- Cu-Mn, dilute, n.m.r. meas., 1.4 to 290K, diamag. deviation of Knight shift 4−82625
- Cu-Mn, electron spin obs. of spin lattice relax., 0.32-20K 4−61054
- Cu-Mn, nuclear specific heat, acquisition and treatment, 20 to 100 mK 4−67051
- Cu-Mn, X-ray electron spectra and state density of valency electrons 4−82766
- Cu-Mn-Al, Heusler alloys, effect of antiphase boundaries on mag. props. 4−45142

manganese alloys continued
Cu-Mn-Al alloys, magnetisation and coercive force *(Japanese)* 4−45150
Cu-Mn-Ni, Ni-rich, Cu-rich, equilib. of melting *(German)* 4−73283
Cu-Mn-Ni alloys, Ni-rich and Cu-rich, fusion equilibrium *(German)* 4−73287
Cu-Ni-Mn bondable fatigue gauge, elec. resist. changes during fatigue 4−80050
Cu-Si-Mn, shape memory effect possibility 4−49810
CuMn, dilute, mag., pair description of thermoelectric power 4−60783
CuMn, polarisation anal. of neutron mag. scatt. 4−67380
CuMn spin glass, low temp. resist. 4−79331
CuMn-Pt, dilute alloy, e.s.r. linewidth, anisotropy due to heavy impurities 4−45173
$Cu_2Mn_{0.9}Al_{0.81}$ Heusler alloy, β phase decomp. on heat treatment, precip. phenomena *(French)* 4−45531
$(Cu_{0.83}Pd_{0.17})_{1-c}$ Mn_c, dilute, paramag. Curie temp., influence of order-disorder transitions 4−45115
Fe-C-Mn, radiation hardening mechanism 4−45719
Fe-Co-Mn, strain gauge factor and elec. props. 4−49837
Fe-Cr-Mn system, ferrite/austenite equil., optimisation of thermodynamic parameters 4−61327
Fe-Mn, low-C, stacking fault density and ε-phase stability determ. *(Russian)* 4−61373
Fe-Mn, mag. hyperfine fields at ^{55}Mn, ^{57}Fe nuclei, mol. field calcs. 4−76066
γ-Fe-Mn, mag. transform. *(Russian)* 4−67362
Fe-Mn, oxide scales, metal diffusion props. 4−48866
γ-Fe-Mn, proton diffraction patterns obs., shadow effect 4−56651
Fe-Mn, shape and energy of $FeK\alpha_1$ and $MnK\alpha_1$ X-ray emission lines, reln. with composition 4−57643
Fe-Mn (16 wt.%) alloy, transformation plasticity and strain memory effect *(German)* 4−49652
Fe-Mn alloys, phase transform., shock loading induced, stability 4−64540
Fe-Mn and Fe-Mn-Ni, surface segregation behaviour of Mn and Ni 4−53669
Fe-Mn Invars, Neel temp., third alloy component influence *(Russian)* 4−76074
Fe-Mn system, thermochem. and phase equil. 4−61349
Fe-Mn-C system, solid phase thermodynamics 4−45508
Fe-Mn-X, epsilon iron stability, alloying elements effect 4−79920
Fe-Ni-Mn, Invar type, crit. conc. region, ^{57}Fe Mossbauer effect 4−64300
Fe-Ni-Mn, martensitic, microstruct. changes during ageing, TEM obs. *(Japanese)* 4−67787
Fe-Ni-Mn, Mossbauer effect, isomeric shifts, hyperfine field *(Russian)* 4−67493
Fe_xMn_{1-x}, itinerant-electron antiferromagnetism, theory 4−76048
FeMnGe, $B8_2$ type, recoilless absorpt. spectra, h.f. interactions and ordering of moments 4−73057
$Fe_{3-x}Mn_xSi$ alloys, structural and mag. props. 4−76091
γ-$Fe_{5o}(Ni_xMn_{1-x})_{50}$, mag. phase diag. determ. by Mossbauer technique 4−53238
Ge-Mn-Te dilute alloys, magnetisation and magnetoresistance meas. at low temps. 4−44902
Mg-Al-Zn-Mn, aged, precipitate morphology and orientation relationships 4−64542
Mg-Mn, fatigue crack growth characts. 4−45591
Mg-Mn and Mg-Al-Mn, phase comp. influence on corrosion behaviour *(Russian)* 4−45714
α-Mn based, antiferromag., impurity sites and mag. moments, n.m.r. obs. 4−64269
β-Mn based, antiferromag., impurity mag. moments and ordering, n.m.r. obs. 4−67464
Mn-Bi, thermomagnetic recording, repeated cycling, appls. *(French)* 4−54952
Mn-Bi system near MnBi, equilib. phase diagram 4−64527
Mn-Bi-Te film, magneto-optical material, mag. props. temp. depend. 4−57331
Mn-Cu, fine struct. characterised by high damping capacity *(Russian)* 4−73277
Mn-Ir, γ-phase, antiferromagnet, neutron diffr. study 4−45119
Mn-Ir, γ-phase, crystallographic and mag. transitions obs. 4−45109
Mn-Ni-Fe antiferromag. Elinvar-type alloy characts. 4−79567
Mn-Pd, cryst. and mag. struct., neutron diffr. obs. 4−70162
Mn-Pd, thermodynamic props. exam. 4−79163
Mn-Rh system, mag. transitions obs., superparamagnetic state 4−79521
Mn-Sn single crysts., DO_{19} type, orientation and temp. depend. of strength 4−53700
Mn-Zn ferrites, hot-pressed, e.m. props. *(Russian)* 4−45259
MnBi, film growth, ferromag. recovery during thermal cycle, writing appl. 4−67408
MnBi, film use in holographic memory stores 4−68709
MnBi, thermomagnetic writing on film using electron beam 4−65469
MnBi, thin film, temp. depend. of mag. anisotropy and saturation mag. 4−53271
MnBi film, coercive force temp. depend., rel. to laser beam addressing 4−57337
MnBi film, domain nucleation and propagation phenomena, demag. obs. using W needle 4−57327
MnBi film, magnetooptic properties, component ratio depend. 4−70285
MnBi film, optical anisotropy eval. rel. to magneto-optical effects 4−45262
MnBi films, prep. by vacuum evap. and annealing diffusion process analysis 4−76384
MnBi thin films, mag. domain config. and coercivity 4−76127
Mn_3Pt, antiferromagnetic-antiferromagnetic transitions, model 4−72967
Mn_2Sb, Cr modified, first order phase transition, magnetic domain obs. 4−64237
$MnSb_{1-x}Sn_x$, thin films, spin wave resonance 4−73031
Mn_3Si, degree of ordering, X-ray obs. *(Russian)* 4−82136
Mn_5Si_3, transport coeffs. anisotropy, 60-360K 4−60773
Mo-Mn, dil., anomalous resist., 1.5K-room temp. 4−45093

manganese alloys continued
Ni-Mn, order-disorder transform., thermodynamic character, X-ray obs. 4−64536
Ni-Mn, soft magnetic alloys, recent developments in Japan 4−72930
Ni-Mn, work hardening obs., short range order *(Russian)* 4−61414
$Ni_{1-x}Mn_x$, Mn atom mag. moment determ., n.m.r. *(Russian)* 4−67472
Ni_3Mn, critical slowing down at order-disorder phase transition, neutron scatt. obs. 4−45542
Ni_3Mn, disordered, ^{57}Fe Mossbauer lineshapes 4−64307
Ni_3Mn, mag. moment and superparamag. Curie point, changes during atomic ordering 4−64203
Ni_3Mn, mag. order, annealing techniques 4−82559
Ni_2MnGa, Heusler alloy, lattice parameter by X-ray examination, magnetic properties meas. 4−79510
Ni_2MnIn, Heusler alloy, neutron and X-ray meas., effect of heat treatment on structure 4−82937
Pd-H-Mn, e.p.r., g-shifts, linewidths, exchange interaction info. 4−53306
Pd-Mn, e.p.r. g-shifts, linewidths, exchange interaction info. 4−53306
Pd-Mn(10%), neutron scatt. and mag. susceptibility 4−53241
Pd_2MnSn, Heusler alloy, neutron spin wave scatt., exchange parameters 4−72980
PdMnTe Cl_b type intermetallic, crystallographic and mag. characts. 4−48543
PtMnSb(Sn), hyperfine fields at nuclear sites 4−72714
Ti-Mn-Al, with elevated oxygen content, struct. and mech. props. 4−76480
U-Mn, thermodynamic props., 660-860°C, U_6Mn and UMn_2 phases existence *(Russian)* 4−45537
Zn-Mn, crystal field splitting parameters, exchange const. 4−79474
Zn-Mn, dilute, e.s.r., example of Hasegawa's phenomenological theory extension to anisotropic alloys 4−45184
Zn-Mn, magnetic anisotropy in single crystals, low mag. field, low temp. 4−79473
Zn-Mn dilute alloy superconductors, single crysts., u.s. absorpt. meas. 4−64165
Zn-Mn dilute alloys, Kondo resistance anomaly obs. 4−72751
Zn-Mn single crystals, anisotropy in resistivity measurements, 0.3 to 8K 4−44894
Zn-Mn single crystals, magnetic anisotropy, 77 to 1.2K, high fields 4−45130
ZnMn, dilute alloy, excess sp.ht. due to mag. interactions 4−64215
ZrMnCo, strong paramagnetism, reciprocal susceptibility 4−72950

manganese compounds
see also manganese alloys
2,2′-bipyridyl manganese (II) complex, formation kinetics 4−59012
bis(arene) and related complexes, high energy photoelectron spectroscopy 4−66503
ferrite, spin-spin relaxation and formation of multiple echoes 4−49259
halides, u.v. absorption, transition assignment 4−49372
halides, X-ray photoemission spectra of valence electrons 4−49521
leucophoenicite, $Mn_7[SiO_4]_2[(SiO_4)(OH)_2]$, structure 4−82148
manganese (II) phthalocyanine, mag. props. 4−53184
oxalates, dihydrated, stacking fault struct. *(French)* 4−56757
1,10-phenanthroline manganese (II) complex, formation kinetics 4−59012
phthalocyanine, canted ferromagnetism investigation by torque and magnetisation meas. 4−60982
2,2′,2″-terpyridyl manganese (II) complex, formation kinetics 4−59012
tetramethylammonium manganese chloride with Fe impurity, ^{57}Fe Mossbauer spectrum 4−64299
AgX-MnX_2 system, (X=Br, Cl, I), phase behaviour, DTA 4−63893
$(CH_3NH_3)_2MnCl_4$, birefringence, X-ray and neutron diffr. meas. on structural phase transitions 4−67014
$CaMn_7O_{12}$, high press. synthesis, crystal struct., perovskite like cpds. 4−75495
$CdMn_7O_{12}$, high press. synthesis, crystal struct., perovskite like cpds. 4−75495
$Cs_3MnCl_5{:}MnCl_4^{2-}$, electronic spectra, isotope splitting of vibronic side bands 4−72541
$Fe_xMn_yO_z$, oxide scales on binary alloys, metal diffusion props. 4−48866
$Fe_yMn_{1-y}O_{1+x}$, miscibility gap, elec. cond. and optical absorpt. evidence 4−53092
Fe_xO-MnO system, elec. cond., 900-1150°C, and struct. props. 4−49888
$(GeTe)_{99}(MnTe)_1$, exchange scatt. obs. 4−45105
$LaMn_7O_{12}$, high press. synthesis, crystal struct., perovskite like cpds. 4−75495
$Li_xMn_{1-x}V_2O_4$, X-ray, thermoelectric and IR spectroscopy of spinels *(German)* 4−63814
Mn complex, $(EMPH)_2MnCl_4$, luminesc. props. obs. by absorption, excitation and reflectance spectra 4−70353
Mn complex, $MnX_4^{2-}(X=Cl^-,Br^-,I^-)$, excited state decay, luminescence quantum yields 4−53493
Mn complex, tricarbonyl-1-syn-(1',2'-dihydro-2'-oxo-azulen-3'-yl)-h^5-pentadienylmanganese, cryst., mol. struct., parameters determ. 4−56673
Mn complex with amine, mag. susceptibility, 2-291K *(French)* 4−49151
Mn complexes of 2,2'-bipyridine and 1,10-phenanthroline, far-i.r. and Raman obs. 4−53422
Mn cupferrate complex, u.v. and visible spectra, spectral line shift, solvent effect 4−49390
Mn ferrite, $MnFe_{2-x}Sc_xO_4$, X-ray and Mossbauer spectra, change in electronic struct. of Mn and Sc ions *(Russian)* 4−45379
Mn^{2+} complex, bis(methylammonium)tetrachloromanganate, mag. suscept. determ. rel. to temp., mag. transition investig. 4−60955
Mn_2AlB_2, ternary compound, unique structure 4−69892
Mn_5AlB_{11}, new ternary compound, monoclinic structure 4−69892
$MnAl_2O_4$, preferred orientation of precipitates in Al_2O_3-rich spinels 4−75469
$Mn_3Al_xR_{2-x}Ge_3O_{12}$, (R=Cr or Fe), i.r. spectra 4−49366
MnB, energy bands, K-spectra 4−53546
MnB_{23}, solubility of Mn in rhombohedral B, single crystal diffractometry, rel. to structure 4−63812

manganese compounds continued
- MnB_4O_7, cryst. struct., magnetism and thermal extinction depend. 4−44521
- MnBi:Sb, thermomagnetic writing, Curie temp. meas. 4−79559
- $MnCO_3$, antiferromag., dynamic susceptibility meas. *(Russian)* 4−82620
- $MnCO_3$, mag. birefringence *(Russian)* 4−79706
- $MnCO_3$, single-pulse spin echo of ^{55}Mn *(Russian)* 4−73045
- $MnCO_3:Fe^{2+}$, by Mossbauer spectroscopy 4−49277
- $Mn(CO)_6^+$, vibrational spectra, force consts. and bonding 4−52144
- $Mn(CO)_5X$, X=Cl, Br, I, MCD and absorpt. spectra 4−52128
- $MnCl_2$ vapour, laser action, elec. discharge stimulation at 953K 4−55461
- $MnCl_2.4H_2O$, crit. sublattice magnetisation meas. by p.m.r. 4−61043
- $MnCl_2.4H_2O$, mag. phase boundaries, spin wave renormalization 4−64205
- $(Mn_{1-x}Co_x)_2As$ solid solution, mag. transition comp. depend. rel. to struct. obs. *(French)* 4−49173
- MnF_2, ^{19}F n.m.r. obs. of domains and domain related inhomogeneous broadening, below T_n 4−76110
- MnF_2, antiferromag., circular and mag. circular dichroism meas. 4−57567
- MnF_2, antiferromag., spin wave width at intermediate temp. 4−64227
- MnF_2, antiferromagnet, mag. circular dichroism of $^1A_1$, ^4E region 4−57558
- MnF_2, antiferromagnet, magnetostriction meas. 4−82596
- MnF_2, critical point anomalies in zero-field relax. rates 4−73013
- MnF_2, Heisenberg model, spin-phonon interactions, spin-wave spectrum 4−72938
- MnF_2, Heisenberg model, spin-phonon interactions, phonon spectrum and spin-lattice relax. 4−72939
- MnF_2, i.r. lattice-vib. spectra 4−82696
- MnF_2, lattice dynamical models 4−56831
- MnF_2, mag. field depend. of nuclear mag. relax. 4−76181
- MnF_2, neutron depolarisation for $T \sim t_n$ and $T \ll T_n$ *(Russian)* 4−72973
- MnF_2, optical mode gammas, press. derivatives of elastic and dielectric consts., rigid ion model 4−75592
- MnF_2, u.v. absorption and refl. spectra 4−76281
- MnF_2:Er, fluorescent energy transfer $Mn^{2+} \rightarrow Er^{3+}$, temp. depend. 4−45354
- Mn_2F_5, synthesis, crystallographic and mag. characts. *(French)* 4−48570
- $MnFe_{2-x}Cr_xO_4$ spinel-ferrites, mag. compensation pts. detection *(Russian)* 4−82566
- $MnFe_2O_4$, cation distrib., temp. depend. 4−48562
- $MnFe_2O_4$, inelastic neutron scatt. study of acoustical magnons at room temp. 4−67385
- $Mn_{1-x}Fe_{2+x}O_{4+\delta}$, lattice const. and nonstoichiometry obs. 4−69769
- $Mn_xFe_{3-x}O_4$, (x=0 to 0.63), d.c. and a.c. conductivities, 4.2 to 300K 4−44923
- $Mn_xFe_{3-x}O_4$, ferromag. relax. obs., 1.8 to 300K 4−76166
- $Mn_xFe_{3-x}O_4$, induced anisotropy by annealing in const. mag. field 4−64231
- $Mn_xFe_{3-x}O_4$ spinels, mag. anisotropy above 300K 4−53248
- $Mn_3G_xFe_{2-x}Ge_3O_{12}$, i.r. spectra 4−49366
- $Mn_3Ga_xR_{2-x}Ge_3O_{12}$, (R=Al,Cr,or Fe), i.r. spectra 4−49366
- $MnGeO_3$, magnetoelec. new materials 4−82539
- Mn_2GeO_4, electrical conductivity jump produced by the α-β-δ transformation 4−68087
- $Mn^{125}I_2:^{125}Te$, antiferromag., Mossbauer studies of Te electronic state 4−76194
- Mn(II) complex, catena-μ-dichlorobis(pyrazole)manganese(II), cryst. struct. 4−63796
- Mn(II) complex, dichloro-2-(2'-pyridyl)-3-(N-2-picolylimino)-4-oxo-1,2,3,4-tetrahydroquinazolineMn(II) 4−78977
- Mn(II) complex, fluoresc. and reflectance spectra struct. depend. 4−57593
- $Mn_xMg_{1-x}(HCOO)_2.2H_2O$, two-dimens. mag. lattice, e.p.r. rel. to anisotropic exchange 4−53298
- Mn_2N magnetic structure, group theory analysis *(French)* 4−53243
- $Mn(N_2H_5)_2(SO_4)_2$, powder susceptibility meas., linear-chain antiferromagnetism 4−60950
- $MnNO_3$, thermophysical and thermodynamic characteristics *(Russian)* 4−56890
- MnO, e.p.r. linewidths, temp. depend., 300-1100K 4−61022
- MnO, elastic constants, Krishnan-Roy theory 4−56794
- MnO, group theoretical anal. of phonon spectrum 4−72539
- MnO, MnO-Zn(Mg)O solid solutions, chemisorption of O_2, e.p.r. obs. 4−48851
- MnO, optical absorption edge, antiferromag. transition effect 4−79749
- MnO films, low temp. coeffs. of resist. 4−60880
- MnO in iron, oxygen potential measurement *(Russian)* 4−70450
- MnO-CoO-CuO sinters, thermoelec. props. rel. to thermistor applic. *(Polish)* 4−57117
- MnO-Fe_2O_3(-PbO)-B_2O_3(-SiO_2) system, glass form. boundaries and crystn. tendency 4−53817
- MnO-P_2O_5 glass, amorphous antiferromag., magnetisation as function of temp. and mag. field 4−57320
- α-MnO_2, single cryst. growth, Neel temp. 4−45430
- MnO_4^- in soln., electronic vibr. absorption spectrum 4−57557
- MnO_4^{2-}, unrestricted CNDO-MO calcs. 4−56110
- Mn_3O_4-Mn_2SnO_4, cooperative Jahn-Teller effect, cryst. distortion by Mn^{3+} ion *(French)* 4−45074
- Mn_3O_4-Mn_2SnO_4, ferrimag. props., Jahn-Teller effect *(French)* 4−70148
- MnP, helimagnetism investigation 4−64221
- MnP, u.s. attenuation determ. of mag. phase diagram 4−49177
- MnS, e.p.r. linewidths, temp. depend., 300-1100K 4−61022
- α-MnS, optical absorption edge, antiferromag. transition effect 4−79749
- MnS molecule, visible spectrum, vibr. consts. of bands in 4900-6000 Å region *(French)* 4−47974
- MnSe, mag. reson. near phase transition point, X-band spectrometer obs. 4−53289
- MnSi, elastic consts., lattice dynamics 4−60534

manganese compounds continued
- Mn_2SiO_4 (olivine) high-pressure decompositions rel. to mantle transformations 4−68088
- MnTe, antiferromag. transition, positron annihilation meas. 4−67365
- $MnTe_2$, transport coeffs., Neel point anomaly 4−57285
- Mn_3TeO_6, antiferromagnetism, e.s.r. and susceptibility meas. 4−57271
- $MnTiO_3$, neutron scatt. exam. of anisotropic spin correlations 4−76086
- MnV_2O_6, columbite phases containing V^{5+}, high-pressure synthesis 4−72448
- MnX_2L_2, X=Cl, Br, L=pyrazole, pyridine, linear-chain antiferromagnetism 4−64176
- MnZn ferrite, prep. and In_2O_3 additions effect on phys. props. 4−49912
- $MnZnFe_2O_4$, elastic moduli from 80-303K, composite piezoelectric oscillator meas. 4−82595
- Mn complexes of phthalocyanine and tetrazaporphin, extended Huckel calculations 4−52049
- $NaMn_7O_{12}$, high press. synthesis, crystal struct., perovskite like cpds. 4−75495
- $NdMn_7O_{12}$, high press. synthesis, crystal struct., perovskite like cpds. 4−75495
- NiCoCuMn ferrite, piezomagnetic, static mag. props. 4−64252
- $Ni_xMn_{1-x}Cl_2$, low temp. heat capacity, comp. depend. *(Russian)* 4−72974
- P_2O_5-Al_2O_3-MeO:MnO, (Me=Be, Mg, Ca, Sr, Ba), glass, absorpt. spectra and e.s.r., depend. on Mn conc. 4−70326
- P_2O_5-Al_2O_3-MgO:MnO, glass, fluoresc. and thermoluminesc., depend. on Mn conc. and temp. 4−70338
- $SrMn_7O_{12}$, high press. synthesis, crystal struct., perovskite like cpds. 4−75495
- TlX-MnX_2 system, (X=Br, Cl, I), phase behaviour, DTA 4−63893

manometers
- *see also pressure measurement*
- diffusion, chem., obs. of O in $SrTiO_3$ by capacitance manometry 4−48790
- gas flowmeter application 4−55172
- Hg U-tube with constant reference height Pt electrodes and depth micrometer, 0-800 Torr 4−58769

manufacture
- *see also electron device manufacture; electronic equipment manufacture; steel manufacture*
- optical system, manufacturing ease, automatic design, evaluation 4−46646

manufacturing processes
- *see also forming processes; joining processes; manufacture*
- ferrites, high density *(German)* 4−49879
- glass production technique, for optical fibre communication system 4−49972
- in-plant noise control problems 4−50923
- machine tools automatic height control using gas laser *(German)* 4−80931
- nuclear fuel fabrication for commercial elec. power gen. 4−47798
- optical fibres, diameter control 4−42703

many-body problems
- *see also BCS theory; quantum statistical mechanics*
- absorptive system of composite particles, second quantisation reln. to nuclear reaction theory 4−66161
- action-angle variables in many-boson system 4−62739
- atom, hyperspherical coordinate formulation, exact soln. of coupled diff. eqn. set 4−51949
- atom, hyperspherical coordinate formulation 4−51946
- barely-bound systems, anal. of size 4−69205
- boson system coupled by gravitational forces, ground-state energy 4−68953
- boson systems, velocity and phase operators 4−62742
- Brenig's method, correlation energy of Be and Li atoms *(Russian)* 4−74821
- cluster approximation for scatt. of multiparticle systems, variational principles 4−71382
- composite fermion particles, appl. of many body theory 4−74417
- composite particle symmetry conditions, Girardeau theory for electron exchanges 4−72100
- Coulomb interaction, generalized wave and scatt. operators 4−51430
- dense fluids collision diameter, upper bound calc. from HNC and PY theories 4−75433
- electron liquid, correlation props. of positron 4−75807
- electron-hole liquid, quasi particle props. 4−75824
- electrons, perspectives from general theory of critical phenomena 4−74444
- excited atom near solid surface, many body effects in Auger deexcitation 4−64128
- Faddeev equation for three particle scattering, solution without contour rotation 4−43148
- Faddeev equations with repulsive two-body interactions, eigenvalue spectrum 4−59252
- Faddeev-like eqns. with multibody forces 4−47161
- four particles with separable 2-particle interactions, integral equations of motion 4−77518
- four-body scatt. system, one-dimens. 4−65723
- fragments of molecular ion, interaction pot., mass spectrometric fragmentation 4−48109
- gas-liquid critical system, depolarised light scatt. mechanism 4−59356
- general oscillator brackets, new relations 4−47148
- gravitational potential, higher-order anal. 4−62725
- gravitational potential in canonical formalism 4−65776
- Green's function integral eqns. *(Russian)* 4−55224
- hard core interactions, introduction of pseudometric 4−43171
- Hartree-Fock time-dependent problem, bounded two-body interaction, existence proof 4−65821
- hydrodynamic fluctuations in many-body system with non-local interactions, microscopic derivation 4−71426
- internucleon forces, average field in nucleus 4−51764
- ionic crystals, comparison of polarisable models, review 4−52828
- irreversibility of many-body systems to steady state 4−55411

many-body problems continued
Ising model, random phase approximation in many-body theory 4—74426
long-range many-molecule interactions, Heitler-London renormalization 4—75057
magnetism theory, for ions with complicated level structure 4—67326
many electron atom state functions, eigenfunctions of L^2 and S^2 for one open shell config. 4—78322
many-boson system, 1-dimens., ground state energy 4—65829
many-fermion system, correlation function, modified Euler eqn., asymptotic behaviour 4—71420
multiparticle partial-wave amplitudes and inelastic unitarity, characteristic operator function 4—59525
multiple scatt. expansions in several particle dynamics 4—71385
multiple scattering by Dirac comb 4—73944
N-particle scattering, minimal hierarchy of Faddeev-type eqns. 4—71381
n-particle systems with harmonic interaction, classification according to internal symmetries *(German)* 4—71388
nuclear high-energy interactions, nuclear density and particle distrib. anal. in multiple scattering theory 4—51823
nuclear many-channel reaction formalism 4—71857
nuclear structure calculation, soln. of the generalised Brueckner-Hartree-Fock equations in the exp(S) formalism 4—71799
nuclear-electron scattering, quasi-elastic, nucl. struct. *(Russian)* 4—78039
point group representations, symmetrised powers 4—65730
rearrangemet scattering, coupled equations for transition and reactance operators 4—62716
relativistic interacting particle system, separability, Poincare generators 4—43401
relativistic interacting system, nonlinear representation, causality 4—43400
relativistic three-body problem, local two-particle quasipotential 4—74586
restricted three body problem, stability regions for quasiperiodic motion 4—65040
self-bound many-body system, rot. excitation investig. 4—63411
short range intermolecular forces, convergence of multibody expansion 4—52012
thin atomic vapour, refractive index, optical absorption line 4—43722
three body dynamics, direct nuclear reactions, channel distortions 4—81483
three body problem, adiabatic representation *(Russian)* 4—77528
three one-dimensional particles, third group integral in terms of S-matrices 4—81239
three-body, angular momentum analysis of Faddeev's equations for spinless particles 4—43147
three-body, Gilbert-Schmidt method, peak functions of $t \rightarrow d+n$ and $t \rightarrow d^*+n$ *(Russian)* 4—74724
three-body, periodic solns. of relativistic restricted circular prob. 4—81144
three-body decays, weak, impulse approx. calcs. of final state interaction 4—59537
three-body equal mass, elimination of coordinate singularity at equilateral triangle config. 4—81223
three-body linear scattering integral equation 4—65751
three-body local potentials, separable approx. 4—51765
three-body short-range correlation in nuclear matter, variational procedure 4—47648
three-body transition operators, equivalence between Faddeev-like eqns. and set of Lippmann-Schwinger eqns. 4—65741
three-nucleon systems, review 4—47634
three-particle Bethe-Faddeev eqn. soln. for finite nuclei 4—74730
three-particle equations, functional mass operator formalism 4—47165
three-particles interacting via zero-range potential, one-dimensional model of rearrangement, Faddeev eqns. 4—43143
transition operators, new integral eqns. 4—66132
tunnelling between moving wells, calcs. using adiabatic approx. 4—68590
turbulent fluid motion theory using mol. statistical mech. 4—72283
wave function asymptotics in impulse approx., form factors of compound systems at high momentum transfers *(Russian)* 4—47497
$X+X+Y \rightarrow X_2+Y$, $Y=X$ and $Y=X_2$, termol. recombination, quantum kinetic theory 4—83018
^{12}C ground state energy, three-alpha cluster model *(German)* 4—81468
$D+ClI \rightarrow DI+Cl$, trajectory calcs. using LEPS pot. surfaces 4—52293
$F+HR \rightarrow FH+R$, $R=$substituted methanes, trajectory calcs. using LEPS pot. surfaces 4—52293
Fe^{3+}, hyperfine const., linked cluster many body perturbation theory 4—44856
$^{2}H(n, 2n)p$, Faddeev scattering equation analysis of final state interactions 4—43531
^{3}H, Hilbert-Schmidt method anal. of vertex parts tdn and td*n 4—77975
^{3}He, Liquid, correlation energies calc. in Brueckner-Goldstone formalism 4—67084
^{4}He, three body clusters, Bethe-Faddeev equation, treatment method 4—74731
^{4}He, three-particle Bethe-Faddeev equation solns., Faddeev-Brueckner-Hartree-Fock calc. 4—74730
^{16}O, three-particle Bethe-Faddeev equation solns., Faddeev-Brueckner-Hartree-Fock calc. 4—74730

many-particle systems *see statistical mechanics*

manybody problems *see many-body problems*

map drawing *see cartography*

marine systems
see also ships
deep towed submersible, terrain following control system for 4—70846
high resolution, marine digital system, seismology 4—70818
transparent structural materials for submersibles 4—80406

Markov chains *see Markov processes*

Markov processes
1/f noise simulation, computer modelling comparison with random walk solns. 4—46367

Markov processes continued
continuous time chains, generalization of results using Chapman-Kolmogorov eqn. 4—43026
field theoretical aspects, Wightman distrib. 4—51671
Gaussian Markov chain, first-order, gamma distrib., simulation 4—58125
homogeneous processes with independent increments, moment of reaching max. 4—77380
irreversible circulation of fluctuation around steady state or cyclic balance 4—71428
Lake Superior, regulation of water level, modelling 4—57965
local equilibrium breakdown in coupled relax. processes, translational nonequilib. in vib.-relax. 4—78530
magnetic relaxation, derivation of Markov kinetic equations *(Russian)* 4—53277
Markovian random coupling model for turbulence 4—72282
neuronal impulse sequences, statistical inference 4—62282
neutron transport, coupling between multiplicative zones *(French)* 4—63232
in nuclear reactor, variance-to-mean ratio calc. using binary fission model, criticality study 4—81538
nuclear reactor supervised protective systems, optimum active-inactive times 4—81553
probability density distribution calculation *(Russian)* 4—47048
random fields, Martin-Dynkin boundaries 4—47046
renewal process, prediction of highway noise fluctuations 4—77006
selection rules, causality and unitarity in stat. and quantum physics 4—55365
turbulence, stationary, description at large Reynolds number 4—69568
two approaching space vehicles, nonlinear filtration 4—80449
Dy_2O_3, Mossbauer study, relaxation, anisotropy, site depend. 4—70236
$DyPO_4$, Ising antiferromagnet, Mossbauer spectra, relax., anisotropy and site depend. 4—70236

Mars
adsorbed H_2O and CO_2 exchange between regolith and atmosphere 4—73635
albedo changes, Earth based obs. 4—73630
albedo markings, McLaughlin's volcanic predictions rel. to Mariner 9 photographs 4—50477
atmosphere, CO_2 atm. photochem. investig., CO, O, O_2, O_3 free radicals obs. 4—50479
atmosphere, ion distrib. calc. for F_2, F_1 and E models 4—54418
atmosphere, photolytic stability, comment on paper by Whitten and Sims (1973) 4—58258
atmosphere, vertical temp. profile, i.r. data 4—50501
atmosphere photolysis of CO-NH_3 mixtures 4—50499
atmosphere simulation, using mass spectrometer for aerospace applic. 4—46899
atmospheric H distrib. $L\alpha$ airglow obs. 4—50496
atmospheric ion wakes in solar wind 4—65106
channel formation, role of lava erosion 4—58243
climatic variations due to solar insolation changes 4—73633
conference, Pasadena, USA (Nov. 1973) 4—58242
convection in magnetosphere 4—46177
crater, morphological classification, Mariner 9 photography 4—73624
crater associated light and dark streaks, wind tunnel simulations 4—68362
crater distrib. from Mariner 9 imagery rel. to geologic history and surface processes 4—73623
cratering, Mariner 4 data reanalysis 4—73626
cratering and obliteration history, computer model 4—73625
craters, central peaks, pingo formation by subsurface permafrost 4—50491
craters, multivariate classification and mode of origin 4—57909
euphotic zone at 1 cm subsurface 4—50493
exosphere upper limit on H_2 u.v. emission, Mariner 9 obs. 4—70933
exploration, space vehicles for, manned and unmanned, optimal trajectories *(French)* 4—61972
global seasonal atmospheric fluctuations, Mariner 9 S-band radio occultation obs. 4—73628
internal structure from Mariner 9 gravity field obs. 4—54427
large channels, structural origin rel. to global or local tensional forces 4—73631
lee waves and photoclinometric effect 4—50497
longitudinal polarization in 0.373-0.8 μ region 4—54426
Mariner 9, satellite orbit determ., rel. to Mars gravity model 4—65043
meandering channels, possible origin and probable discharges 4—58254
mesosphere, radiative transfer in a CO_2 atmosphere 4—46173
neutral atmosphere model from electron density profile 4—54417
north polar hood, Mariner 9 photographs 4—65094
Olympus Mons, elevation from limb photography 4—65099
Olympus Mons, Mariner 9 photogrammetric meas. 4—50484
palaeoclimatology on Earth and Mars, episodic change in solar luminosity 4—73627
Pavonis Mons, albedo changes of shield volcano 4—58244
Phobos, i.r. radiometry from Mariner 9 rel. to dust cover 4—65090
photograph processing, contrast method 4—58474
photographic observations during 1969 opposition *(Russian)* 4—68356
polar hood, ozone and cloud distrib. 4—65101
polar laminated terrain, relative age of escarpments from Mariner 9 imagers 4—73632
post accretion evolutionary processes, comparison with Earth 4—73468
pressure-altitudes from Mariner 9 reflectance obs. at 3050A 4—50489
pyramidal surface structures, Mariner 9 photographs 4—65100
sandstorms and eolian erosion, comments and reply 4—58255
spacecraft final descent velocity in Martian atmosphere, adaptive algorithm for control 4—76768
surface hydrate and solid water from 1969 Marine IRS obs. 4—54420
surface structure, review 4—46185
surface temp. from Mars-3 radiometer 4—83186
thermospheric temp. experimental data review 4—80517

Mars continued
tidal pressure, wind fields, from Mariner 9 i.r. spectroscopy experiment 4—65105
topography, global and local, spherical harmonic analysis of independent obs. 4—68353
TV photographic photometry *(Russian)* 4—71069
upper atmosphere HI distrib. from Lα luminosity 4—80518
variable surface features, comparison of Mariner 1969 and 1971 photography 4—50490
Viking-type orbits, effects of resonant tesseral gravity coeffs. 4—58193
yellow cloud, 1971 July 10, position and photographic differential photometry 4—73629
yellow storm of 1971, Earth based photographic obs. 4—65098
CO_2 absorption at 11 μ using i.r. heterodyne spectroscopy 4—62042
CO_2 atmosphere, effect of radiative transfer on shear flow instability 4—54419
CO_2 atmosphere evolution and polar cap temp. 4—73634
CO_2 frost caps, case against permanent reservoir 4—73636
CO_2 mass var. in atmosphere and polar caps 4—54425

martensitic transformations
A_3B compounds, critical scattering theory 4—72566
atomistic model 4—82838
austenitic alloy, single cryst. plastic deform., low temps. *(Russian)* 4—67824
earthquake generation by diffusionless phase transform. 4—68084
habit plane calculations using Bollmann method *(French)* 4—49655
interface shear stresses generated by hydrostatic press. 4—61332
interfacial energy, austenite/martensite, dislocation model approach 4—79916
lattice instability obs. with electron microscope and cine camera near transition point 4—48726
metallurgical, lattice wave description 4—64537
molecular crystal, deform. transforms. 4—79155
phonon nucleation concept 4—52853
polyethylene, high density, X-ray obs. of single crystal deform. 4—56627
polymorphic, singularities *(Russian)* 4—73278
steel, $\gamma \to \varepsilon$ and $\gamma \to \varepsilon'$ transforms., alloying elements effect *(Russian)* 4—61338
steel, annealing effect on softening of cold worked austenitic phase and subsequent martensitic transform. *(Russian)* 4—82832
steel, austenitic Cr-Ni type, cobalt influence *(German)* 4—45491
(225) steel, crystallography 4—73286
steel, ferrite/austenite stabilizing parameter of alloying elements 4—79919
steel, high-alloy, strain rate influence *(Russian)* 4—64526
steel, internal stress fields and evolution during tempering *(French)* 4—79909
steel, low alloy, thermomechanically tempered martensitic structures and mech. props. *(Japanese)* 4—53750
steel, low-alloy, during continuous cooling from subsolidus temps. 4—61350
steel, martensite state after high temp. thermomech. treatment *(Russian)* 4—53655
steel, Ni type, austenite ordering influence *(Russian)* 4—53649
steel, scuffing surface transformations 4—67886
steel, stainless, 304L, surface martensite formation, polishing and quenching 4—67797
steel, stainless, austenitic 18Cr-8Ni, coaxing effect *(Japanese)* 4—79998
steel, stainless, single crysts., relation between applied stress and orientation in α' martensite 4—53642
steel, stainless, stress-induced $\gamma \to \alpha'$ martensitic transform., defect behaviour 4—45521
steel, TRIP type, transform./strain relationships 4—53662
steel, work hardening effect by deform. induced phase transform. 4—67858
strain triggering of shear transforms. by stress field of unstable lattice vibr. modes 4—75613
stress/strain relationship during transform. enhanced plasticity 4—45681
surface relief, predominant orientations of habit planes *(Russian)* 4—67777
thermoelastic martensite form. and reversal, charact. temps. 4—79891
Ag-Cd alloys, thermoelastic martensite form. and reversal, charact. temps. 4—79891
Ag-Zn alloy, thermally activated transform. 4—61329
Au-Cd(47.5 at.%) alloy, nucleation dynamics and growth of thermoelastic martensite 4—76410
Au-Cu-Zn, thermoelastic martensite, pseudoelasticity obs. 4—82936
Co, Hall coeff. and elec. resistivity meas., temp. depend. 4—53087
Cr-Ni steel, effect of prior deformation on mechanical structure properties *(Russian)* 4—70484
Cu-Al and Cu-Al-Zn alloys, time law interpret. of growth of β grain size and martensite plates 4—79898
Cu-Al-Ni, (14.5% Al, 1.6% Ni), emission of sound during thermoelastic martensitic reaction 4—57729
Cu-Al-Ni alloy, single interface transform. 4—45513
Cu-Al-Ni alloy, stress-induced acicular β_1' martensite obs. 4—79970
Cu-Al-Ni alloy, stress-induced acicular γ' martensite obs. 4—79971
Cu-Al-Ni alloy, struct. depend. of superelasticity 4—76426
Cu-Al-Ni thermoelastic martensite, morphology and crystallography using phenomenological theory 4—49676
Cu-Al-Ni thermoelastic martensite, with Cu_3Ti type ordered struct., twinning 4—49677
Cu-Si-Mn alloy, shape memory effect possibility 4—49810
CuZn alloys, metastable β' 4—53640
Fe alloys, phase stability, model parameters 4—67764
Fe-C-Ni(Si) alloys, martensite form. mechanism *(French)* 4—79908
Fe-Co-V alloy, heat treatment influence on microstruct. 4—79940
Fe-Cr-Ni (16 wt.%, 12 wt.%), transformation cycling 4—82900
Fe-Cr-Ni alloy, TRIP phenomenon of predeformed austenite *(Japanese)* 4—82888
Fe-Mn alloy, shock loading induced, stability 4—64540
Fe-Mn-X alloys, epsilon iron stability, alloying elements effect 4—79920
Fe-Ni alloys, macro- and micro-morphology, habit planes and orientations of martensite crysts. 4—76432

martensitic transformations continued
Fe-Ni alloys, martensitic embryo expts. using high mag. fields 4—79913
Fe-Ni-C alloys, austenite stability and martensite burst 4—53663
Fe-Ni-C alloys, hydrogen charged, premature fracture in martensite *(French)* 4—80023
Fe-Ni-C alloys, influence of martensite formed during deform. on mech. behaviour 4—80005
Fe-Ni-C alloys, prior deform. effect on martensite-austenite transform. 4—49668
Fe-Ni-C alloys, strain rate influence *(Russian)* 4—64526
Fe-Ni-C alloys, stress-assisted and strain-induced martensites 4—79901
Fe-Ni-C alloys, thin plate martensite, form. temp. and growth behaviour *(Japanese)* 4—61348
Fe-Ni-Ti, form. of finely dispersed γ-martensite *(Russian)* 4—67749
Fe-Ni-Ti alloy, isothermal shear induced $\alpha \to \gamma$ transform. analysis *(Russian)* 4—49642
Fe-Ni(30 wt.%), martensitic transformation, orientation relationship *(German)* 4—70473
Fe-Pt alloy, substruct. of austenite formed by partial reverse martensitic transform. 4—45510
Ge-Ni-Ti alloy, aged, martensite morphology changes *(Russian)* 4—49641
In-Tl alloys, Bordoni peak formation 4—61351
In-Tl alloys, elastic behavour near martensitic transition 4—45703
In-Tl alloys, lattice softening 4—79921
Li, single crystal, elastic constant behaviour near martensitic transformation 4—79090
Mn-Cu alloys, fine struct. characterised by high damping capacity *(Russian)* 4—73277
Nb_3Al, low temp. heat capacity meas., martensitic transform. obs. 4—57728
Ni-Ti, strain growth and recovery under external stress *(Russian)* 4—67752
Ti, $\alpha \to \omega$ in shock wave, residual temp. depend. 4—61353
Ti-Ni alloy, equiatomic, interrupted treatment effects *(French)* 4—49638
TiNi, II$\to$III, electronic density of states 4—82352
V_3Ga, low temp. heat capacity meas., martensitic transform. obs. 4—57728
V_3Si, effect on electrical resistivity 4—67199
V_3Si, nucl. acoustic reson. of ^{51}V, above and below martensitic transform. 4—73038
Zr, $\alpha \to \omega$ in shock wave, residual temp. depend. 4—61353
Zr-Cr-Fe, β-quenched, microstructure and lattice strain effect on corrosion resistance and mechanical props. 4—64594
Zr-Ti alloys, morphology and substruct. 4—45505
ZrO_2, crystallographic aspects 4—53791
ZrO_2, kinetic theory, nucleus growth relations 4—48755
ZrO_2, metastable tetragonal, characteriz. and stabilization 4—64607

maser clocks *see atomic clocks*

masers
andulusite:Fe^{3+}, e.s.r. rel. to microwave maser applic. *(Russian)* 4—53294
astronomical OH sources, possible chemical masers 4—54514
astrophysical, line width theory 4—62197
astrophysical clouds, nonlinear maser model 4—68454
celestial H_2O sources, pumping mechanisms 4—65185
coherent synchrotron radiation from intense relativistic electron beam 4—62818
cyclotron-resonance, for mm and far i.r. bands *(Russian)* 4—77639
Dicke maser model 4—74481
optical self-saturation gain 4—43276
Orion Nebula direction, possible maser emission near 3.48 mm 4—50692
quantum amplifier, 1.35 cm wavelength for radioastronomy *(Russian)* 4—54599
radiative relaxation of hyperfine populations among OH masing states 4—69030
travelling-wave, comb type slow wave structure 4—55458
t.w. system, noise in waveguide at 3 ghz 4—69031
CdS phonon maser, light diffraction, polarisation effects 4—65889
CdS phonon maser with off-axis cavity struct., light diffraction 4—65890
H, automatic tuning of atomic clock resonant cavity *(French)* 4—65331
H_2, freq. standard development 4—80827
H_2O, astrophysical masers, pump mechanisms 4—73832
OH maser sources assoc. with H II regions, pumping by far i.r. radiation 4—54529
OH maser sources associated with H II regions, IR pumping 4—76916
OH/i.r. stars, radiatively pumped masers 4—62126
SiO, second vibrationally excited state detect. in variable stars and Orion Nebulae 4—83228
SiO interstellar masers, i.r. pumping processes 4—73838

masks
see also integrated circuit production; semiconductor device manufacture
deep structure generation, by ion beam etching with Ti or Mo masks 4—53625
electrothinning of foils, electron microscope specimen prep. 4—44449
holography application *(Polish)* 4—68704
micro-ion milling with 1μ periodicity 4—53626
pecten oculi of bird as possible coded aperture mask 4—54661
photographic materials and processes, operation *(German)* 4—68714
GaAs native oxide, mask for Zn diffusion 4—61315

masonry dams *see dams*

mass
see also atomic mass; hyperon mass; meson mass; molecular weight
accuracy of fundamental metrology, improvement 4—46565
galaxies, mass distrib., dynamics of massive coronas 4—65215
solar neighbourhood mass density from faint double star meas. 4—80632
standards, value assignment, comparison, weighing, report 4—65333

mass differences
see also elementary particle theory
baryons, e.m. mass formula 4-74597
compensation theory, Coleman-Glashow mass relation 4-71666
e.m., of pion ρ meson, in renormalizable chiral SU(2) × SU(2) gauge model 4-47496
hadron mass shift due to weak interactions, light-cone algebra framework 4-55588
mesons, pseudoscalar, sum rule determ. using (8,8) chiral-symmetry breaking 4-71668
vector mesons, e.m. mass differences in effective Lagrangian formalism 4-71663
K, in nonlinear Lagrangian model of chiral $SU_3 \times SU_3$ breaking 4-55584
K^+-K^0 e.m. mass differences in relativistic quark model 4-74596
K_l-K_s from charge asymmetry in semileptonic decays 4-77810
K_l^0-K_s^0 in strong gravity model of semileptonic and nonleptonic processes *(Russian)* 4-47476
K_s-K_l mass difference 4-77808
K^0, by two regenerator method 4-77809
$\nu-\nu$, from comparison of $K_l^0 \rightarrow \pi\mu(e)\nu$ decay spectra, CPT invariance test 4-55596
p-n, in SU(2) × SU(2) × U(1) gauge model, appearance of pions 4-71662
p-n, role of heavy baryons 4-55606
p^+-π^0 e.m. mass differences in relativistic quark model 4-74596
π, e.m., in unified gauge field theories 4-51709
π, in nonlinear Lagrangian model of chiral $SU_3 \times SU_3$ breaking 4-55584

mass spectra
see also mass spectrometers; mass spectroscopic chemical analysis; mass spectroscopy
aliphatic imines, electron impact fragmentation *(French)* 4-60103
alkali metal halide $+ Ar^+$, sputtering of hyperthermal beams 4-70385
4-aminoazobenzene dyes, mass spectra, bond cleavage rel. to photochem. stability 4-61628
atomic negative ions, electron affinity 4-66315
cellulose, hydrated, kinetics of destruction, mass spectrometer obs. *(Polish)* 4-80119
cycloheptatriene, mass spectral decomposition, hidden rearrangements, quasi-equilibrium theory 4-63467
ethyl chloride, pure and with H_2, ion-mol. reactions, 190-400K, thermodynamic props. 4-53969
ethylene, deuterated isotopes, electron impact dissoc., isotope effects 4-52268
gas-phase clustering reaction, Bi^+ hydration 4-61594
$2\,Ge(g) + 0.5\,N_2(g) = Ge_2N(g)$, mass spectrometric determ. of heat of form., atomisation energy of Ge_2N 4-61579
inert gas, plasma afterglow microwave and mass spectroscopic obs., ion densities 4-60321
ion mass meas. using Langmuir probes in a gas discharge 4-56560
isobutene, rearrangement reactions in electron impact fragmentation 4-60102
maleic anhydride + Cs, collisional ionisation, mass spectra 4-56316
methane, ion-mol. reaction, thermal energy rate consts. 4-53970
methane, ionised, selective-phase cyclotron reson. spectroscopy 4-78503
methane ion, dissoc. mass spectra, collision with inert gases, isotope effects, 2-25 eV *(French)* 4-48110
methyl ions, cyclotron reson. spectra, freq. sweep Fourier transform method 4-63462
molecule field ionisation, fragment ion energy distrib. 4-48108
propene, ion-mol. reaction, thermal energy rate consts. 4-53970
refractory metal oxides, time-of-flight meas., ionisation pots. 4-52234
review of techniques, instruments, organic (radical-) ion chem., anal. appls. 4-81068
rubber, nitrile butadiene, high temp. vacuum outgassing props. 4-53905
spectrochemical analysis, automated system, calc. of mol. struct. 4-72158
succinic anhydride + Cs, collisional ionisation, mass spectra 4-56316
toluene, mass spectral decomposition, hidden rearrangements, quasi-equilibrium theory 4-63467
toluene ion, time resolved photoionisation mass spectrum, unimolecular fragmentation 4-75023
transition metal carbides heated on graphite filament 4-52235
vinyltrimethylsilane-He(Ar), discharge, reactive plasma, ionisation, mass spectra 4-46935
α-Al_2O_3, photodesorption of NO, product kinetic energy determ. by time-of-flight method *(Russian)* 4-63991
Ar, plasma sheath, mass spectra obs. *(German)* 4-78823
As-Te amorphous alloys, structural and thermal properties, compositional dependence 4-66829
B^+, prod. by electron bombardment of BX_3 (X = halide), electronic states investig. 4-60105
CO, electron impact dissoc. ionisation, obs. of high-Rydberg atomic metastable states 4-52274
CO, oxidation in r.f. discharge, mass spectrum 4-73419
CO_2, decomposition in r.f. discharge, mass spectrum 4-73419
CO_2, dissociative electron attachment, O_2^- and C^- production, mass spectra, Renner-Teller effect 4-52270
CO_2^{2+}, CS_2^{2+}, COS^{2+}, charge separation reactions, thermochemistry and energy partitioning 4-76592
CO_3^-, $CO_3^-.H_2O$, photodissoc., 2.35-2.71 eV 4-56288
$Ca_3(PO_4)_2CaF_2$, secondary ion-microanalysis of F conc. 4-55160
CeIr(Pt)(Rh), dissoc. energies, multiple bond interpret. 4-60110
$Cl^- + Cr(CO)_5^-$, nonreactive ion-molecule collision rate consts., ion cyclotron resonance 4-78516
Cl^- + dichloroethylene (difluorobenzene), polar and nonpolar isomers, momentum transfer rate consts. 4-75046
Co, isotope mass, mass spectrometer doublet method 4-59891
Cu, isotope mass, mass spectrometer doublet method 4-59891
$D_2^+ + D_2$, ion-mol. reaction, thermal energy rate consts. 4-53970
EuN, Knudsen effusion mass spectrometry, heat of vaporisation determ. 4-45943
EuSe, sublimation thermodynamics 4-63910

mass spectra continued
$F + CF_3I \rightarrow IF + CF_3$, CF_3 radical focusing, identification of paramag. component of beam 4-80178
$F^+ + H_2(D_2)$ reaction cross section, isotope effect 4-76589
GaAs, Ar^+ bombarded, ejected particle characterisation 4-53564
GaAs, surface stoichiometry and struct. during growth 4-56947
GaCN molecule, atomization energy determ. 4-52229
Ge-Au(Cu) liq. systems, thermodynamic props. 4-45944
$H_3^+ + D_2 \rightarrow D_2H^+ + H_2$, reaction kinetics, 0.22-5.21 eV, crossed beam study 4-73409
$H_3O^+ + Cl^-$ reaction, gas phase rate consts. 4-50139
He^+ low-energy ions, absorption by low-carbon steel *(Russian)* 4-69834
$^3He^+ + ^4He$, charge transfer reaction, rate const., ion cyclotron reson. study 4-72092
I_2, photoionisation in I_2-SF_6 mixture 4-52239
K +, ion cyclotron resonance collision frequencies in Ar and He 4-78369
LiH, plasma, separation in multi-ion spectrometer 4-68803
$ND_3^+ + ND_3$, ion-mol. reaction, thermal energy rate consts. 4-53970
NH_2-radicals, electron impact form., e.s.r., ion cyclotron resonance, emission spectroscopy investig. 4-52267
N_2O, adsorpt.-dissoc. at Ni foil secondary ion mass spectra 4-57885
N_2O, photoionisation, 1000-600 Å 4-48115
N_2O^{2+}, NO_2^{2+}, charge separation reactions, thermochemistry and energy partitioning 4-76592
Na ion source, using nepheline as emitter substance 4-74107
Na^+ ion cyclotron resonance collision frequencies in Ar and He 4-78369
Ni, isotope mass, mass spectrometer doublet method 4-59891
$POCl_3$, ion-mol. reactions, ion config. 4-50148
$PSCl_3$, ion-mol. reactions, ion config. 4-50148
Pt, chemisorption of hydrocarbons, on single cryst. surfaces, field ion mass spectroscopy 4-44781
Pt-Si system, composition profiles of CVD Pt and PtSi 4-67137
Rh_2, gaseous mols., thermodynamic investig. 4-43874
RuC, Knudsen cell mass spectrum, dissociation energy 4-48101
SH^-, photodetachment, laser induced, ion cyclotron reson. spectra 4-81800
SO_2/Ag surface reaction, secondary ion mass spectrometry 4-76619
SO_2^{2+}, charge separation reaction, thermochemistry and energy partitioning 4-76592
Sb_2Te_3, vaporisation, heat of reaction, equilib. vapours mass spectra 4-56874
$SiCl_4$, dissociative-electron attachment process obs. 4-78519
$Si_2N(g) + Ge(g) = GeSiN(g) + Si(g)$, mass spectrometric determ. of heat of form., atomisation energy of GeSiN 4-61579
Si(111), chemisorption of In 4-56991
ThO + Si, ThO_2 + Th, gaseous reactions, mass spectrometric obs. 4-75025
ThRu, Knudsen cell mass spectrum, dissociation energy, quadruple bond formation 4-48101
TiRh, Ti_2Rh, gaseous mols., thermodynamic investig. 4-43874
TlF dimer, mol. beam electric deflection, investig. of mol. struct., mol. polarity 4-48105
UO_2, thermal evolution spectrometry of injected low energy inert gas ions 4-51896
$VS_{(s)} \rightarrow VS_{(g)} + V_{(g)} + S_{(g)}$, 1700-2000K, thermodynamics, mass spectra 4-52882
W, chemisorption of hydrocarbons, on single cryst. surfaces, field ion mass spectroscopy 4-44781
W oxidised surface, secondary ion mass spectra, ion yield parameters 4-48111
Xe_2^+ formation, Jesse effect in Ar* + Xe collision 4-69429
Y_2O_3, vaporisation, effusion and mass spectra meas. 4-80176
Zn single crystals, spatial distrib. of particles during vaporisation 4-48749
ZrO_2, metastable tetragonal, characteriz. and stabilization 4-64607

mass spectrometer accessories
see also ion sources
cell, integral square and flat for ion cyclotron resonance spectrometer 4-42916
chemical ionisation, instrumentation and vacuum aspects 4-55107
cryopumping system for balloon-borne mass spectrometer 4-42769
cylindrical-mirror electrostatic analyzer, fabrication errors effect on focusing 4-58948
cylindrical-mirror electrostatic analyzer, image line characts. 4-58947
digital voltmeter, for peak ionic current meas. *(Russian)* 4-81027
direct insertion probe, temp. programmer, circuit design 4-77241
inlet device, for highly air-sensitive liquids and solids 4-77242
ion beam collector system, applics. to isotopic ratio meas. in chem. anal. 4-51233
ion beam tuning, electron multiplier device for making weak beams visible 4-42917
ion counting, photon-blind electron multiplier used with quadrupole mass filter 4-68804
ion prism, achromatic two-dimensional 4-51176
ionising laser beam, for microanalysis of solid surfaces *(French)* 4-74168
magnet control unit, use for magnetic peak switching in spark source mass spec. 4-51201
magnetic field measurement and control system for spark source mass spectrometry 4-51217
mass discrimination in mag. sector mass spectrometer, source and voltage scanning effects 4-51171
multistage mass analyzers, design method 4-58949
peak detector, continuous meas. device for unstabilized mass 4-58945
quadrupole, digitally controlled, appls. and performance limits 4-55106
sampling device, silicone rubber hollow fibre probe, appl. in trace contaminant anal. 4-65534
signal averaging system for ion kinetic energy spectrometry 4-46894
surface ionisation ion source, ion emission regulator *(Japanese)* 4-65535

mass spectrometer applications
see also isotope separation; mass spectroscopic chemical analysis
chemical ionisation, instrumentation and vacuum aspects 4-55107

mass spectrometer applications continued
- energy partitioning, mass spectra obs., elimination reactions in chloroalkanes and chloroalkenes 4—76594
- free radicals, electron affinity determ. using gas phase ion equilibria meas. technique 4—48100
- Langmuir vaporization and surface ionization of carbides, props. of system 4—55158
- leak detect. automatic testing system He mass spectrometer *(Japanese)* 4—74150
- membrane, gas permeability meas. with mass spectrometer *(French)* 4—62551
- molecular beam spectroscopy, struct. of weakly bound complexes investig. Rabi-type mol. beams resonance method 4—48151
- planetary atmosphere simulation, for entry behaviour obs. 4—46899
- quadrupole, digitally controlled, appls. and performance limits 4—55106
- review of techniques, instruments, organic (radical-) ion chem., anal. appls. 4—81068
- secondary ion emission, surface of epitaxially grown GaP obs. *(Czech)* 4—64510
- self-diffusion coeffs. of oxygen meas., using isotope exchanges *(Czech)* 4—77245
- vapour pressure determination, of As over InAs(c) and GaAs(c), use with Knudsen cell 4—52886
- AlF_2^-, AlF_4^-, heats of form., electron affinities determ., effusion-mass spectrometric method 4—78507
- BF_2^-, BF_4^-, heats of form., electron affinities, determ., effusion-mass spectrometric method 4—78507
- n-GaP epitaxial layers obs., comparison with electrical meas. *(Czech)* 4—64511
- $I^- + CO_2(SO_2)$ collisions, mass spectrscopic investig. 4—72093

mass spectrometers
- *see also ion optics; mass spectra; mass spectroscopy*
- chemical ionisation, instrumentation and vacuum aspects 4—55107
- collision chamber for ion-molecule reaction obs., 10^2-10^4 eV 4—46891
- correlation type, sensitivity, signal-noise ratio *(Bulgarian)* 4—81030
- crossed electric and magnetic field type *(Japanese)* 4—65536
- design and techniques, nucleon binding energy from atomic masses 4—43448
- dispersion characteristics, resolving power, numerical evaluation 4—55103
- double focusing, second order image aberration correction 4—51173
- fast process monitor for gas stage during thermal decomposition process 4—42915
- gas chromatograph, with on-line computer, catalysis studies 4—46898
- gas chromatography mass spectrometry, state of the art review, instrumentation, appls., computerised systems 4—71272
- hollow cathode ion source, use in solids mass spectrometry as surface ionisation source 4—51170
- isotopic abundance ratio direct indication, spectrometer construction *(Japanese)* 4—51175
- isotopic analysis of solids, construction and operation 4—58943
- low-resolution, fast-scanning, automatic data processing system *(German)* 4—81028
- magnetic analyser field shaping calcs. 4—55104
- magnetic multicollector with cycloidal focusing 4—68800
- magnetic peak switching, in spark source mass spectrometer, design of magnet control unit 4—51201
- mass discrimination in mag. sector mass spectrometer, source and voltage scanning effects 4—51171
- Mattauch Elbek type spectrograph coupled to Van de Graaff generator, operation, characteristics *(Spanish)* 4—77244
- Mattauch-Herzog, miniature 4—46897
- multi-ion mass spectrometer 4—68803
- on-line analysis of radionuclide fission products, SOLAR 4—68801
- positive ion, for lower ionosphere studies 4—80399
- quadrupole, digitally controlled, appls. and performance limits 4—55106
- quadrupole mass filter studies, truncated Hill determinant anal. 4—46892
- quadrupole residual gas analyser used as secondary ion mass spectrometer 4—55105
- quadrupole type, for operation in high and ultra high vacuum systems 4—51177
- review of techniques, instruments, organic (radical-) ion chem., anal. appls. 4—81068
- r.f., quasiparabolic pot. well, phase meas. with sensitive element Farvitron *(Bulgarian)* 4—81077
- secondary ion, construction for impurity conc. distrib. in-depth analysis 4—49611
- simulation using quadrupole fields, obs. of charged particles motion 4—51665
- tandem mass spectrometer, retardation system, collision chamber 4—42918
- tandem spectrometer design for ion-mol. reactions 4—51216
- time-of-flight, resolving power improvement, ion mirror applic. 4—77243
- time-of-flight spectrometer, 1-dimens., space and velocity focusing 4—51172
- transmission, optimisation, resolution power, cross deflection of ions *(German)* 4—42919
- He mass spectrometer leak detect., automatic testing system *(Japanese)* 4—74150

mass spectrometry *see mass spectroscopy*

mass spectroscopic chemical analysis
- *see also isotope separation; mass spectra*
- air, trace components anal. using mass filter system, noncon. principle and detection limit *(Japanese)* 4—46501
- atmospheric pollutant sampling and analysis methods *(French)* 4—71128
- Cameca ion analyser, high mass resolution capability 4—77313
- computer program to identify mass peaks 4—58946
- computer-aided analysis, empirical formula, rel. abundances, Σ_i values 4—51174
- data system, GC/MS 4—46960
- dynamite effluent, quadrupole analyser detection system 4—55141
- field ionization and field desorption mass spectrometry device, automatic activation 4—77278

mass spectroscopic chemical analysis continued
- gas chromatography mass spectrometry, state of the art review, instrumentation, appls., computerised systems 4—71272
- gas chromatography-mass spectrometry, computer-assisted retention indices assignment, applic. to biological samples 4—55134
- glow discharge mass spectrometry, technique for elemental comp. profile determ. in solids 4—58990
- heat-resisting alloy standards, boron trace analysis by isotope dilution mass spectrometry *(Japanese)* 4—65586
- hollow cathode ion source, use in solids mass spectrometry as surface ionisation source 4—51170
- impurity conc. distrib. in-depth analysis by secondary ion mass spectrometer 4—49611
- isotopic analysis of solids, construction and operation of spectrometer 4—58943
- isotopic ratio determination, using ion beam collector system, design, applics. 4—51233
- laser applications, review 4—51227
- metal, relative sensitivity of secondary ion-ion emission analysis *(Russian)* 4—74169
- metal, surface analysis, using sputtering of neutral particles 4—74182
- metal solute diffusion in V, mass spectrometric investig. 4—77264
- metallurgical applications of secondary ion mass spectrometry 4—77314
- microanalysis of solids by spectrography with ionising laser beam *(French)* 4—62611
- negative ion mass spectra 4—66315
- nuclear materials, role in thermodynamics and phase relation studies 4—51877
- O ion simultaneous implantation and sputtering, secondary ion mass spectrometry analysis 4—64465
- organic compounds, negative ion mass spectra 4—68845
- oxide films, CVD, quantitative investig. of porosity and water content *(Japanese)* 4—74180
- pattern recognition, six methods compared rel. to information content 4—42946
- pattern recognition, using multiclass linear classifier 4—42948
- photoresists, surface desorption of gases, anal. using monopole mass spectrometer 4—55159
- pollutant chemical analysis using computerized gas chromatograph and quadrupole mass spectrometry 4—62646
- polymer destruction kinetics, determ. *(Polish)* 4—80119
- quadrupole residual gas analyser used as secondary ion mass spectrometer 4—55105
- quadrupole spectrometer for operation in high and ultra high vacuum systems 4—51177
- review of literature, appls., to biomedicine and natural prods. 4—81068
- r.f. glow discharge sputtered ionic species 4—51218
- sampling reactive agents 4—71288
- secondary ion mass spectrometry for materials characterisation 4—77312
- solid surfaces microanal. laser beam impact ionisation *(French)* 4—74168
- surface, in-depth and quantitative anal. by secondary ion mass spectrometry 4—74172
- surface analysis by secondary ion mass spectrometry *(French)* 4—42961
- surface analysis with ion scatt. spectrometry and secondary ion mass spectroscopy 4—77315
- three-dimensional analysis by Auger electron and secondary ion mass spectra 4—53628
- trace metals, in water and air, review of instrumental anal. techniques 4—62572
- trace volatile contaminants, use of silicone rubber hollow fibre probe as sampling device 4—65534
- Ag surface, field desorption products including O_2, mass spectrometry obs. 4—63989
- Au, ion plated on Cu, composition profile anal. by AES and SIMS during Xe ion bombard. 4—74174
- $^{11}B/^{10}B$ isotope ratio determ. by surface ionisation method *(Japanese)* 4—65585
- CO_2 gas mixture, TEA laser discharge *(German)* 4—77647
- CO_2-N_2-He low press. discharge, mass spectroscopy study chem. reactions *(German)* 4—80175
- Cd trace element determ. using high yield e.m. isotope separator and neutron activation 4—46958
- $IrThC_2$, gaseous, mass spectral identification, mol. stability, struct. investig. 4—60109
- Nb-Ti alloy, supercond., matrix and cellular phase comp. obs. with autoionic microanalyser *(Russian)* 4—70121
- $PtCeC_2$, $PtThC_2$, gaseous, mass spectral identification, mol. stability, struct. investig. 4—60109
- RhCeC, gaseous mass spectral identification, mol. stability, struct. investig. 4—60109
- SF_6, Ar and H_2 shock wave decomp., react. prods. anal. by u.v., mass spectrometry 4—45901
- SF_5Cl, Ar shock wave decomp., react. prods. anal., $\Delta H°$ for SF_5, determ. 4—45901
- Si chemical vapour deposition obs. by time-of-flight mass spectrometry 4—53622
- SiH_4 pyrolysis for Si deposition, mass spectrometric obs. by mol. beam sampling 4—70419
- W polycrystalline surface, anal. by imaging mass spectrometer, secondary and thermionic ions *(German)* 4—74167
- YIG, impurity distribution obs. rel. to raw material impurities 4—64498

mass spectroscopy
- *see also mass spectra; mass spectrometers*
- amorphous semiconductor film deposition anal. 4—75744
- computer program to identify mass peaks 4—58946
- computer-aided analysis, empirical formula, rel. abundances, Σ_i values 4—51174
- interaction potential of molecular ion fragments, mass spectrometric fragmentation 4—48109
- molecular ion spectra after electron impact, metastable decomposition meas. 4—46656
- negative ion, in anal. of org. compounds 4—68845
- organic manufacturing wastes, computerized environmental control 4—74184

mass spectroscopy continued
oscillograph monitoring, amplitude modulation of brilliance *(Slovak)* 4−81029
photodissociation, a continuous wave photofragment spectrometer 4−68802
plasma diagnostics, atomic props. of l.p. plasmas 4−72390
polyatomic ions + N_2 collisions, collisions, ion mobilities rel. to ionic size investig., models 4−75069
quadrupole mass filter resolution, entry velocity and position interaction effects 4−58944
review of techniques, instruments, organic (radical-) ion chem., anal. appls. 4−81068
UO_2, nuclear fuel particles, vaporisation Ba by high temp. mass spectrometry 4−69294

mass standards *see measurement standards*

mass transfer
see also gravity waves
accretion flow in galactic X-ray sources, optically thin spherically symmetric model 4−50638
acetone drops, evaporation into N_2 stream, electric field effects on transfer rates 4−75180
acoustic nonlinear waves, mass transfer and flow in stratified fluid 4−66582
acoustic nonlinear waves, standing sound waves density gradient switch off effects 4−66583
aerosol particle transport across turbulent boundary layer 4−72345
atmospheric surface boundary layer, momentum and mass transfers 4−80360
binary mixtures, barodiffusion at rotating disc 4−44119
binary stars, W Ursae Majoris type, mass exchange times in A-type and W-type systems compared 4−80577
binary stars with mass loss, effect of mag. field on evolution time 4−83214
binary vapour mixtures of miscible liqs., condensation on horizontal tube 4−52876
boundary layer, heat transfer increase due to mass injection 4−81833
Bridge Creek, mountain stream, bedload and suspended load transport 4−57958
bubble, in liquid, influence of surface-active agents 4−52499
bubble, spherical cap in laminar flow 4−44121
bubble growth by mass transfer, radial convection effect 4−52506
centrifugal solid/liquid system 4−48348
chemical reactions, wave phenomena investig. 4−76581
chemically reactive binary gas mixture, convection in mag. field *(Russian)* 4−63628
combined heat and mass transfer eqns., coeffs. computation using straight-line method 4−62758
contacts by short arc 4−44413
creeping flow mass transfer to single sphere in random inactive particle cloud 4−52490
Cygnus X-1, gas streaming in X-ray binary system 4−76881
deformable solid, mech. energy dissipation during thermal diffusion processes 4−48707
density interface, turbulent struct. 4−72281
diffusion drag in slowly evaporating droplets 4−44130
diffusion in non-viscous parallel channel flow with discontinuous velocity distrib. *(German)* 4−81848
diffusion mass transfer processes, model 4−55389
dissolution roughness, turbulent flow near soluble surface 4−81974
droplets, bubbles, heat and mass transfer, criterion eqns. 4−56442
dwarf novae, role of gravitational radiation and mass transfer 4−68431
dynamic renal function simulation by computer 4−71092
electrode, rot. hemisphere, turbulent regime mass transfer rate eqn. 4−69558
electroplating microprofiles, current distribution 4−54035
evaporation of liquids from surface of pipeline transition element into gas stream 4−63530
flat, rectangular duct, naphthalene-air mixture laminar flow, local meas. transfer coeffs. 4−75083
fluidised bed, mass transfer between bed phases and layer with cylindrical spiral filling 4−66652
forced convection heat and mass transfer, rapidly varying surface boundary conditions 4−43930
forced convection in slow flow through ducts and packed beds, Graetz problem 4−52485
forced convection in slow flow through ducts and packed beds, vel. profile in cubic sphere array 4−52486
forced convection in slow flow through ducts and packed beds, cubic sphere array problem 4−52487
forced convection in slow flow through ducts and packed beds, boundary layers in cubic sphere array 4−52488
forced convection mass transfer between vibrating sphere and liquid flow *(French)* 4−52368
forced oscillations in heat- and mass-transfer system with finite transfer rate 4−43205
fron binary mixtures, condensation, heat and mass transfer 4−69901
gas, mixed in aqueous electrolyte, interfacial area and mass transfer simultaneous meas. 4−68853
gas bubbles in water, surfactant influence 4−60245
gas flow around reactive body, non-equilib. chem. reactions, heat-mass transfer *(Russian)* 4−60264
gas injection, supersonic flow, effects of He, Ar, H injection, stagnation conditions 4−81972
gas mixtures, multicomponent, Burnett approx. *(Russian)* 4−56371
gas mixtures, temp. factor effect on heat and mass transfer in flat parallel channel *(Russian)* 4−63533
gas permeability through reacting solutions, perturbation analysis 4−44163
gas sublimation between horizontal plates, heat and mass transfer 4−66572
gas-liquid interface, thermal interaction 4−66573
gas-liquid slug flow in helical coils, chemical mass transfer 4−60242
growing drops, mass transfer enhancement due to circulation 4−56441
heat and mass transfer near rotating surfaces, review 4−78588
hexane-paraffin oil, two-phase flow, effect of mass transfer 4−63612

mass transfer continued
ice-water sublimation into vacuum, temp. jumps and heat and mass transfer over permeable surface 4−52883
inhomogeneous media, compressible dissipative, oscillations-induced mass transfer *(French)* 4−66561
inhomogeneous turbulence, scalar substance transport, stat. theory 4−43948
with instantaneous chemical reaction, moving boundary problem, numerical soln. 4−53968
laminar boundary layer, similarity transformation in heat and mass transfer 4−43931
laminar boundary layer, with free convection on vertical porous surface, heat and mass transfer 4−43960
liquid film, motivated, surface wave effects on triple-phase front of dry path 4−72332
liquid metal, eddy diffusivity, radial and tangential 4−43984
littoral sediment transport, dominant direction along Kashiwazaki Coast, Japan 4−45993
littoral sediment transport pattern in Katsuura Bay, Japan *(Japanese)* 4−45992
local transfer coefficients using holographic interferometry, general principles and appl. to flat plate 4−74192
metal, stress corrosion cracking, minor components mass transfer in crack 4−76465
moisture conduction of material with cyclic temp. variation 4−77568
multicomponent gaseous mixture, absorpt. in presence of instantaneous reaction 4−53960
non-Newtonian fluid, dynamic shape factor in convective heat and mass transfer 4−48203
non-Newtonian fluid, rot. disc mass transfer 4−44149
nonequimolar transfer of matter in film column, gas phase mass transfer 4−52382
oscillating flow, particle motion analysis 4−52484
packed bed, coupled heat and mass transfer, unsatisfied Lewis relation 4−60238
packed bed, liq.-solid mass transfer in liq.-gas upward cocurrent flow 4−60239
partition of organic mixtures by thermal diffusion 4−79174
powder, dry, axial transport in horizontal rot. cylinders 4−50046
pulsation diffusion, diffusion transport, freq. depend. *(German)* 4−63937
pulsation diffusion, general theory *(German)* 4−63936
radioactive corrosion product transport in LMFBR, computer simulation 4−81570
rarefied gas, transport phenomena 4−48327
rarefied gas flow, heat and mass transfer during sublimation 4−44088
refractory particle in thermal plasma, evaporation *(French)* 4−48372
review of 1973 literature 4−75086
rotating disc, exptl. study of heat and mass transfer is laminar, transient and turbulent regimes *(Russian)* 4−60171
simultaneous absorption of two gases reacting between themselves in liq. medium 4−53961
soil, water movements 4−54114
solid particle and liq. in field of oscillations excited by spark discharge 4−45849
static liquid pools, convective disturbances 4−52354
steam condensation in presence of air, heat and mass transfer coeffs. 4−52875
stratified fluid, sustained by oscillations of finite amplitude 4−63587
suspended solid particles in turbulent liquid 4−48365
swirling turbulent boundary layers, prediction of momentum, heat and mass transfer 4−75103
turbulent dispersion, fluid and particle motion, liq. turbulence influence 4−52517
turbulent dispersion, fluid and particle motion, particle-liq. hydrodynamics and mass transfer 4−52518
turbulent dispersion, fluid and particle motion, tracer particle method 4−52516
turbulent gas jet, momentum-, mass- and heat transfer *(German)* 4−75149
turbulent liqs., gas absorpt., chem. react., mass transfer coeff. determ. 4−44166
turbulent nonequilibrium gas flow, dissoc., vibr. relax., heat and mass transfer 4−60266
2U1700-37, X-ray binary, stellar wind accretion onto neutron star 4−54533
vapour transfer through capillary porous body, theory 4−75188
viscous liquids, surface thinning of free films *(Russian)* 4−75687
vortex flow, from channel surface 4−75110
water, adiabatic evaporation, heat and mass transfer analysis 4−67029
wavy liquid films, theoretical analysis 4−44091
wedge flows at large Prandtl and Schmidt numbers *(German)* 4−69569
X-ray binary stars, accretion discs and radiation pressure driven mass loss 4−73776
Ag_3Sn-Hg amalgamation process, SEM obs. of cryst. growth and mass transport, fracture surfaces 4−67803
CO_2 bubbles in Newtonian liquids 4−48357
CO_2 in artificial lungs, continuous meas. system and results 4−58543
$CaMoO_4$, diffusion, in solid-state synthesis 4−45898
Fe and alloys, high-power CO_2 laser influence in oxidising atm. *(Russian)* 4−53735
$I_2 + CO_2$, fast flux I_2 mass transfer in supercritical solvent 4−64723
NO_2, chemically reacting in cooled flat tube, heat and mass transfer in laminar flow *(Russian)* 4−63630
NO_2, chemically reactive laminar flow, heat and mass transfer in triangular rod beam 4−78718
$N_2O_4 \rightleftharpoons 2NO + O_2$ chemically reactive system in turbulent flow, heat and mass transfer calcs. *(Russian)* 4−44169
O_2, to rotating cones in turbulent and laminar flow 4−48194
SiO_2-K_2O melts, interdiffusion coeffs. 4−53811
$SrMoO_4$, diffusion, in solid-state synthesis 4−45898
ZnS(Se)(Te), single cryst., synthesis, chem. transport *(German)* 4−76401

master equation *see transport processes*

materials
- *see also individual materials, e.g. ceramics*
- alloy design, application of materials science, review 4−82795
- cement, lambda tight, for low temp. use 4−50992
- high-pressure research *(German)* 4−45413
- structures, structural dynamics and materials, conf., Las Vegas, USA (April 1974) 4−49553
- technology of inorganic materials, review of plasma processes *(Russian)* 4−70430

materials handling
- *see also fluidised beds; grinding; transportation*
- cargo vehicle design for special nuclear material shipments 4−78298
- fissile material, rods and plates, minimum critical masses in water flooding 4−81684
- fissile material storage, surface density method employing unit shape factor 4−78173
- fissile solutions, accidental excursions, simplified methods of estimation 4−78174
- liquid crystals, microencapsulation in spheres *(German)* 4−63758
- nuclear materials safeguards, security sealing systems 4−78300
- nuclear reactor spent-fuel elements shipping cask 4−81683
- Princeton Reference Design Model fusion reactor fuel handling system 4−55947
- radioactive materials, new developments in accounting and physical protection 4−81688
- radioactive materials in radiochemistry installation, manipulation *(French)* 4−43696
- radioactive materials manipulation, standardized equipment *(French)* 4−43697
- He, liquid, thermal insulation of containers, model *(German)* 4−77057
- ^{192}Ir interstitial therapy, radioisotope storage containers 4−54694

materials testing
- *see also acoustic applications; electron beam applications; insulation testing; laser beam applications; mechanical testing; nondestructive testing; semiconductor materials testing; ultrasonic applications*
- acetal copolymer, uniaxial and rot. bending fatigue tests 4−80158
- acoustic emission, function of strain, Baushinger effect, Kaiser effect 4−64679
- acoustic emission detection of defects using multicollector detection systems *(French)* 4−73396
- acoustic holography techniques, limits to small internal void detect. in solids 4−67963
- acoustic impedance defect (unbond) detection, method for detection impedance measurement *(Chinese)* 4−64663
- adhesion fault detection by nondestructive holographic inspection *(French)* 4−73403
- aeronautic materials, acoustic emission applic. *(French)* 4−73397
- alloy, directionally solidified eutectic, axial extension during cyclic torsion 4−45594
- alloys, for aircraft, microfractographic features and failure analysis *(German)* 4−80167
- alloys, vibrating sample magnetometer 4−68744
- anisotropic annular samples, test procedure 4−80165
- automatic test equipment, review 4−64664
- axial extension in sequence in mutually perpendicular directions, test-piece design 4−64668
- axially bored cylindrical specimens under compressive loads, longit. stability 4−50091
- biaxial expansion testing at low temps., cross-shaped specimen 4−61569
- biaxial stress measurement, high-speed testing machine 4−68622
- bonded materials, u.s. inspection 4−64662
- brittle cylindrical solids, failure under thermal loading 4−64675
- brittle high-strength materials, biaxial compressive load testing device 4−50092
- brittle material, rupture toughness testing 4−67971
- brittle materials, failure prediction using fracture mechanics and acoustic emission 4−73394
- brittle solid, Hertzian ring cracks initiation and propag., fracture toughness eval. 4−64698
- carbonaceous materials, Gruneisen coeff. meas. by electron beam induced stress waves 4−53944
- cast materials, local homogeneity inspection by attenuation meas. of monochromatic X-rays *(French)* 4−73404
- ceramic, acoustic emission generation, microstruct. aspects 4−64695
- ceramic, brittle fracture statistics 4−64692
- ceramic, crack propagation rel. to acoustic emission monitoring 4−64697
- ceramic, failure prediction using acoustic emission 4−45882
- ceramic, fracture mechanics parameters eval. procedures 4−64619
- ceramic, microhardness, reliable average value determ. method 4−53941
- ceramic, static strength testing, error sources 4−64691
- ceramic, subcritical crack growth, component lifetime prediction after proof testing 4−73353
- ceramic, thermal with electric arc, technique and expt. *(Bulgarian)* 4−76557
- ceramic fracture energy determ. using notched-beam test 4−73340
- coatings, on heat resistant alloys, ductility 4−83006
- composite, anisotropic, three-dimens. mech. characteris. 4−76534
- composite, brittle matrix type, with metal inclusions, thermal shock and wear resist. *(German)* 4−53839
- composite, fibre reinforced, microbuckling compression failure 4−49953
- composite, NDT, u.s. spectral analysis technique 4−64636
- composite, testing of adhesion between materials 4−50060
- compression testing device for ring specimens 4−61567
- concrete cubes and cylinders, holographic detection of cracks 4−45883
- connective tissue tensile testing 4−81061
- contact endurance, elevated temp., testing apparatus *(Russian)* 4−53938
- corrosion cracking, device for static or pulsating loads 4−67975
- crack propagation under variable amplitude loading, Willenborg retardation model 4−50107
- creep testing, high temp. vacuum unit 4−61575
- cyclic impact testing device for 20-600°C range 4−61565
- damping properties, soft ductile and elastic materials · 4−50061

materials testing continued
- deformation localization region, true acceleration of deform. determ. method 4−64667
- dielectric and magnetic materials, loss meas. 4−65500
- dielectric films, for semiconductor device manufacture, localised defects analysis 4−49621
- dielectrics, microwave holographic imaging of anomalies 4−51074
- dielectrics, very low loss, spectrometry and recording at submillimetric wavelengths 4−65443
- double cantilever beam test specimen, fast fracture and arrest meas. 4−50120
- dynamic stress generation by pulsed relativistic electron beams, meas. 4−50067
- eddy current inductive probes, effect of ferrite cores 4−64684
- eddy-current technique, calcs. for various bar cross sections 4−64687
- elastomer, finite deformation biaxial testing, miniature load cell instrumentation 4−76559
- elastoplastic strain energy, under pure flexure with rotation 4−50059
- electrodeposit, inspection of embrittlement by acoustic emission 4−67972
- electron microscopy, side entry specimen rod for in situ soft tensile testing 4−45891
- electron spectroscopy, Auger method *(Polish)* 4−70597
- epoxy resin, coating film for electronic packaging, moisture absorption deterioration investigated 4−80115
- experimental mechanics, conf., Los Angeles, USA (May 1973) 4−68613
- fatigue, cyclic loading, rupture energy determ. method 4−64666
- fatigue, h.f., temp. stresses 4−53954
- fatigue, Manson-Coffin formula extension *(German)* 4−50078
- fatigue, Manson-Coffin formula extension *(German)* 4−64671
- fatigue, push-pull, nonpropagating fatigue crack hypothesis applic. to plate with hole notch 4−50054
- fatigue, random, general statistical model 4−50099
- fatigue, statistical spread *(German)* 4−67987
- fatigue, Turbo-4 vibr. testing machine, device for asymmetric load applic. 4−61566
- fatigue, under multiple repeated stress, slip band initiation *(Japanese)* 4−80159
- fatigue crack growth, loading variables effect on acoustic emissions 4−70592
- fatigue crack growth, stress ratio influence, test procedure 4−57798
- fatigue crack growth retardation under aircraft spectrum loads 4−45877
- fatigue crack propagation model based on inverse hyperbolic tangent function 4−50106
- fatigue crack propagation under cyclic loading, elastic-plastic analysis 4−50105
- fatigue curve, total, construction 4−50093
- fatigue testing apparatus for thermal cycling under load 4−67989
- fatigue testing apparatus for vacuum testing down to 77K 4−61573
- fatigue testing machine for axially loaded specimens at high-temps. *(Russian)* 4−57801
- fatigue testing machine for combined bending and torsion 4−70591
- fault depth determ. methods *(French)* 4−73400
- ferromagnetic, straight-through eddy-current convertors, hodograph calcs. 4−64688
- FFTF fuels and core components, NDT 4−81605
- fibre, strain meas. techniques for modulus determ. 4−76564
- fibre optics applic. to fatigue crack development 4−61574
- fine wire, corrosion-fatigue 4−50062
- flat specimen, fatigue study, cyclic mechanical and thermal stresses 4−67969
- flaw detection, ultrasonic 4−67966
- fracture parameter J evaluation test method 4−67967
- fracture propagation and arrest, machine and initial crack length influence 4−50122
- fusion engineering research facility, mirror reactor conceptual design 4−69347
- gamma radiation exposed materials, design of corrosion expts. 4−76566
- glass, microflaw origin and detection 4−64694
- glass ceramic, creep testing method 4−80156
- glass fibre reinforced plastic composites, acoustic emission rel. to tensile failure mechanism *(Japanese)* 4−45766
- glass fibre reinforced plastics, behaviour under biaxial stress, expt. *(German)* 4−80089
- glass reinforced plastics, shear moduli determ. using ring specimens 4−50086
- glass surface, Vickers microhardness characterisation 4−76547
- high-strength materials, specimen prep. by spark erosion machining *(German)* 4−50079
- Homalite-100 plates, impacted edge-cracked, crack propag. and arrest 4−50121
- Hostaphan cylindrical tube, buckling strength prediction from natural frequency 4−57797
- impact testing machine, oscillography use for shock bending 4−61557
- Instron Model 1122 machine *(German, English)* 4−53950
- insulating material loss-angle and permittivity meas., BS 2067 revision 4−65494
- life tests, tables for early decision making in precedence tests 4−57799
- long term strength and creep, material exposed to radiation in corrosive media 4−83007
- lossy dielectrics, dispersive Fourier transform spectrometry at submillimetric wavelengths 4−65444
- LX-04-1, high explosive, viscoelastic tensile failure, multiaxial loading, temp. depend. 4−57812
- mechanical properties, modernised KM50-1 testing machine 4−67973
- mechanoluminescent strength determ. 4−61552
- metal, fatigue fracture under harmonic and complex loads at low temps., apparatus construction 4−53953
- metal, fatigue life under complex cyclic straining into plastic range 4−82883
- metal, hydrogen embrittlement susceptibility, apparatus *(Russian)* 4−53937

materials testing continued
metal, nonmag., residual lattice strain meas. by n.m.r. 4−50073
metal, tensile testing at high deformation rates 4−50065
metal, thin sheet and welded joints in biaxial extension, apparatus *(Russian)* 4−57794
metal fatigue, elimination of fretting corrosion 4−83008
metal film, electrodeposited, durability assessment method 4−50102
metal helmet-head system, impact loading, numerical and expt. study 4−82998
metal properties, magnetic and e.m. methods *(German)* 4−50066
metal strips, symmetrically notched, yield pt. loads 4−45881
metallic biomaterial evaluation 4−64665
metallic materials, u.s. signal analysis applic. to NDT *(French)* 4−73399
metals, e.m. inspection technique, variable freq. method 4−64689
metals and alloys, true tensile strength 4−50056
microdepression, depth of indentation 4−67968
microhardness measurement in liq. metal media 4−61561
moire test grids, in steel 4−83003
neutron radiography with nitrocellulose track detector *(French)* 4−73402
neutron source facility, intense, design using supersonic jet target 4−69348
nondestructive, i.r. radiation application *(Czech)* 4−64669
nonductile pipe, strength determ. device 4−67974
nonlinear viscoelastic media, stress wave propag., short time relax. functions 4−50088
nuclear fuel elements, dimens. changes, neutron radiographs, electronic image analyzer applic. 4−50069
nuclear reactor components, cracks under cladding, u.s. testing *(German)* 4−50081
nuclear reactor materials in liquid sodium, testing device *(Czechoslovakian)* 4−43647
particle erosion, rel. to material variables and parameters 4−50113
plastic, cyclic tests under load, two-component device 4−80164
plastic specimen alignment device for compression testing 4−61571
plastic strain inhomogeneities determ. in thin sheet under tension 4−61556
plastics, fibre reinforced, unidirectional, impact behaviour obs. 4−80162
plastics, glass fibre reinforced, elastic modulus change obs., under tensile sinusoidal and impact stresses 4−82964
plastics, glass fibre reinforced, under pulsating tension test and repeated bending test 4−82965
PMMA, stress crazing behaviour obs. 4−82976
polyacrylamide solution, steady-state and oscill. flow props. 4−57779
polyethylene, low density, normal stress differences using screwless extruder 4−82975
polyethylene oxide solution, steady-state and oscill. flow props. 4−57779
polymer, crack terminal region contour determ. using laser 4−61562
polymer, dynamic modulus determ. by reson. vibr. method, RUIZ-2T instrument 4−53946
polymer, dynamic toughness testing, crack vel. meas. 4−50119
polymer, hardness, penetration depth and indentation diameter relationship 4−50085
polymer, instruments for testing small quantities 4−76562
polymer, rigid, acoustocreep and acoustic fatigue, electron-acoustic apparatus 4−53948
polymer, stress relax., sound vibrs. effect, apparatus construct. *(Russian)* 4−50101
polymer monofilament, compressive deformability in radial direction, multiple apparatus 4−53947
polymer shell, thin-walled, fatigue props. and susceptibility to damage 4−50000
polymers, thermal cond. meas., for electronic device applications 4−76541
polypropylene, low density, normal stress differences using screwless extruder 4−82975
polystyrene foam/paper composite packing materials, test methods *(German)* 4−45885
polyurethane, full-density, nonlinear creep and relax., irregular loading 4−57780
porcelain ceramics, multiphase electrical, fracture mechanics technology applicability 4−73393
powder, shear cell results interpret. 4−50083
protective coatings, diffusion aluminide, nondestructive characteriz. methods 4−50072
quasistatic crack propag. for const. strain energy release rate, stability conditions 4−50100
refractory firebrick, thermal shock test method 4−73361
resonance device, meas. strength of materials, symmetric cyclic tension, compression and bending 4−83005
rupture strength data extrapolation and confidence *(Czech)* 4−50068
Saxton fuel rods for PBF, NDT 4−81607
scintillation defectoscopy using semiconductor measurement circuit 4−76560
semiconductor, strength testing equipment 4−61564
sheet metal formability test with coupon and circular specimens 4−53932
shock extension at elevated temps., testing apparatus *(Russian)* 4−53939
shock wave production with nanosecond laser pulses 4−70588
small-scale test in fracture propag. problems 4−50118
static testing and thermomech. treatment device for 4.2-1200K range 4−61563
steel, brittle-ductile transition, temp. depend. of fracture energy and microfractography applic. limits *(Russian)* 4−53715
steel, C diffusion profile meas. using nuclear microprobe 4−57800
steel, carbide morphology role in low-cycle fatigue behaviour 4−70475
steel, cast Cr-Mo-V type, creep rupture test, influence of slow temp. cycles *(German)* 4−45874
steel, cavitation damage tests correl. with residual stress meas. 4−45876
steel, durability in borax soln., influence of fittings *(Russian)* 4−53940

materials testing continued
steel, fatigue crack propagation, effects of crack length, stress range and minimum stress 4−53931
steel, fatigue notch factors calc., two-parameter formula *(German)* 4−67964
steel, fatigue strength, ultimate number of stress cycles *(German)* 4−64670
steel, fracture and flow stress in partial scale yielding range *(German)* 4−45873
steel, free-cutting billets, manganese sulphides config. determ. by u.s. vel. meas. *(German)* 4−50051
steel, isothermal stress/strain curves, 20-200°C *(German)* 4−50050
steel, low-C, accelerated testing and hydrogen sulphide cracking susceptibility *(Russian)* 4−53731
steel, low-C, crack propag. by stress amplitude below fatigue limit 4−70589
steel, low-C, random loading near-term correl. effect on fatigue behaviour 4−67820
steel, maraging, crack growth, cyclic freq. and corrosive environment effects 4−50115
steel, maraging, sustained load subcritical flaw growth characts. 4−50116
steel, medium-C, torsional prestrain effect on tensile and low-cycle fatigue props. 4−57742
steel, mild, impact fatigue testing 4−50053
steel, mild, random lead fatigue damage accumulation, eddy current inspection 4−76571
steel, mild sheet metal, effect of additional bending on yield point *(Rumanian)* 4−82882
steel, Ni-Cr-Mo-V type, temp. influence on corrosion fatigue crack propag. 4−76475
steel, notched specimens, stress wave emission and plastic work 4−61421
steel, pressure vessel type, acoustic emission spectrum analysis 4−50071
steel, radiographic inspection, Neptune accelerator applic. *(French)* 4−71225
steel, rail type, mean stress effects on fatigue crack growth and failure 4−67822
steel, rimming aged, tensile testing at high strain rates 4−45892
steel, rolled anisotropic plates, biaxial low-cycle fatigue 4−50055
steel, rotatory bending fatigue test, circumferential temp. change effect on strain energy change *(Japanese)* 4−80160
steel, stainless, acoustic emission-damping fatigue 4−76567
steel, stainless, cladding tubes, eddy current testing 4−45890
steel, stainless, kinetic deform. criteria of fatigue fracture, 650°C 4−53952
steel, strain hardening, long- and short-term strength, test temp. influence *(Russian)* 4−45606
steel, strain hardening capability 4−50057
steel, strength and hardness meas. under tension, electromagnetic methods 4−64685
steel, surface cracks detection by microwave methods 4−50074
steel, tubular specimens, stresses involved in tearing *(German)* 4−45875
steel, Type 304, Grade 11 and Grade 22, rupture data extrapolation 4−50098
steel, Type 304, Grade 11 and Grade 22, simulated service exposure influence on rupture strength 4−50097
steel, wear resistance of specimens in friction against grinding stone 4−61560
steel, with protective coating, kinetics of crack development during corrosion-fatigue 4−67970
steel 4140, fatigue crack growth, continuous monitoring by acoustic emission 4−45879
steel components, radiography with radioactive sources, defect detectability 4−64680
steel pressure vessel, high-strength monobloc cylinder type, failure 4−73392
steel wires and cables, u.s. fatigue testing 4−64674
strain rate crack speed relation, steady state processes 4−67979
stress analysis, research *(French)* 4−53951
stress state simulation during plane wave loading using servo-controlled testing machines 4−76558
stress/strain relation for arbitrary loading trajectory, analytic investig. 4−50084
structural materials, wear rate determ. at various angles of attack 4−61559
superplastic material, apparatus design 4−50064
teaching, computer-analysed examinations *(German)* 4−77021
tensile load cell, variable range 4−53945
tensile strips, singly-notched pin-loaded, yield pt. loads 4−45880
tensile testing machine, computer-controlled *(German)* 4−61551
tension test, flow curves determ. *(German)* 4−50049
tensoresistor, calibration over wide deformation range 4−50058
thermal fatigue, hysteresis curves, temp.-load coordinates 4−83004
thermal fatigue tests, strain meas. by photographic method 4−61555
thermal stress studies using holographic interferometry 4−70595
theta-pinch reactor, materials problem evaluation 4−63295
thin film adhesion, scratch test critical load determ. 4−68621
thin-walled shell, device for Vickers hardness meas. 4−67976
three-point bend fracture test pieces, proposed standards, post-yield analysis, finite-element technique 4−67977
triacetate fibre, thermal degradation, multiple extension effect 4−53885
tribology, nuclear and space, National Centre of Tribology, European Laboratory of Space Tribology 4−61572
ultrasonic, mirror-shadow technique, flaw detection probability calcs. 4−57804
ultrasonic detection of fatigue cracks, engineering metal, expt. 4−80163
u.s., propagation continuous time meas. technique 4−64678
u.s. echo method using test samples with artificial defects, errors 4−50094
u.s. echography, B-type, for two-dimens. detection of material inhomogeneites *(French)* 4−73398
u.s. flaw detection, automatic, false signal probabilities, effect of noise 4−57806
u.s. test data, porosity effects *(German)* 4−64672
u.s. test equipment and parameters 4−80166

materials testing continued
viscoelastic materials, short-cycle bending testing equipment 4−61568
Zircaloy, stress/strain relations, plastic deformation around crack tip 4−80036
Zircaloy cladding from Pickering-type fuel bundles, burst testing 4−43674
Zircaloy cladding tubes, quality determ. using stat. eval. of materials props. *(German)* 4−51897
Zircaloy-4, He injected, stress-rupture props. 4−81617
Al, residual lattice strain meas. by n.m.r. 4−50073
Al, tensile tests below 1K, load-elongation curves 4−50089
Al alloy, AU2GN, fatigue crack propagation related to fracture mode *(French)* 4−53762
Al alloy, fatigue crack length meas. by NDT 4−50077
Al alloy 2024-T850, sustained load subcritical flaw growth charact. 4−50116
Al alloy 2024-T851, crack growth, cyclic freq. and corrosive environment effects 4−50115
Al alloy 2219-T87, fracture and cyclic flaw growth, effect of combined modes loading 4−50117
Al alloy 6061-Tb, dynamic yield strength at elevated temps. after pulse heating 4−70590
Al alloy 7050-T73, fatigue crack growth, compressive overload effects 4−50104
Al alloy 7075-T6, crack tip plasticity, specimen geom. effect 4−45590
Al alloy 7075-T6, fatigue growth, continuous monitoring by acoustic emission 4−45879
Al alloy AU2GN, hot fatigue tests, Paris law *(French)* 4−49809
Al sheet with planar anisotropy, Hill generalized strain hardening curve validity 4−76458
Al_2O_3, alumina, acoustic emission meas. during crack propag. 4−67912
B/epoxy composites, fabrication defects effect on struct. integrity 4−49951
Be, textured and spall damaged, residual mech. props. 4−50114
C fibre reinforced plastics, compressive failure modes 4−49952
Cd, single crystal effective shear stress during creep deform. 4−61408
Cu, high cycle fatigue crack propag. rates 4−76565
Cu, tensile loading process investig. using cine camera 4−61558
Fe, sheet, temp. and loading rate influence on fracture characts. 4−61457
GaAs, electrochemical technique for continuous automatic plotting of donor concentration over large depths 4−49578
Nb, hydrogen embrittlement susceptibility *(Russian)* 4−53937
Ni alloys, high temp. creep characts. from limited time tests 4−49833
plastic, repeated shock bending, hysteresis heating and fatigue life 4−76561
Si_3N_4, laser thermal shocking, surface eval. using acoustic emission 4−64696
Ti alloy, ductility correlation with u.s. refls. from geometrical defects 4−50075
Ti-Al-V alloy, fatigue crack growth, compressive overload effects 4−50104
Ti-Al-V alloys, crack growth, cyclic freq. and corrosive environment effects 4−50115
Ti-Al-V alloys, fracture and cyclic flaw growth, effect of combined modes loading 4−50117
Ti-Al-V alloys, sustained load subcritical flaw growth characts. 4−50116
TiC/steel, thin film adhesion, scratch test critical load determ. 4−68621
U alloy castings, densitometric meas. of thickness of defects revealed by γ radiography *(French)* 4−73401
U-Cr alloys, grain size determ. by u.s. attenuation 4−47803
Zn, tensile tests below 1K, load-elongation curves 4−50089
Zr alloy tubing, u.s. detection of irregularly oriented defects 4−83009

mathematical analysis
see also approximation theory; Bessel functions; calculus; eigenvalues and eigenfunctions; Fourier analysis; integral equations; numerical analysis; series (mathematics); transforms
complex variables, use of Hamilton formalism, canonical transformation *(Russian)* 4−55194
conjugation problem, plane with biperiodic system, curvilinear cuts *(Russian)* 4−74217
curve fitting by non analytical method 4−46354
dual series equations involving Jacobi polynomials, soln. method 4−77370
elliptic functions, physical interpretation *(Hungarian)* 4−74218
factor analysis for reactor characts. interdepend. determ. 4−59835
global, applications to general relativity 4−47185
infinite products theorem, appl. to electric pot. distrib. in conducting material 4−59052
isospectral second order differential operators 4−81125
logarithmic potential for space-variable density, local uniqueness of inverse problem *(Russian)* 4−55216
nonlinear oscillations, conference, Poznan, Poland (Aug-Sept. 1972) 4−74234
nonlinear variational problem, lower bounds for crit. values 4−65622
point source in inhomogeneous medium, short-wave asymptotic expansion 4−51295
power-law fluids, nonlinear boundary layer eqns., approx. method of soln. 4−56428

mathematical programming
see also dynamic programming; linear programming; nonlinear programming
structural analysis applic., review 4−59108

mathematics
see also algebra; combinatorial mathematics; convergence; duality (mathematics); equations; functions; geometry; mathematical analysis; number theory; probability; statistics; topology
CAI project, in Hertfordshire schools 4−62396
degree courses in mathematical sciences in Polytechnics and Colleges of Technology 4−58667
designs, partially balanced, 2-associate class, table of 950 4−59036

mathematics continued
history, work of Copernicus *(Esperanto)* 4−42682
negative numbers, teaching models 4−58690
Newton's Principia, publication, editors 4−46534
teaching method for mixed ability classes, changing role of teacher 4−58668

matrices *see matrix algebra*

matrix algebra
aerodynamics appl. of generalised capacity matrix 4−78619
array languages, n-dim., and cryst. symmetry 4−48534
beta-decay of spherical nuclei, calc. of matrix elements of Fermi transitions *(Russian)* 4−51798
Bogolubov canonical transformations, matrix elements determ. by method of four coherent states 4−71419
canonical forms, for symplectic and Hamiltonian matrices 4−55177
Cauchy problem, Petrovskii well posed, estimates from $W_{p,\alpha}$ to $W_{q,\beta}$ 4−51291
charged particle beam optics, matrix elements eval. methods 4−69100
CNDO/2 calcs., improved first guess for density matrix using group theory 4−56733
column dominant matrices, applications 4−77375
computer simulation by density matrix method of repetitively pulsed Fourier transform n.m.r. 4−67420
continued fraction inversion 4−42994
continuously differentiable function subject to auxiliary conditions, criterion for nature of stationary value 4−51289
d^5 electron configuration, corrections in the weak-field matrices 4−69988
D-stability of n by n matrices, n=2,3 and 4 4−65614
differential equations, fourth-order systems, boundary conditions, matrices *(Russian)* 4−55208
distorted wave born approx. matrix element reln. to heavy-ion transfer reactions 4−59798
dynamic compliance matrix of nonlinear systems 4−77503
eigensystem routine package EISPACK, in FORTRAN 4−55176
elastic dielectrics, Galerkin type representations for equations of motion, method of associated matrices 4−55241
elastic-isotropic layered medium, asymmetric load *(German)* 4−51356
electron lens, matrix representation 4−55547
Gauss-bordering method for matrix inversion 4−81115
generalised inverse matrix, eigenvalues *(Russian)* 4−74209
gradient of general energy expression, linear parameter optimisation 4−77337
Hecke operator, trace formula 4−51251
Hermitian quadratic forms, classification in complex Lorentz space *(Russian)* 4−55178
interchange theorem, unification of Dalgarno diagonal and off-diagonal matrix elements 4−62711
inverse of matrices, comparison of some FORTRAN programmes 4−65615
iteration algorithm for solution of inverse eigenvalue problem *(German)* 4−43002
Koshi-Rieman conditions for hypercomplex potentials *(Russian)* 4−55184
Landau electron, free, relativistic problem *(French)* 4−55320
lattice dynamics, Ar and Ne crystals *(Russian)* 4−44629
loudness, non-metric scaling, 7 × 7 matrices, differing stimulus ranges, interstimulus spacings 4−80813
Lyapunov theorem, matrices with spectra in open positive convex cone 4−65613
many-electron wave matrices, eqn. for mean operator values 4−47950
mass matrices derivation 4−59120
matrix elements, variational calc., extremum principle 4−47167
matrix game problem 4−65648
multibin tests, definition and existence of extraneous tests 4−59233
multicentre quantum chemical integrals and matrix elements, computer calc. 4−43796
nuclear three-body effective interactions in f7/2 region 4−59687
nuclear transition matrix elements determ. for quasi-particle states 4−66149
Onsager symmetry relations, hydrodynamic propagating modes, maximum number 4−48188
operator, fractional integration, of two variables 4−47023
oscillator and H atom matrix elements determ. by operator algebra 4−81220
plane square lattice hard sphere problem 4−55380
plasma process $\Gamma \to \nu + \nu$, matrix elements for energy loss 4−60272
positive sign-symmetric matrices proved to be positive stable 4−65611
quaternionic approach of Conway to Dirac-Eddington matrices 4−65757
real matrix $A=I+H$, H skew-symmetric 4−51258
rearrangement scattering, coupled channel operators 4−43747
resonance fluorescence, cross section calcs. using T-matrix scatt. 4−78483
resonance shift calculations, semiclassical and quantum approaches 4−65938
response matrix theory, reciprocity relations from neutron multigroup diffusion eqn. 4−51858
Ricatti equation, solution ordering preservation as independent variable changes 4−43005
rotating spheres in contact, motion anal. *(German)* 4−43113
Schur's lemma on irreducible sets of matrices, application to continuum mechanics 4−43034
singular-perturbation boundary-value problems numerical soln. 4−55222
Smith normal form of partitioned matrix 4−65612
stability of connected linear systems 4−74225
statistical inversion procedure, atmospheric structure determination 4−46020
stellar space distrib., known spectral class, grouped in apparent magnitude, matrix method 4−83203
stiffness matrix, method of construction and solution, finite element method *(Polish)* 4−71326
stiffness matrix, shallow sandwich shell with large deflection 4−68896

matrix algebra continued
stochastic matrix, infinite, of special form, stationary distrib. computation 4−43024
symmetric sparse matrix L-U factorisation, equivalent graph problem 4−59037
T-matrix, pseudopotential equation 4−55330
t-matrix, two-body off energy shell, exact Gell-Mann-Goldberger formula 4−59686
temperature distribution meas., polarised microwave emission 4−46096
terminal rotation matrix representation in variables ω,n($\theta\varphi$) *(Russian)* 4−78019
Toeplitz$_{(\alpha \text{ by } \beta)}$ matrices and statistically periodic processes 4−65646
transformation matrix reln. to finite element anal. 4−74210
two-dimensional harmonic oscillator elements, hyperbolic angular momentum, spherical harmonics 4−74373
unitary Foldy-Wouthuysen transformations for particles of arbitrary spin 4−74549
wave matrices, relationship to wavefunctions of many-electron systems 4−66394
Wigner-Eckart theorem, covariant operator matrix element factorisation 4−51684
(d,d) reactions, polynomial coeff. for vector analysing capability *(Russian)* 4−51835

Matteucci effect *see magnetoelectric effects; magnetomechanical effects*

maximum-demand indicators
see also power measurement
industrial power demand production use of recording instruments *(German)* 4−62491

maximum principle
see also dynamic programming
nonstationary transfer of particles, optimality conditions, nuclear reactor appl. *(Russian)* 4−51870
nuclear reactor optimal control 4−63247
time-optimal motion of rigid body, from Pontryagin's maximum principle *(German)* 4−62675

maxmin technique *see optimisation*

Maxwell-Boltzmann distribution *see statistical mechanics*

Maxwell effect *see flow birefringence*

Maxwell equations *see electromagnetism*

Mealy Moore machines *see finite automata*

mean free path, carrier *see carrier mean free path*

measurement
see also specific measurements, e.g. frequency measurement
see also instruments; recording; units (measurement)
holographic technique 4−77098
metrology in science and technology 4−77022
research and organisation of in France, dimensional metrology developments *(French)* 4−42687
rider card index requirements for meas. equipment laboratory 4−46556
terms definition, MSZ 18200-73 standard specification *(Hungarian)* 4−50943

measurement errors
absorption coefficient percentage error using impedance tube method, linear regression analysis 4−77033
accuracy of measuring magnetic field of earth, method of free nuclear precession *(Russian)* 4−70814
aerosol particle size distrib. meas. by electroprecip. method, particle shape effect on error 4−82992
airport visibility obs. at intervals greater than one hour, errors 4−64917
algorithm for single measurement device *(Bulgarian)* 4−62407
algorithms for least squares parameter estimation rel. to meas. errors 4−65330
arc furnaces, magnetic field and harmonic effects, Clausthal measuring system *(German)* 4−43225
astatic magnetometers, errors in magnetisation measurements 4−80394
atomic absorption error functions, quantitative eval. 4−62642
axisymmetric plasma, refractive-ray bending 4−44390
biomedial section scanning, using orthogonal tangent correction 4−68527
biomedical, fat to lean ratio, using ^{109}Cd, reproducibility 4−46418
colour-measuring apparatus, commercial, three-range process, error calcs. *(German)* 4−54929
comet ageing, brightness decrease, instrumental effects 4−70948
confidence intervals for exptl. correlation functions *(Russian)* 4−50944
dielectric meas. by H_{11} mode circular waveguide, radial gap effects 4−65488
dosimetry, linear accelerator monitoring systems, errors 4−46489
empirical distribution approximation method *(Bulgarian)* 4−46548
flowmeter, due to oscillations *(Japanese)* 4−81102
flux meas., using resonance-ballistic instrument, accuracy improvement 4−51118
foil thickness calibration by X-ray transmission, error, comment 4−73978
foil thickness calibration by X-ray transmission, error, reply to comment 4−73979
geomagnetic secular var. in oceans, randomization principle for error reduction 4−68293
holographic interferograms, electronic processing 4−51070
hot-wire anemometer, effect of fluid property variations on response 4−51241
influence of external factors, precision model algorithm *(Bulgarian)* 4−46547
ionisation chamber, neurons and gamma radiation absorbed doses, determination 4−51155
ionograms, corrections and error estimates of electron density profiles 4−70841
laser Doppler velocimeter measurement, error estimates 4−74189
laser interferometry and alignment, effects of atmospheric fluctuations *(French)* 4−42689
laser wavelength meas., using Fabry-Perot interferometer 4−51082
length, mass, and time, accuracy of fundamental metrology, improvement 4−46565

measurement errors continued
lunar occultation light curves rel. to random limb irregularities 4−54430
magnetic field intensity measurement by method of nutation *(Russian)* 4−68740
meteor echo duration, radar instrument errors 4−68389
modulation transfer function measurement, compensation for transfer function of microdensitometer 4−51098
Mossbauer effect measurement, app. *(Russian)* 4−53345
neutron logging, pulsed, meas. accuracy *(Polish)* 4−58120
nuclear processes, reduction of statistical uncertainties 4−46772
Omega windfinding system for use in GATE 4−80397
optical dividing head, ODG-5E, comparison with other instruments 4−51015
orbital parameters of artificial satellites, accuracy determ. method 4−76923
phase measuring instrument, systematic errors elimination 4−80955
production losses due to meas. errors, minimum risk criterion 4−46549
proton magnetic moment determination, sources of systematic errors 4−47492
quantitative analysis errors classification and minimisation methods 4−62575
radiotelescope confusion and flux-density error distrib. 4−46247
rangefinding, error function determ. for electro-optical and radio methods *(Russian)* 4−64986
reactive power, influence on consumer account *(German)* 4−46546
reference star photographic plate reduction accuracy *(French)* 4−73668
repetitive time interval meas., statistical test method error *(Russan)* 4−68602
reverberant sound meas., causes of random errors 4−74009
semiconductor Hall mobility, influence of magnetoresistance 4−64073
shock-excited oscillatory viscometer, radiation error 4−81107
spectrophotometry, errors in light absorpt. meas. caused by non-monochromatic light, calcs. 4−50946
spectrophotometry, errors in light absorpt. meas. using linear calibration curve, calcs. 4−50947
star positions and proper motions in AGK2-AGK3 *(French)* 4−73667
telescope with auto-collimation, effect of objective aberrations on meas. uncertainty *(German)* 4−74034
thermometer, resistance, self-heating effects 4−80839
transducers, inductive, error reduction for displacement meas., temperature effects *(German)* 4−73976
tristimulus colorimeter, electronic analogue correction 4−54922
tristimulus colorimetry, accuracy improvement methods 4−54921
upper atmosphere rocket expt. errors from desorption of water vapour by rocket surface coatings 4−50401
Volz sunphotometry, turbidity meas. 4−65231
wind, limitations for balloon systems 4−61932
X-ray diffraction, determ. of texture 4−46910
K-Ar dating, orifice correction 4−64978

measurement standards
see also temperature scales
10 kV d.c. voltage divider for absolute volt determ. 4−65353
acoustic noise, report 4−50950
adjustable slot length coupler as calculable attenuation standard 4−65357
atomic beam frequency standards, second-order Doppler and cavity phase dependent frequency shifts, calc. 4−65349
atomic clock and time scale stability and accuracy 4−65373
atomic second measurement to 13 significant figures, Cs beam 4−42697
Ayrton-Jones current balance dynamometer modification for standard ampere 4−65343
capacitance-resistance transfer apparatus with reversed d.c. 4−65345
cell enclosure with 20 μk temperature stability 4−65338
cell test facility, 12 years' performance of automatic system 4−65340
cell voltage meas. automation, prototype crossbar switching system 4−65339
Ceramic Colour Standards, goniophotometric functions and industrial applications 4−54901
Ceramic Colour Standards, international comparison of instruments 4−54819
clock frequency standards, deviation models 4−65358
colorimetric investigations of DIN 6164 system for standard light types C and D65 *(German)* 4−54925
colorimetry, diagnostic reflectance standards 4−54820
density scale based on solid objects 4−73980
1,6-diphenyl-1,3,5-hexatriene, appl. as fluorescence standard 4−72217
dual-beam, digital-incremental spectrophotometers, automatic scale reference system 4−54900
electrical meas., work of Bureau International des Poids et Mesures 4−65361
elemental standards, binary, for quantitative electron microscope microprobe anal. 4−58993
e.m. field, generation using TEM transmission cells 4−80825
e.m.f., standard cell intercomparison automation 4−65336
e.m.f. unit monitoring by a.c. Josephson effect, Canadian expt. 4−65334
far u.v. spectral radiance, calibration 4−51041
fluorescence spectrophotometer for colorimetry of brightened textiles 4−54896
frequency, clockface and mean rate estimation by normal regression theory 4−54818
frequency, H_2 maser development 4−80827
frequency, Rb, light-weight, using 12 W 4−46554
fundamental electrical units of current and resistance, determination and maintenance 4−65352
gamma-ray spectrometer, scintillation, intensity of exposed dose meas., 3mA/2g to 3pA/2g 4−51154
high temperature, wall-stabilised arc 4−50987
inductance measures, h.f., L-0170-2 4−50949
interfacility standard cell calibration by current transfer 4−65337
International Atomic Time, statistical ageing of clocks 4−65359
length, conference, Braunschweig (1973) 4−58734

ABSTRACTS AND CURRENT PAPERS JOURNALS

Three main subject areas are covered by INSPEC abstracts and current papers journals: physics, electrical and electronics engineering, and computer and control engineering. For each field an abstracts journal and a companion titles journal are published. The abstracts journals are intended as library tools for retrospective information retrieval, whereas the companion titles journals, which omit the abstracts and associated indexes, are intended as low-cost current-awareness tools for the individual.

SUBSCRIPTION PRICES

	USA	REST OF WORLD
ABSTRACTS JOURNALS	$	£
PHYSICS ABSTRACTS		
Paper *or* Microfiche	430	165
Paper *and* Microfiche	645	248
ELECTRICAL & ELECTRONICS ABSTRACTS		
Paper *or* Microfiche	325	135
Paper *and* Microfiche	488	203
COMPUTER & CONTROL ABSTRACTS		
Paper *or* Microfiche	180	80
Paper *and* Microfiche	270	120
PA/EEA/CCA COMBINED SUB.		
Paper *or* Microfiche	815	330
Paper *and* Microfiche	1222	495
EEA/CCA COMBINED SUB.		
Paper *or* Microfiche	450	185
Paper *and* Microfiche	675	278
CURRENT PAPERS IN PHYSICS	40 (NM) 20 (M)	20 (NM) 10 (M)
CURRENT PAPERS IN ELECTRICAL & ELECTRONICS	40 (NM) 20 (M)	20 (NM) 10 (M)
CURRENT PAPERS ON COMPUTERS & CONTROL	40 (NM) 20 (M)	18 (NM) 9 (M)
ISMEC BULLETIN	220	80
INDEXES	50	20
METRON	75	30

NOTE: (NM) represents non-member subscription rates.
(M) represents subscription rates for members of IEE, AIP, IEEE, IOP, IERE.

CUMULATIVE INDEXES

Cumulative indexes are available for *Physics Abstracts*, *Electrical & Electronics Abstracts* and *Computer & Control Abstracts*, for both authors and subjects. These cumulations generally cover a period of four years, with the exception of *Computer & Control Abstracts* where the initial volume covered the period 1966–68. The table below shows the prices and periods for the two types of cumulative index.

	PHYSICS ABSTRACTS				ELECTRICAL & ELECTRONICS ABSTRACTS				COMPUTER & CONTROL ABSTRACTS			
	AMERICAS		REST OF WORLD		AMERICAS		REST OF WORLD		AMERICAS		REST OF WORLD	
	Subject	Author	Subject	Author	Subject	Author	Subject	Author	Subject	Author	Subject	Author
	$	$	£	£	$	$	£	£	$	$	£	£
1955–59	50	50	20	20	38	50	15	20	—	—	—	—
1960–64	100	43	40	17	50	30	20	12	—	—	—	—
1965–68	150	75	63	25	88	50	35	20	—	—	—	—
1969–72	545	343	222	140	180	160	72	64	123	78	48	30
1966–68	—	—	—	—	—	—	—	—	38		15	

ORDERING PROCEDURE

THE AMERICAS

North (including Canada), Central and South

All orders from the above areas, and orders from members of Institute of Electrical and Electronics Engineers Inc. anywhere in the world, should be sent to Fulfillment Manager, Institute of Electrical & Electronics Engineers Inc., 445 Hoes Lane, Piscataway, NJ 08854 USA.

REMAINDER OF THE WORLD

All remaining subscriptions should be sent to INSPEC Marketing Department, IEE, Savoy Place, London WC2R 0BL, England. Telephone 01-240 1871, Telex 261176, Telegrams Voltampere London WC2.

OTHER INSPEC SERVICES

SDI

(Selective Dissemination of Information.) This is a service individually tailored to the requirements and interests of the engineer or research worker. Details of information relevant to the interest profile of the individual subscriber are selected from the data being processed for the INSPEC database. Information is dispatched weekly on 150 mm × 100 mm (6″ × 4″) cards.

TOPICS

This is an SDI service based on standard profiles. There are 73 subjects covering high-activity areas of research and development. This is an inexpensive card service designed to alert engineers and researchers to the availability of literature within their subject area.

MAGNETIC TAPES

These are produced, containing all the information included in the INSPEC publications. They enable the larger research and development organisations to produce their own internal information and current-awareness services.

INSPEC
The Institution of Electrical Engineers

ARTICLES FROM LITERATURE YOU DO NOT HOLD?

BOSTON SPA Can help you

IT HAS OVER 43,000 CURRENT PERIODICALS

Most of the journals covered by the INSPEC in:-

Physics Abstracts
Electrical & Electronics Abstracts
Computer & Control Abstracts
ISMEC Bulletin
METRON
Current Papers in Physics
Current Papers in Electrical & Electronics Engineering
Current Papers on Computers & Control
Magnetic Tapes

are readily available

REQUESTS DEALT WITH IN 48 HOURS

Write for further details to:
The Director General
The British Library Lending Division
Boston Spa Wetherby
Yorkshire LS23 7BQ England